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Drone Warfare

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Abstract. Crude drones existed as early as World War I, but the technology matured in the Yugoslav Wars of the 1990s and the current wars around the Middle East. The U.S. first used a weaponized drone in late 2001, in Afghanistan. Drones may cause more or less civilian casualties depending on the targeting protocols employed by their operators. There is an inherent ambiguity in determining who is an insurgent from several thousand feet, but civilian casualties are likely to be higher if targeters emphasize “signature strikes” over “personality strikes,” if they engage in “double-tap strikes,” if they rely too much on local informants, and if they rely too heavily on cellphone identification in the absence of corroboration from other intelligence sources. The legality of drone warfare is fairly clear in established battle zones such as Afghanistan, but is more problematic in terms of both international and domestic law when it comes to drone strikes in countries such as Yemen, Pakistan and Somalia with which the U.S. is not at war. Looking to the future, the U.S. would be well advised to sponsor negotiations for an international drone convention that might establish clear international rules for the use of drones, ban autonomous smart drones, and establish adjudicatory procedures to handle allegations of war crimes.

INTRODUCTION¹

Over the last two decades drones -- also known as Unmanned Aerial Vehicles (UAVs) and Remotely Piloted Aircraft (RPAs) -- have become a vital, and rapidly growing, component of U.S. airpower. The U.S. Air Force currently trains more people to operate drones than conventionally manned aircraft. (This necessitates drafting as drone operators some who would prefer to fly F-16s, B-1s, KC-135s and so on). The best known drones are the MQ-1 Predators (the last of which will be retired from active service in 2018²) and the MQ-9 Reaper drone, both of which are armed with air-to-ground missiles. Although this article will focus on the Predator and Reaper drones, the two weaponized drone platforms, it bears noting that the U.S. also deploys a number of other drones of varying sizes and capabilities, using them for reconnaissance rather than kinetic attacks. The largest and most expensive is the RQ-4 Global Hawk, which can operate at higher altitudes and with more expansive vision than the Predators and Reapers. At the other end of the spectrum, RQ-11 Ravens, WASP-IIS, RQ-20 Pumas, RQ-16 T-Hawks, and RQ-7 Shadows are smaller systems, some hand-launched by forces in the field, that can be used for local tactical surveillance. Nautical drones are also under development.

Weaponized drones have been attractive to US military planners for three main reasons. First, they allow extended flexible aerial reconnaissance in a way that manned aircraft and satellites cannot. Manned aircraft can track developments on the ground, but can only stay in the air for a fraction of the 24 hours of which a Predator is

capable; satellites are confined to programmed orbits that produce serial snapshots of developments on the ground rather than continuous tracking shots, and they cannot see through the clouds below which drones may fly. With their capacity to dwell flexibly in the air for long time periods, drones can track insurgents to see where they go, with whom they meet, and what they do, generating important intelligence about insurgent networks and patterns of life. Second, thanks to GPS technology and a drone's ability to linger in the air, moving slowly while it awaits the opportunity for a clear shot, drones potentially offer great precision in targeting. It is claimed that the Reaper drone, equipped with a wider range of firepower than the Predator, can destroy one room of a house without killing those in other rooms. And, third, drone warfare makes it possible to fight without losing pilots. In the words of General David Deptula, drones "allow you to project power without projecting vulnerability."³ While one can debate whether war is still war if only one side dies (or has instead, as French theorist Gregoire Chamayou claims, become "hunting"), this radical asymmetry of vulnerability is deeply attractive to military planners.

Drones raise important questions about the relationship between embodied vulnerability, the battlefield, and martial bravery that have excited debate within the U.S. military, but lie beyond the scope of this article. This article discusses the operational protocols that guide drone strikes, debates about the legal status of drone operations, disagreements about civilian casualties due to drone attacks, and future horizons in drone warfare, including possible international frameworks to regulate drones. At present there are no international treaties that specifically regulate the use of armed drones.

DRONES 101

The first drones, radio-controlled bi-planes, were developed during World War I, but proved so hard to control that they were not much used. In World War II the U.S. used radio-controlled drones for target practice; it also experimented with kamikaze drones, loaded with explosives, from which the pilots could, in theory, parachute to safety after take-off, while pilots in other nearby planes guided the drones to their targets. (John F. Kennedy's older brother died when one of these drones exploded, as so many did, before he could parachute out). In 1946 the U.S. military sent remote-controlled B-17s to collect samples from mushroom clouds in the first nuclear tests after Hiroshima and Nagasaki.⁴

In the 1960s the U.S. developed the Lightning Bug drone, used during the Vietnam War for surveillance where manned flights would have been too dangerous, mainly over North Vietnam. Usually launched from under the wing of a larger plane, this small drone took pictures as it flew a programmed route, then deployed a parachute and was collected in the air or at sea.⁵

Israel has long been a pioneer of drone technology. During the Yom Kippur War of 1973 Israel lofted drones to draw Egyptian fire, then sent manned planes to destroy the Egyptian missile batteries thus identified. Israel used drones again, during its 1982 war in Lebanon, to scout for targets, and it sold its Pioneer drone to the U.S. for aerial surveillance during the 1991-2 Persian Gulf War.⁶ It was one of Israel's leading drone designers, Abraham Karem, who designed the Predator drone after he emigrated to the United States.⁷

With the Predator, first deployed in 1995, we arrive at the workhorse of the U.S. drone fleet over the last decade. It has a wingspan of about fifty feet, an empty weight a little over 1,000 pounds, a single propeller at the back that can drive it at a maximum speed of 135 m.p.h., and the ability stay aloft for about 24 hours. Much of the \$4 million cost of each Predator goes to daylight and infrared cameras, as well as the eavesdropping and communication equipment it carries. Until 2001 the Predator was used only for reconnaissance and to designate targets, via laser, for attack by manned planes. Since 2001 Predators have carried Hellfire missiles so that they can visually acquire and prosecute targets on the ground without the assistance of other aircraft.

Over time the Predator has been gradually supplanted by the second generation armed drone, the MQ-9 Reaper. First deployed in 2007, the Reaper has a longer wingspan than the Predator, a more powerful engine and, therefore, a higher cruising speed as well as the ability to carry more explosive ordinance. While the Predator conventionally carries just two Hellfire missiles, the Reaper can carry a range of armaments, offering drone operators a greater ability to customize an attack.

The Predator came into its own during the air war over Kosovo in 1998-9. The development of GPS technology and the availability of large quantities of satellite bandwidth made it possible to operate drones from considerable distances while extracting highly accurate information about the location of the drone and targets on the ground in real time. Unlike manned aircraft, drones could stay aloft for up to 24 hours, conducting extended surveillance; unlike most satellites, which pass over targets briefly and at predictable intervals that an adversary can determine, Predator drones could circle recurrently and redeploy, gathering information about patterns of movement and weapons deployments on the ground in flexible and unpredictable routines in response to real-time intelligence. The

disadvantage of drones, on the other hand, is that, with their flimsy airframes and underpowered engines, they are vulnerable to bad weather; also, susceptible to dropped communications contact with their remote operators who, at the best of times, experience a two-to-four second delay in communicating with them, they have a high crash rate. Indeed, according to a *Washington Post* report, an average of over twenty drones per year crashed as recently as 2008-2015.⁸

Although there were occasional suggestions that the Predator could be weaponized to track and strike individual targets on the ground, it was official U.S. policy as recently as mid-2001, just a few months before the 9/11 attack on the United States, to oppose such “targeted killings,” which were seen both as a violation of international law and of President Ford’s ban on assassinations.⁹ Thus, in July 2001, The U.S. ambassador to Israel, Martin Indyk, had condemned Israeli targeted killings of Palestinian operatives by saying, “the United States government is very clearly on record as against targeted assassinations. . . . They are extrajudicial killings, and we do not support that.”¹⁰ Meanwhile, according to the 9/11 Commission Report, CIA director George Tenet was “appalled” at the idea of assassinating people from the sky.¹¹

This changed dramatically after the 9/11 attacks. Operating under the guidance of new legal opinions written after 9/11, U.S. leaders began to use Predator drones to hunt and kill al Qaeda and Taliban operatives in Afghanistan, hoping they might kill Osama bin Laden this way. Soon, drones were being employed by the U.S. in a number of countries, some operated by the Air Force, some by the CIA, and some under the control of the Joint Special Operations Command (JSOC). Many CIA officials, recalling public controversy in the 1970s about CIA assassination initiatives, were initially leery of targeted killing by drone, especially since capturing al Qaeda leaders and interrogating them offered the prospect of actionable intelligence. However, targeted killing by drone became more attractive to CIA leaders after CIA Inspector-General John Helgerson released a report in 2003 warning that senior CIA officials were vulnerable to criminal prosecution in connection with practices of extreme rendition and harsh interrogation practices employed in a network of prisons around the world, including Guantanamo. In Helgerson’s opinion many of the CIA’s interrogation practices violated the United Nations Convention Against Torture.¹²

At the time of writing, the U.S. has used drones to attack targets in Afghanistan, Iraq, Syria, Yemen, Somalia, Libya, the so-called “tribal areas” of Pakistan, and the Philippines.¹³ As has been noted across the muslim world, in every case U.S. drones were used to attack muslims. While the public tends to have an image of drone strikes as attacks where a drone acts alone to hunt down insurgents on the ground, in fact drones more often act in concert with ground troops and other forms of air power. Thus the most heavily drone-bombed country in the world is Afghanistan, where U.S. drones have struck over 1,000 times as part of a wider war effort and about 25 percent of airstrikes in Afghanistan have been conducted by drones.¹⁴

Drone warfare can be broadly characterized as falling into two categories. In **mixed drone warfare** drones constitute part of a broader array of air power, they act in concert with U.S. ground forces, whom they may be protecting against ambush, and attacks are often directed by ground controllers in the thick of combat as much as by detached intelligence analysts on the other side of the world. This is the way drones have been deployed in Iraq and Afghanistan, where they have most commonly been under the control of the U.S. military operating under the international laws of war in what are broadly recognized as war zones. British drones have sometimes joined in these attacks, and other NATO allies have participated in the command structure that directs the strikes. On the other hand, drone strikes in Yemen, Somalia and Pakistan take the form of **pure drone warfare**. Here drones operate outside generally recognized warzones and hunt their prey alone, or in conjunction with small networks of spies or special forces on the ground who help develop targets. Although the leaders of Yemen and Pakistan gave quiet permission for many of these strikes, they denied that they had done so and even, on occasion, publicly condemned them.¹⁵ Because these strikes are directed against countries with which the U.S. is not formally at war, their legal status is contested, and the United States’ NATO allies have generally declined to get involved. These strikes have usually been under the control of the CIA, whose rules of engagement have not been publicly disclosed and are the subject of some public controversy.¹⁶

Regardless of whether they are used in mixed or pure drone warfare, drones are operated through a dual infrastructure of bases and pilots. For most of the time the planes are in the air, they are controlled by three-person teams of operators at U.S. military bases, especially at Creech Air Force based in Nevada. (These operators are, however, just one node in a network of intelligence analysts, military personnel and even military lawyers that may be distributed across the United States, even in different countries, constantly communicating in real time about the imagery and other information generated by an airborne drone). But the planes themselves are physically headquartered at bases near their area of aerial operations. Crews at these bases maintain and fuel the planes. And, since “the two-second delay between a pilot moving a joystick in Nevada and an aircraft responding in Afghanistan is enough to cause a crash during take-off and landing,” takeoffs and landings are handled by operators at these local

bases, who hand control of the aircraft over to U.S. based crews after half an hour, then resume control before landing.¹⁷ Countries in which the U.S. is known to have based drones include Afghanistan, Iraq, Djibouti, Pakistan, Italy, Turkey, Mauritania, Qatar, the Seychelles, Tunisia, the United Arab Emirates, Burkina Faso, Chad, Ethiopia, Kuwait, Niger, Somalia, Saudi Arabia, and Uzbekistan.¹⁸

OPERATIONAL PROTOCOLS AND CIVILIAN CASUALTIES

Both critics and defenders of drones err in speaking of them as if they have an essential, inherent character when it comes to civilian casualties. Critics often represent drone strikes as inevitably producing large numbers of civilian deaths, while drone defenders often speak as if drones' potential to strike with high levels of precision and discrimination is invariably realized in practice. In fact, the degree to which drone strikes kill insurgents and spare civilians is highly dependent upon the targeting protocols employed, and these can be complex and variable. These operational protocols vary between the U.S. military and the CIA, and they have varied over time as well, becoming stricter toward the end of the second Obama Administration in response to a number of incidents in which several civilians were killed.

In 2013 CIA director John Brennan said, "We only authorize a particular operation against a specific individual if we have high confidence that the individual being targeted is indeed the terrorist we are pursuing... This is a very high bar. Of course, how we identify an individual naturally involves intelligence sources and methods, which I will not discuss."¹⁹ This gives the impression that all U.S. drone strikes are what are known as **personality strikes**: strikes against individual leaders whose records have been vetted before they were placed on a death list, and who are then matched in real time with particular individuals on the ground in the cross-hairs of a drone. But, thanks to leaks to journalists, we now know that most drone strikes are not personality strikes, but **signature strikes** (a term that was classified until it was widely reported in the media). In signature strikes, people are targeted not because they are a confirmed individual on an official target list, but because they exhibit a behavioral signature that has become associated with insurgents or that looks suspicious to a drone operator watching through a camera several thousand feet in the air. Any "military aged male" can be an object of suspicion, especially if he appears armed (although civilians often carry guns in Afghanistan and Pakistan), if he appears to be digging, or if he is in a meeting with several other military aged males. According to one source men in Afghanistan or Pakistan observed to urinate while squatting rather than standing up may be killed because drone operators associate this behavior with Arab men, who are more likely to be "foreign fighters" for al Qaeda.²⁰

Some behavioral signatures are quite simple to interpret: for example, someone observed firing on U.S. soldiers is clearly a hostile combatant, whether their identity is known or not. But the potential for misinterpretation, especially when discerning the intent of people from a different culture from the other side of the world, is demonstrated in a tragic story told, following a successful Freedom of Information Act request, by *Los Angeles Times* reporter David Cloud. In February 2010 a group of Afghan civilians had set out on a long trip before dawn, driving in convoy. They included shopkeepers buying supplies, students returning to school, and villagers visiting relatives or seeking medical treatment. Their convoy had the misfortune to be driving in the vicinity of a U.S. special forces team when radio intercepts suggested insurgents might be planning to attack them. A Predator drone was overhead, monitoring the area for insurgents. When a drone operator in Nevada first spotted the Afghans on the ground, they seemed to be kneeling on blankets. "Praying? I mean, seriously, that's what they [i.e. insurgents] do," said one drone operator. Another member of the team thought he caught the glint of a gun barrel in one of the pickup trucks, though the team was not completely sure about this. When one driver on the ground flashed his headlights at another, the pilot of an AC-130 above radioed that the two vehicles were, as one would expect of insurgents, "signaling." Assumptions (that turned out to be wrong) that the people were all "military age males" also excited suspicion. One person involved in the incident would later say, "we all had it in our head, 'Hey, why do you have 20 military age males at 5 a.m. collecting each other?' There can be only one reason." The drone struck and the U.S. now concedes that it killed at least fifteen civilians. According to Afghan villagers, it killed 23 civilians including three and four year-old children.²¹

The likelihood of civilian casualties is still higher in **double-tap strikes** – a controversial practice reportedly employed on occasion by the CIA in which drone operators strike those rescuing the victims of a drone strike, or attending their funeral, on the assumption that people rescuing or mourning insurgents are likely themselves to be insurgents.²² Of course, they may also be good Samaritans or relatives of insurgents who are not themselves insurgents. In any case, the employment of "double-tap strikes" has now reportedly caused behavioral changes in Yemen and Waziristan, where bystanders often wait before pulling people out of the wreckage left by a drone strike.

In Waziristan, a "tribal area" of Pakistan on the border with Afghanistan that is the size of Rhode Island and has absorbed roughly 400 drone strikes, the CIA also relies on local paid informants to help identify and locate insurgent

leaders according to investigative journalists.²³ Former senior State Department official Lawrence Wilkerson has claimed that bounties paid to such informants can go as high as \$5,000 – several years’ income in Waziristan.²⁴ While it is clear that CIA drone strikes in Waziristan have killed a large number of insurgents, there is also cause for concern here. The Pakistani-American anthropologist Akbar Ahmed points out that local informants tempted by large sums of money may finger innocents as a way to get the bounty, or use CIA drones as an opportunity to settle feuds, getting rich and eliminating the neighbor with whom they’ve been feuding for a decade in one blow.²⁵ This is not implausible since we now know that a number of detainees sent to Guantanamo on the basis of tips from local informants in Afghanistan turned out to be innocent victims of local disputes²⁶.

And, to return to where we began, what of “personality strikes” – those gold standard strikes on confirmed, identified insurgent leaders? One might assume that the error rate in such strikes – attacks on identified insurgent leaders on a named list of targets – would be low. However, the human rights organization Reprieve tracked official U.S. announcements of successful kills and found forty-one cases where the same “high-value” insurgent leader was declared dead in more than one drone strike. The report observes scathingly that these men “seemed to have achieved the impossible: to have ‘died’ in public reporting not just once, not just twice, but again and again. Reports indicate that each assassination target ‘died’ on average more than three times before their actual death.”²⁷

This begs the question of how drone operators, in a situation where their cameras lack the resolution to identify individual faces, come to believe that a person on the ground is a match for someone on their “kill list.” When they do not rely on local informants, drone operators often identify insurgent leaders by tracking their cell phones. Sometimes this can be remarkably successful as in the first U.S. drone strike in Pakistan, in 2004, which killed the Pakistani Taliban leader Nek Mohammad, shortly after he gave away his location by giving an interview to the BBC on his cell phone.²⁸ But people may borrow one another’s cell phones; moreover, insurgent leaders soon learned that they could be tracked through their cell phones, so many began to switch sim cards, even giving sim cards and cell phones they believed to have been compromised to children and other civilians in the expectation that their deaths would discredit the United States in the propaganda war. There have been disputes within the NATO command structure over the strictness of protocols for confirming that a cell phone known to have been used by an insurgent in the past is at this moment in the hands of the same insurgent, with German commanders complaining that American protocols of verification are too permissive.²⁹

It is hard to estimate accurately the number of civilians killed in drone strikes. Reports from journalists or human rights activists in Pakistan and Afghanistan may be exaggerated, but official U.S. assessments (done largely by the drone operators themselves) have their own liabilities: drone operators may not know how many civilians lie inside collapsed buildings and, in a war where insurgents do not wear uniforms, they have used a flawed methodology that “counts all military-aged males in a strike zone as combatants... unless there is explicit intelligence posthumously proving them innocent.”³⁰ There is a further problem in that it may be wrong to speak of people as if they either are or are not insurgents, or as if their actions bespeak an ideological commitment to the insurgent cause. We know from journalists who have gained access to insurgents that people may work for the insurgents one month, but not the next, doing tasks for local insurgents if directed to do so by a clan leader with shifting allegiances, or if they need the money they will be paid for planting an IED. In other cases, insurgents may offer some local men a choice between joining them or being beheaded. As journalist Steve Coll says, “a young man of military age holding a gun outside a *hujra* might be a motivated Taliban volunteer, a reluctant conscript, or a victim of violent coercion.”³¹

We should bear these caveats in mind as we assess varying estimates of civilian casualties from drone strikes. In 2016, the Obama Administration finally released an official estimate that drone strikes in Somalia, Yemen, Pakistan, and Libya had killed between 64 and 116 civilians, though this claim was met with widespread skepticism by journalists who had been covering the drone campaign.³² (And it bears noting that the Obama estimate excludes Afghanistan, where over three quarters of U.S. drone strikes have taken place, as well as Iraq and Syria). Independent think tanks that track drone attacks put the numbers of civilian dead considerably higher. The New America Foundation (which only counts casualties confirmed by two independent and reputable media sources) estimated 376 to 474 civilian dead in Pakistan, Yemen and Somalia.³³ The Bureau of Investigative Journalism (which draws on a wider array of sources, including field investigations) estimates civilians dead at between 301 and 780 – a number over six times higher than the White House’s.³⁴

Whichever number one prefers, it seems clear that the proportion of civilian casualties declined in the last two years of the Obama Administration as targeting protocols were changed in response to drone strikes that had clearly killed significant numbers of civilians. Quite apart from humanitarian considerations, U.S. national security officials became concerned that popular anger arising from the killing of innocent civilians would make it easier for insurgents to enlist more recruits. The shift from Predators to Reapers helped here, since Reapers carry a wider array of firepower, including smaller ordinance that produces a smaller radius of destruction on the ground. Drone

operators were also instructed to favor attacks on vehicles over attacks on houses, where unseen innocents were more likely to die. And stricter standards were adopted in confirming the identity of high-value targets.³⁵

LEGAL QUESTIONS

The legal issues surrounding the use of drones on regular battlefields in what I am calling “mixed drone warfare” are relatively simple: here drone operators must follow the same general laws of war – not deliberately targeting civilians, making sure civilian deaths are proportionate to legitimate military objectives – that would guide the pilots of F-16s or Apache helicopters, for example. (In this regard, “double-tap” strikes, targeting with a follow-up missile those who rescue the victims of a drone strike, have proved particularly controversial. UN Special Rapporteur Christof Heyns has concluded that they constitute “a war crime in armed conflict and a violation of the right to life.”³⁶) The more complex issues arise in connection with “pure drone warfare” – blue-sky attacks outside a clearly defined theater of battle against the territory of countries with which the U.S. is not in a formally declared relation of war. These principal countries in question here are Yemen, Somalia, and the “tribal areas” of Pakistan. A number of international jurists, NGOs, and some American commentators (both Republican and Democrat) have claimed that drone strikes in Yemen, Somalia and Pakistan contravene international and domestic law, though these claims were vigorously disputed by the Obama Administration. The legal issues at stake can be grouped into two categories: those pertaining to international law and those pertaining to U.S. domestic law.

According to the UN charter, nations can legitimately use force on the territory of other nation-states only if they are authorized to do so by the United Nations, if they have been attacked, if they are acting to preempt an “imminent” attack on themselves, or if they have the consent of the other state to do so. Drone strikes in Yemen, Somalia and Pakistan have clearly not been authorized by the United Nations, and drone strikes in Somalia have been carried out in the absence of permission from any governmental entity there, but the Yemeni and Pakistani cases are more complicated. There is ample evidence that President Saleh of Yemen and Prime Minister Musharraf of Pakistan made deals in which they gave permission for U.S. drone strikes, at least in many cases, as long as this permission was not publicly advertised. (In Pakistan the U.S. was supposed to notify the Pakistani government of drone strikes ahead of time, but then started striking without notification as it grew more frustrated with Pakistan’s intelligence services, which it believed to be collaborating with insurgents).³⁷ In the Pakistani case, at least, this raises the question of whether the Prime Minister had the legal ability to permit such strikes on his own authority since, in 2012, both Houses of Parliament in Pakistan voted to demand an immediate end to the drone strikes. There is also the question of whether Pakistan’s government could authorize strikes on the “tribal areas,” which were semi-autonomous regions. This led UN special rapporteur Ben Emmerson to conclude that, regardless of the continued cooperation of Pakistan’s military and intelligence institutions, as a matter of law, “the continued use of remotely piloted aircraft in the Federally Administered Tribal Areas amounts to a violation of Pakistani sovereignty, unless justified under the international law principle of self-defence.”³⁸

International law also allows nations to use force to defend themselves against an imminent threat. In a much quoted phrase that has survived from a celebrated legal case in 1842, the threat of impending attack must be “instant, overwhelming, and leaving no choice of means, and no moment of deliberation.”³⁹ For most lawyers, the paradigmatic example of this would be troops massing across the border, obviously preparing to attack. The U.S. has taken the position, unpersuasive to many international lawyers, that the existence of al Qaeda by definition constitutes an imminent threat and that there is therefore no need to demonstrate an imminent threat from the particular individuals or groups of individuals targeted by drones, even if their actions seem focused on local objectives.⁴⁰

For the use of military force to be defensible under international law, not only must an attack be in progress or imminent, but it must be undertaken by an organization recognizable as a military force. (Thus an attack on a US embassy by a spontaneous mob would not constitute cause for war). UN special rapporteur Ben Emmerson defines an organized armed group as one that has “at least a common command structure, adequate communications, joint mission planning and execution, and cooperation in the acquisition and distribution of weaponry.”⁴¹ Emmerson, together with UN special rapporteurs Philip Alston and Christof Heynes, finds U.S. drone strikes illegal under international law on the basis of this criterion. This enunciation of international law is grounded in what we might call the “classic” vision of war as a contest between regular armies whose members are full-time soldiers. This definition of legitimate targets is harder to square with the practice of guerilla war where fighters do not wear uniforms, and they may drift in and out of an insurgency, taking up fighting as an occasional or part-time vocation. Guerilla war also is often practiced by decentralized networks of loosely affiliated groups rather than an

organization coordinated by a military bureaucracy, leading some U.S. officials to claim that international law has been rendered obsolete in this regard and that it is unreasonable to hold the U.S. to an obsolete standard.

In terms of U.S. domestic law, the White House did not request Congressional approval under the War Powers Act to conduct military operations in Somalia, Pakistan or Yemen, but they claimed that such action was already authorized through the Congressional Resolution on the Authorization for the Use of Military Force (AUMF) issued immediately after the 9/11 attacks. The AUMF authorized the President “[t]o use all necessary and appropriate force against those nations, organizations, or persons he determines planned, authorized, committed, or aided the terrorist attacks that occurred on September 11, 2001, or harbored such organizations or persons, in order to prevent any future acts of international terrorism against the United States by such nations, organizations or persons.”⁴² While successive U.S. administrations have seen in this language a blank check to conduct military operations anywhere in the Middle East, others have questioned how this can be taken to allow drone attack on Colonel Ghadaffi’s Libyan regime and on ISIS – both avowed enemies of al Qaeda.⁴³

There has also been controversy over the use of drones to kill U.S. citizens without a judicial procedure in which they can question the evidence against them. To date the following U.S. citizens have been killed in drone strikes: Kemal Derwish, Anwar al-Awlaki, Samir Khan, Abdulrahman al-Awlaki (who was 16 at the time of his death), Jude Kenan Mohammad, and Warren Weinstein. While most of these deaths appear to have been accidental, a number of legal commentators in the U.S. were upset by the targeted killing of a U.S. citizen, Anwar al-Awlaki, on September 30, 2011.⁴⁴ Although there can be little doubt that al-Awlaki had made al Qaeda’s cause his own, his government killed him without proving in court that his acts went beyond anti-American speech that might, despite its odious content, be protected by the First Amendment. Al-Awlaki preached vitriolic sermons against the U.S., helped produce the al Qaeda magazine *Inspire*, and was associated with a number of people who had carried out, or attempted, attacks on American targets: two of the 9/11 hijackers, the U.S. army psychiatrist (Nidal Malik Hasan) who shot thirteen people at the Fort Hood military base, and the Nigerian “underwear bomber” (Umar Farouk Abdulmutallab) who attempted to destroy a U.S. jetliner on Christmas day 2009. The U.S. claimed that al-Awlaki had become an “operational commander” of al Qaeda, though it has never made public its evidence for this claim, and that no judicial process is required to kill an American who is fighting with the enemy on the field of battle.

CONCLUSION: LOOKING TO THE FUTURE

On the one hand, drones offer the possibility of a more discriminate conduct of warfare, sparing the lives of innocent civilians, because of the deliberateness and precision with which they can strike. On the other hand, because they can be deployed semi-secretly and can kill people from the air in countries where the U.S. has no ground forces, they tempt presidents to use military force at or beyond the legal limits of international and domestic law, and to use force in situations where their predecessors would have been deterred by fear of casualties. (One thinks of President Reagan withdrawing U.S. troops from Beirut in 1983 and President Clinton withdrawing from Somalia after nineteen US servicemen died there in 1993). In the absence of any international norms or treaties regulating the use of drones, the George W. Bush and Obama Administrations have established a permissive template for their use that future administrations may regret if other countries similarly declare the right to attack countries with which they are not formally at war on the basis of rules of engagement that are closely held. In this context it bears mentioning that, according to the GAO, 76 other countries already have some sort of drone capability.⁴⁵ Meanwhile sub-state organizations such as Hezbollah and ISIS have already used crude tactical drones in their own military operations.

Looking to the future and extrapolating current political and technological trends, it is reasonable to expect (unless we take action to prevent it) that still more countries will acquire drones, and terrorists will start to use simple store-bought drones equipped with guns, explosives or chainsaws⁴⁶ for terrorist attacks within the United States and elsewhere while the U.S. military develops lethal micro drones disguised as birds or even insects whose use may plausibly be denied, as well as smart drones that can act in autonomous swarms without human direction. If autonomous smart drones are developed, they will raise the question of who or what is legally and morally responsible if a war crime is committed.⁴⁷

We are only beginning to think about what drone arms control might look like, but here are some measures that would surely be worth debating: a ban on autonomous drones of the kind advocated by the International Committee on Robot Arms Control (ICRAC);⁴⁸ an explicit ban on double-tap strikes; a requirement that drone strikes be confined to recognized war zones or to countries that have given public, written permission for such strikes to go forward on their territory; international codification of targeting protocols in terms of best practices; a ban on police use of lethal (as opposed to surveillance) drones for law enforcement purposes; and a requirement that all video

footage and operator communications leading up to a drone strike be archived and deposited with an international authority (modelled on the IAEA) that could adjudicate allegations of war crimes. Some will say that it is fanciful to think that any such measures could be feasible, but the alternative is an anarchic mess of practices that may act as a solvent on the international laws of war. In the cases of the Comprehensive Test Ban Treaty, the Nuclear Non-Proliferation Treaty, the Landmine Treaty, and the Convention on Cluster Munitions, bold multilateral arms control treaties have proven possible, even if they do not obtain completely universal adherence, and they have established new international norms in the process. What country would be in a better position to lead the way to an international convention on drone warfare than the one with the most knowledge and experience in this area, the United States?

¹ This article draws in parts on Hugh Gusterson, *Drone: Remote Control Warfare*, Cambridge, MA: MIT Press, 2016.

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³ Quoted in Gregoire Chamayou, *A Theory of the Drone*, New York: New Press, 2015, p.12

⁴ Lone Wolf Media, *The Bomb*, PBS 2015. <http://www.pbs.org/program/bomb/>

⁵ Adam Rothstein, *Drone*, London: Bloomsbury, 2015, pp.28-30.

⁶ Gregoire Chamayou, *Theory of the Drone*, p.27; Rothstein, *Drone*, p.31.

⁷ The Economist, "The Dronefather," *Economist*, December 1, 2012 <http://www.economist.com/news/technology-quarterly/21567205-abe-karem-created-robotic-plane-transformed-way-modern-warfare>

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⁹ Daniel Klaidman, *Kill or Capture: The War on Terror and the Soul of the Obama Presidency*, Boston: Houghton Mifflin Harcourt, 2012.

¹⁰ Jane Mayer, "The Predator War," *New Yorker*, October 26, 2009, <http://www.newyorker.com/magazine/2009/10/26/the-predator-war>

¹¹ Brian Glynn Williams, *Predators: The CIA's Drone War on al Qaeda*, Potomac Books, 2013, pp.24-5; National Commission on Terrorist Attacks, *9/11 Commission Report*, 2004, pp.210-14. <http://911.gnu-designs.com/>

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¹⁴ Alice Ross, "Who is dying in Afghanistan's 1,000-plus drone strikes?" July 24, 2014.

<https://www.thebureauinvestigates.com/2014/07/24/who-is-dying-in-afghanistans-1000-plus-drone-strikes/>

¹⁵ Klaidman, *Kill or Capture*; and Mazzetti, *The Way of the Knife*.

¹⁶ The distinction between mixed and pure drone warfare is developed in greater detail in Hugh Gusterson, *Drone*.

¹⁷ Bob Blackhurst, "The Air Force Men Who Fly Drones in Afghanistan by Remote Control," *Daily Telegraph*, September 24, 2012, <http://www.telegraph.co.uk/news/uknews/defence/9552547/The-air-force-men-who-fly-drones-in-Afghanistan-by-remote-control.html>

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