Do drones present new military opportunities or are they simply an updated technological variant of age-old weapons and tactics?

STRATEGIKA

CONFLICTS OF THE PAST AS LESSONS FOR THE PRESENT

From the Working Group on the Role of Military History in Contemporary Conflict at the Hoover Institution
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Military History in Contemporary Conflict

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Working Group on the Role of Military History in Contemporary Conflict

The Working Group on the Role of Military History in Contemporary Conflict examines how knowledge of past military operations can influence contemporary public policy decisions concerning current conflicts. The careful study of military history offers a way of analyzing modern war and peace that is often underappreciated in this age of technological determinism. Yet the result leads to a more in-depth and dispassionate understanding of contemporary wars, one that explains how particular military successes and failures of the past can be often germane, sometimes misunderstood, or occasionally irrelevant in the context of the present.

Strategika

Strategika is a journal that analyzes ongoing issues of national security in light of conflicts of the past—the efforts of the Military History Working Group of historians, analysts, and military personnel focusing on military history and contemporary conflict. Our board of scholars shares no ideological consensus other than a general acknowledgment that human nature is largely unchanging. Consequently, the study of past wars can offer us tragic guidance about present conflicts—a preferable approach to the more popular therapeutic assumption that contemporary efforts to ensure the perfectibility of mankind eventually will lead to eternal peace. New technologies, methodologies, and protocols come and go; the larger tactical and strategic assumptions that guide them remain mostly the same—a fact discernable only through the study of history.

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STRATEGIKA

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Drones: Old, New, Borrowed, Blue

By Thomas Donnelly

In 1907, just four years after the Wright Brothers had flown a few hundred yards across the beaches of North Carolina, H. G. Wells imagined *The War in the Air*. In Wells' dark fantasy, the German Empire employs a fleet of airships to preemptively attack the United States, its only potential scientific, industrial, and geopolitical peer. The German target was New York.

> Something had dropped from the aeroplane, something that looked small and flimsy. A little man was sprinting along the sidewalk within half a dozen yards, and two or three others and one woman were bolting across the roadway. They were odd little figures, so very small were they about the heads, so very active about the elbows and legs. It was really funny to see their legs going. Foreshortened, humanity has no dignity....
>
> Then blinding flames squirted out in all directions from the point of impact, and the little man who had jumped became, for an instant, a flash of fire and vanished—vanished absolutely. The people running out into the road took preposterous clumsy leaps, then flopped down and lay still, with their torn clothes smouldering into flame....
>
> In this manner the massacre of New York began. She was the first of the great cities of the Scientific Age to suffer by the enormous powers and grotesque limitations of aerial warfare.

The experience of World War I, in which the limitations of air power quickly became apparent, did little to stem the enthusiasm for what was thought to be a revolution in the art of war. Even supposedly professional military literature tended toward a combination, as Phillip Meilinger

has written, of "boy's adventure story and the apocalyptic vision of future war." Thus Major General James E. Fechet, who had been the chief of the U.S. Army Air Corps, could write in 1933:

> It takes no grazing into a crystal ball to visualize a huge trade center such as New York City completely paralyzed if not entirely destroyed, razed and depopulated in a single day by a very few flying machines.... Obviously the airman, riding so high above the earth that cities look like ant hills cannot aim his deadly cargo at armed males. All below will be his impartial target...the women and children and working men, extra-military, are the ones who will suffer. Extended areas will be completely depopulated. We may safely forecast that the next war will be won or lost by air effort.

British Air Commodore L. E. O. Charlton put Fechet in the shade by writing three books on "how air attack would turn urban populations into panic-stricken mobs." By 1937's *The Menace of the Clouds*, Charlton "had so frightened himself with these tales of catastrophe" that he called for complete air disarmament, with the League of Nations commanding an international air force lest any country attempt a Wellsian preemption.

The present day has been equally disposed to see epochal change on the horizon. The "revolution in military affairs" of the 1990s saw in the proliferation of information technologies, leading to a "transparent battlefield" dominated by long-range precision strike systems. In 2001, newly elected president George W. Bush selected Donald Rumsfeld to be his "secretary of transformation" at the Pentagon. In place of an assertion of traditional U.S. national security goals or an assessment of external "threats," Rumsfeld called for a "capabilities-based approach." In *Foreign Affairs*, he explained: "It's like dealing with burglars: You cannot possibly know who wants to break into your home, or when. But you do know how they might try to get in."

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The failures of the Rumsfeld Way of War in Iraq and Afghanistan have done nothing to quell the impulse to view modern war as a profound departure from the past. Even the terrorists and insurgents—who used the Internet for everything from recruiting to command and control, airliners as guided missiles and car bombs as "improvised explosive devices"—were thought to be uniquely innovative. And the worldwide web itself has become a new "domain" of "cyberwar."

But nothing has captured the public imagination or excited the futurists more than unmanned systems. The *Star Wars* series has come to life in the Age of Drone Wars. And like H. G. Wells and the air-power advocates of the early 20th century, today's drone-power theorists combine hyperbole with analysis. Writing in the *Wall Street Journal* this past March, Robert Latiff and Patrick McCloskey warned that "America [was] approach[ing] the Robo-Rubicon" and that the increasing use of unmanned systems was "part of a revolution in war-fighting." David Cortwright lead a debate sponsored by the Cato Institute by declaring that the "accelerating use of drones has opened a new chapter in the history of warfare." Anna Mulrine wrote of "war's remote-control future" in the *Christian Science Monitor*. Even the relentlessly sober *Economist* predicts that "the future of air power belongs to unmanned systems."

While there's no question that unmanned systems, particularly unmanned aerial systems, have played a large role in the counterterrorism campaign of the past decade, it's critical to distinguish between which features of the drone war are contingent and thus likely to be transitory and which are indicative of a larger trend. And, indeed, what may prove most permanent is the way

in which the use of unmanned systems is changing American and Western attitudes about the use of military power. It's this last question that may contain the real revolution.

The increase in the use of unmanned aircraft by the U.S. military over the past decade has been truly stunning. The total number of drones flown by the four American services numbers in the thousands and there is a huge variety of types. But the flagship and workhorse of the unmanned fleet, without question, have been the MQ-1 Predator and its big brother, the MQ-9 Reaper, both built by the aeronautical branch of General Atomics, which itself was once a division of General Dynamics known for its nuclear research. These two aircraft were originally used as reconnaissance systems, but with the addition of various munitions, beginning with the laser-guided Hellfire missile—an antitank missile developed for the Apache attack helicopter—the hunter also became a killer. The larger Reaper has a payload several times that of the Predator.

The Predator and Reaper combine a particular set of capabilities, but especially the ability to loiter slowly over a small area, that suited the needs of both the U.S. intelligence community and the military as operations in Afghanistan and Iraq became protracted irregular conflicts intertwined with the global manhunt for Osama bin Laden and other senior terrorist leaders. The Obama Administration, always looking to emphasize counterterrorism over counterinsurgency, turned to drones in an even bigger way. By the end of 2011, the U.S. Air Force had established a requirement for 240 drone "orbits" or "CAPs"—that is, unmanned "combat air patrols"—each consisting of four Predators or Reapers. Taking into account spares, losses and maintenance requirements, the total would exceed 500 aircraft.

The Air Force also has built a number of larger drones with longer range and more sophisticated capability. The most prevalent of these is the RQ-4 Global Hawk, but there has also been a rapidly evolving family of long-range, low-observable "Tier III" unmanned aircraft, the RQ-3 "Dark Star," the RQ-170 "Sentinel" (which crashed in Iran in December 2011), and now the RQ-180, the

subject of much speculation in the aviation and defense press. The need for these Tier III aircraft also points out one of the critical limitations of the Predator and Reaper. They cannot survive in "contested" air space, in the face of functioning—let alone sophisticated—modern air defense systems. Thus, as the mission in Afghanistan, in particular, winds down, the Air Force and the other services have an unbalanced fleet, with far too many low-end drones and not enough high-end ones of the sort that would be most useful for operations in East Asia, for example.

Current drone operations demand clear airwaves and clear near-earth space as well as clear skies. Even the most sophisticated and stealthy unmanned aircraft are controlled from command centers such as Creech Air Force Base in Nevada. Video and other signals sent by the drones must be relayed—mostly by satellite—to the center and instructions, including firing instructions, back to the aircraft. Already these signals are subject to "latency" because of the great distances involved, and the satellites themselves are vulnerable to electronic warfare, dazzling, or kinetic anti-satellite weapons.

In sum, the cost and effectiveness of drone operations is a much more complex equation than enthusiasts care to consider. The cost of a Predator is indeed a fraction of an F-16 or an F/A-18, but so is its utility. Global Hawks are more expensive than these "fourth generation" planes, and the costs of the Tier III drones are probably equal or greater than a "fifth-generation" F-35. Developing an unmanned capability—not only an air vehicle but the network to operate it—that would counter the kinds of "anti-access" or "area denial" challenges posed by China's military modernization is years and at least tens of billions of dollars distant. The U.S. armed forces have developed a dominant drone force for the wars it's trying to end. It's not clear that the legacy fleet can be easily adapted for use against an al-Qaeda that's growing and metastasizing, and it's certainly a wasting asset in more challenging technological scenarios. The revolution hasn't happened yet.

Nonetheless, the United States has become dangerously addicted to the Unmanned Way of War. While the number of drone strikes in Pakistan has gradually declined from the high point of 2010, the underlying attraction of a technology that combines seeming precision and low-risk, particularly to American military lives, is understandable. To some, this reduction in risk sparks fears about the dehumanization of combat. "When robots rule warfare, utterly without empathy or compassion," argue Latiff—a retired major general—and McCloskey, "humans retain less intrinsic worth than a toaster—which can at least be used for spare parts." A UN special rapporteur on the subject divined "a 'PlayStation' mentality to killing" that would transfix a "callous" public with dreams of "costless warfare." Yet if anything, the use of unmanned systems, at least by the United States, has made war less bloody, requiring less and less killing. As Joshua Goldstein, author of *Winning the War on War: The Decline of Armed Conflict Worldwide*, observes, "Armed drones now attack targets [such as those in Pakistan] that in the past would have required an invasion with thousands of heavily armed troops, displacing huge numbers of civilians and destroying valuable property along the way."

"Less bloody" does not mean "more effective." Drones may make the conduct of war more pleasant for Americans and Westerners, but it's not clear whether they make war sufficiently unpleasant for those on the receiving end. And to the degree that war remains an act of violence to compel our enemy to do our will, drones have not yet proved to be a decisive or revolutionary form of violence.

Thomas Donnelly, a defense and security policy analyst, is the codirector of the Marilyn Ware Center for Security Studies at the American Enterprise Institute. He is the author, coauthor, and editor of numerous articles, essays, and books, including *Operation Just Cause: The Storming of Panama* and *Clash of Chariots: A History of Armored Warfare*. He is currently at work on *Empire of Liberty: The Origins of American Strategic Culture*. From 1995 to 1999, he was policy group director for the House Committee on Armed Services. Donnelly also served as a member of the US-China Economic and Security Review Commission and is a former editor of *Armed Forces Journal*, *Army Times*, and *Defense News*.

Drones–An Evolution, Not A Revolution, In Warfare

By Mark Moyar

In the past five years, drones have acquired the aura of a revolutionary military technology, as a result of spectacular successes in killing Islamist militants. Drones have been the principal instrument of U.S. counterterrorism in Pakistan, the country with the largest population of dangerous international terrorists, and they have taken out targets on a smaller scale in Yemen and Somalia, the primary expansion targets for al-Qaeda. Guided remotely through satellite data links, drones employ high-resolution optical devices to see targets, and precision-guided missiles to destroy them. The absence of pilots precludes the possibility of death or capture of airmen, a consideration of much importance for nations highly averse to casualties, and makes drone strikes more palatable to foreign governments.

When the Obama administration recast its national security strategy in 2011, administration officials argued that drones could take the place of conventional land forces. Drones, it was said, could eliminate terrorists without the large military footprints that had been planted in Iraq and Afghanistan. This argument was ultimately invoked to justify slashing the Army and Marine Corps by over 100,000 troops.

Drones do not, in actuality, meet the threshold of a revolutionary development in warfare. The technology itself is not revolutionary, but is instead an evolutionary combination of several existing technologies—propeller aircraft, video cameras, precision munitions, and satellite data transmission. While some of those technologies experienced rapid advances in the years preceding the development of the combat drone, all had existed for decades.

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The amalgamation of existing technologies can effect a military revolution, but only if the character of war undergoes fundamental change. The aircraft carrier, for instance, fused the armored warship with manned aircraft in creating a revolutionary weapons platform. Bearing aircraft that could scan huge areas and annihilate the hitherto mighty battleship, they revolutionized naval warfare.

Drones have not had a comparable impact on war's character. In contrast to weapon systems that revolutionized warfare through their offensive power, like the aircraft carrier and the machine gun, drones have not yielded a dramatic increase in the user's mobility, firepower, or accuracy. Propeller aircraft have been attacking targets from the air since World War I, and they have been employing precision munitions since the Vietnam War.

Nor do drones have exceptional defensive capabilities, of the sort that allowed innovations like the ironclad ship and the tank to initiate revolutionary change. Because of their heat and noise signatures and their slow flying speeds, drones are easy to destroy with air-to-air or surface-to-air missiles. This vulnerability, indeed, helps account for the inability of the drone to revolutionize warfare. Had the machine gun or the helicopter been so vulnerable, they would not have been able to alter the character of warfare on a global scale.

The machine gun made its way into conflicts of the late nineteenth century across the planet, transforming the conduct of land warfare from the War of the Pacific to the Boer Wars to the Russo-Turkish War. In the late twentieth century, the helicopter carried infantrymen into the rice paddies of Vietnam, the jungles of Colombia, and the mountains of Afghanistan. The dramatic

successes of drones, by contrast, have been confined to a few countries, where one finds an unusual confluence of favorable circumstances.

First, drones can function effectively only where hostile forces have no presence in the air and possess no surface-to-air missiles. Second, drone operations require bases and overflight permissions from one or more governments in the vicinity of the targets. Third, the success of drone strikes depends on targeting information collected on the ground, which can be obtained only if the local government provides it or allows a foreign intelligence service to collect it. These conditions prevail simultaneously in only a handful of countries.

The use of drones has, in and of itself, increased the difficulty of finding countries that meet the three conditions. U.S. drone strikes have generated fierce opposition among the publics of Pakistan and Yemen, causing the Pakistani and Yemeni governments to impose greater restrictions on American drone programs. At some point, those governments could stop the strikes altogether.

While drones retain value as an offensive weapon, they cannot defeat extremists in a country by themselves. Al-Qaeda and other non-state organizations have been able to survive extensive damage from drone strikes wherever they have been employed. Vanquishing extremist organizations requires ground forces that can secure the population and dismantle remote bases. The United States, having slashed its land power based on excessive confidence in drones, must now rely on the ground forces of other nations. As recent events in Libya, Pakistan, Yemen, and elsewhere have made regrettably clear, the intentions and capabilities of those nations leave much to be desired.

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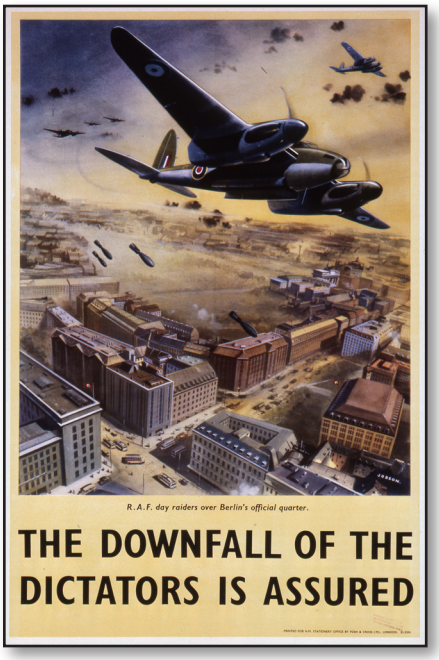
What, If Anything, Is Strategically New About Weaponized Drones?

By Kenneth Anderson and Benjamin Wittes

Since the introduction of weaponized drones as a tool of counterterrorism by the Bush administration not long after 9/11, and especially since their use was ramped up dramatically by the Obama administration, their strategic meaning and value has been sharply debated. The answers vary wildly and often run to extremes, starting with the question of whether they constitute something "new" in armed conflict.

Particularly for the US military, "remotely piloted air vehicles" (a much more accurate term than "drones") are just another air platform. The drone's pilot happens to sit on the ground rather than in the aircraft, but a human still controls it in real-time. If a drone craft carries a weapon, an authorized person must make a decision in real-time to fire it—a decision that, for all the controversy over "kill list committees," is just the "targeting process" in war and, on account of lengthy loiter time, allows for a far more considered decision to fire than most other weapon systems. Its use is fully subject to the laws of war governing targeting, the same as any other weapon platform. Although many different kinds of drones are going to come on-line in the next decade or so, the ones used today were originally designed as surveillance craft; they are slow and have no air defense capabilities, but by the same token have extraordinary loiter capabilities and compelling utilities against non-state armed groups or terrorists.



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An armed drone might be a useful substitute in some circumstances for existing manned air platforms in combat, but is just another choice in the weapon system menu. While no human pilot is exposed to risk while flying an armed drone and might be a continent away from the strike point, the reality is that standoff weapons, from 19th-century artillery to cruise missiles fired by a sailor buried at the bottom of a ship hundreds of miles at sea, have been regarded routine in modern warfare for well over a century. Remotely piloted aircraft are nothing new in that regard and, for that matter, even the manned attack aircraft they might replace in a given mission often strike from over the horizon—25 or more miles away.

For critics of weaponized drones, the substitution of armed drones for other platforms in "conventional" warfare on "conventional battlefields" is beside the point. The controversy arises around the ability to use weaponized drones in an entirely different form of hostilities from conventional fighting—targeted killing against targets located outside of war zones as traditionally conceived. In that case, drone technology enables a genuinely new means of counterterrorism: targeted killing, in which the costs of the strike are relatively low (not even special operator boots on the ground and the ability impressively to minimize civilian harm, through precision weaponry and the ability of today's drones to loiter unseen for weeks or months, in order to gain intelligence on the target and to pick the window in which the least collateral civilian harm will be inflicted. These features are genuinely new—at least they are new as a means of engaging in counterterrorism.

Technological capability to strike in a way to minimize risk to one's own forces, one might have thought, is a feature, not a bug—but not, surprisingly, in an international political environment in which a common criticism is that American servicemen and women don't take enough personal risks. "Real men fight mano-a-mano," as one tweet said, apparently disregarding the history of warfare since one fighter threw a rock at another from a safe distance a hundred thousand years ago. Targeted drone strikes are the most sparing form of weaponry in history with regard to protection of civilians—assuming, however, that the relevant comparison is to other forms of violence. Critics who deny this tend tacitly to assume that if drones were not used, the alternative is not to use force at all, and so any civilian casualty is unjustifiable. The artillery barrages and massive airstrikes conducted by the Pakistani military over the years, right up to 2014, says this is not the relevant comparison.

So whether one sees drones technologies in targeted killing, counterterrorism operations as a feature or a bug depends very much on whether one wants the US to be successful, in part through highly precise weapons, in forcible counterterrorism-on-offense. But in this regard, at least, drones enabling targeted killing is a genuinely new capability in global counterterrorism. It has limits that are often not recognized by either supporters or critics, however. The drone attack is the last kinetic step in a long chain of intelligence gathering and analysis; some of that can be gathered by drones themselves or signals intelligence, but the US ability to successfully use drone strikes from 2009 onwards was in large part a consequence of the CIA having established networks of on-the-ground human intelligence that enabled it to decide who to target independent of Pakistani intelligence. Drone warfare is best understood as intelligence-driven, precision strikes that happen to benefit from drone technologies. Moreover, the fact that the drone pilot is located in Nevada does not mean a genuinely global capability; the aircraft requires an airstrip, refueling and repair to keep it operational, and support today of some 200 personnel—all of which has to be located in theatre, not in Nevada.

Finally, the lesson of the past five years is that drones are a mechanism for conducting raids against an enemy that has long been in the position of being the raider, not the raided. They enable the US to keep the enemy off-guard and significantly reduced in the ability to plan and consolidate gains over the long-term. It was popular for a while to dismiss drone attacks as a mere "whack-a-mole" tactic masquerading as strategy—kill one leader and the next pops up to take his place—but in fact the supply of experienced senior leadership is far from inexhaustible, especially if one's operational life is measured in months.

At the same time, however, drone warfare and targeted killing, while a core on-offense pillar of global counterterrorism, cannot by itself solve the problem of denying territory to terrorist groups. The most difficult problem facing the United States for the foreseeable future in counterterrorism abroad is that, across the Horn of Africa and the Rift Valley, jihadist groups are moving to try and seize whole political territories and their populations, through insurgency and civil war. These insurgent groups either have, or are hospitable to, transnational terrorist groups, who are able to use a whole national territory as a safe haven. This was the pattern in Afghanistan pre-9/11—the Taliban governing internally and al-Qaeda as its transnational partner—and this problem cannot be addressed through drone strikes alone. The unified strategy of counterterrorism-on-offense must find a way to repulse and defeat those jihadist groups, on the ground. In practical terms, this describes the US military and intelligence effort in those countries in Africa today—military and intelligence assistance, logistics, supply, and in some case, an air force, and an air force utilizing drone strikes against whole formations of enemy fighters.

That is not far from what the US has been doing in Yemen since the start of the Obama first term. As a strategy it is not wrong and the US defense community is right to look to replicate it in other

contested or ungoverned states in Africa. In that case, however, drones represent genuinely something new in the conduct of counterterrorism globally, an offensive, raiding capability along with a persisting intelligence gathering capability. They are a necessary capability, a game-changing capability, but not a sufficient one. Drones have to be integrated with strategies for denying territory and haven, particularly whole political territories, to jihadist insurgents and their transnational terrorist wings.

Kenneth Anderson is a professor of international law at Washington College of Law, American University, Washington, DC, and a visiting fellow at the Hoover Institution. He specializes in international law. Formerly general counsel to the Open Society Institute and director of the Human Rights Watch Arms Division, Anderson has written *Living with the UN: American Responsibilities and International Order* (2012), and a new book with Benjamin Wittes, *Speaking the Law: The Obama Administration's Addresses on National Security Law* (2013), both published by the Hoover Institution Press. Anderson blogs at the law professor websites *Volokh Conspiracy* and *Opinio Juris*, and is the book review editor of the national security law website *Lawfare*.

Benjamin Wittes is a senior fellow in governance studies at the Brookings Institution and codirector of the Harvard Law School–Brookings Project on Law and Security. His most recent publication is *Speaking the Law* (Hoover Institution Press 2013), cowritten with Kenneth Anderson. He is the cofounder of the *Lawfare* blog.

Whom Shall We Drone?

By Angelo M. Codevilla

This essay was previously published by Library of Law and Liberty *in August 2013, and can be found at http://www.libertylawsite.org/2013/08/18/whom-shall-we-drone/*

The impressive capacity of drone aircraft armed with Hellfire missiles to destroy anyone unprotected by serious air defenses has led the US government (and the think-tank community) to overlook the first-order questions regarding their use, indeed regarding the use of any military force. To wit: Are we targeting those we really want to kill? Who are the people whose deaths would relieve us of our problems? The first is a classic question of intelligence. The second is the classic questions of strategy. But our national security Establishment has accustomed itself to substituting tactics for both intelligence and strategy.

How does the US government select the targets for drone strikes? The answer is no more satisfying than it is pretty. It amounts to sorting second and third-hand rumors that pass as intelligence for lack of anything better. The overarching reason is that the US government's eighty billion dollar per annum Intelligence Establishment has *hardly any independent, secure* sources about terrorists. Our CIA so-called clandestine service consists (97%) of persons who merely pretend to be employees of other US agencies and who basically pass along the opinions of Mid-East intelligence services and other self-interested parties. The CIA has zero independent quality control of such "intelligence," because such quality control would disqualify most of it.

How double-edged CIA human intelligence is may be glimpsed by the insufficiently remembered massacre of seven CIA officers in Afghanistan on December 30 2009. They were blown up by an informant who had been passed to them by Jordanian Intelligence, on whom they had relied for a year and a half to target US drone strikes. It is a safe bet that the countless people killed

by the US strikes that he targeted were not enemies of the United States, and that their deaths lengthened rather than shortened the list of America's enemies.

Our military's human intelligence is somewhat more reliable, since it usually depends on direct contact between US service members and local tribesmen. But again, such intelligence suffers from the obvious fact that it reflects the sources' friendships, enmities, and agenda, but above all because it also suffers from lack of quality control.

The other main source of intelligence on terrorism, namely intercepts of telephone and internet communications, suffers from the equally obvious fact that all sentient persons know perfectly well that the US government is listening in. It takes an act of will for the US government to imagine that terrorists choose not to use secret means of communications, and choose to bare their identities, locations, and plans on electronic channels they know to be compromised. The US government seems to believe that they are just asking to be "droned."

All of this is to say that we should not dismiss out of hand the cries of people from Afghanistan to Yemen who claim that US drone strikes have killed innocents, or accept uncritically the news reports that dozen after dozen of militants and al Qaeda hierarchs have been eliminated. We don't know.

Suppose however that every person killed by US drone strikes were a terrorist who would strike America if he could. Still, though those who shout "there are a billion Osamas" exaggerate, they point to a dreadful reality: having killed terrorists for more than a decade, we are beset by more terrorists than ever. This naturally raises the question of who the enemies may be whose deaths would rid us of our troubles or at least diminish them. That is a question of strategy rather than one of intelligence.

Drone strikes are a powerful tactic. But the proper strategy depends on identifying our problems' causes: who and what encourages and enables, and who and what discourages and constrains the bombers and trigger-pullers? While some of the most important causes, e.g. Western society's corruption and alienation from its own principles cannot be remedied by force, others are amenable to precise targeting.

Today's Islamist terrorists live physically, usually financially, and above all psychologically, in Muslim countries. When their ties are sub-national, they are nevertheless to well-known groups such as Hizbullah or the PLO or to ancestral tribes. None of these regimes, groups, or tribes is what anyone might call permissive. Their rulers rule with bloody iron hands and claim to be unique sources of authority. They make no distinction between society and regime, between state and Mosque. This is a sword one of whose handles the US could grasp.

The US government could use drones effectively to face these rulers with the stark choice between seeing to it that no one, but no one, who lives in or under their orbit shall have any involvement with anti American terrorism and being killed by a US drone. No excuses, no exceptions. Indeed the prospect of sudden death could cause such potentates positively to encourage educational and religious practices leading to peace rather than terrorism. Or they could choose to die, personifying anti-Americanism's deadly futility.

On the other hand, the US government could continue to use drones as it has, against an uncertain mixture of insignificants and innocents. Who would argue that a decade from now Americans will be safer thereby?

Angelo M. Codevilla, a native of Italy, is a professor emeritus of international relations at Boston University. He was a US naval officer and Foreign Service officer and served on the Senate Intelligence Committee as well as on presidential transition teams. For a decade he was a senior research fellow at the Hoover Institution. He is the author of thirteen books, including *War Ends and Means, Informing Statecraft, The Character of Nations, Advice to War Presidents*, and *A Students' Guide to International Relations*. He is a student of the classics as well as of European literature; he is also a commercial grape grower.

Drones — Useful Tools in the Military's Toolbox

By Frederick W. Kagan

The hype about drones is extremely overblown. They are not a revolution in warfare, but rather simply a way to put surveillance gear in the air and deliver ordinance to targets on the ground. Drones perform no missions that other kinds of aircraft long in the arsenal couldn't perform. Drones perform some of those missions better, and all of them at less risk to American personnel. But even those improvements are not transformational. Drones are extremely useful tools, but still only tools.

The main advantage of drones is that they can fly low and slow without putting pilots at risk. Flying low brings surveillance gear closer to the target, providing better resolution and clearer imagery. Flying slowly gives analysts time to make sense of what they're seeing and take action while the target is still in range and view. Fighters can't fly slowly—they're designed to move fast. Slow-moving armed aircraft, like the AC-130 gunship, offer surveillance and targeting capabilities similar to drones, but they are big targets and have airmen on board. The willingness to lose drones to enemy fire (because they are unmanned) is what makes it reasonable to design aircraft that are not very survivable in contested airspace, giving them their advantages over manned aircraft.

The limited survivability of current drone models should, in fact, be a matter of concern. They cannot operate against enemies with meaningful air defense systems, and the proliferation of advanced man-portable air-defense systems will decrease the areas over which they can fly in

the future. We will have to continue to innovate simply to retain our current drone capabilities. The odds of such innovations fundamentally revolutionizing war, however, are very low.

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The Limitations of Drone Warfare

By Peter Mansoor

Air control of populations has been the holy grail of air power advocates ever since the dawn of aviation. During the Great War, Imperial Germany attempted to collapse British morale through indiscriminate bombing of civilians in London and other cities, a campaign that led to the birth of the Royal Air Force. Despite the German failure in this campaign, after World War I the RAF posited a theory of imperial control that contemplated the use of aerial bombing to keep subject populations in line. The policy would be easy, cheap, and avoid messy ground occupations among subject peoples. The theory was tested successful just once, after an Iraqi tribal rebellion in 1920 endangered British control of Mesopotamia. Since that time, air bombardment has primarily served as an adjunct to ground campaigns, with perhaps the one exception of the air war over Kosovo in 1999. Yet advocates of air control continue to advance the concept that new technology can achieve what old technology could not.

Drones, or as the U.S. Air Force prefers to call them, remotely piloted vehicles, are no different in concept than the bi-planes that targeted Iraqi tribes in Fallujah ninety-plus years ago. They can kill people (and with good intelligence perhaps even the right people), but they cannot take and hold ground. For that purpose, boots on the ground are required—perhaps not American or Western boots, but boots nevertheless. Without a ground commitment to control populations and root out the extremists in their midst, drone strikes are merely equivalent to a periodic mowing of the terrorist grass. Policy makers must understand that drones and the intelligence systems they rely on to function are tactical and operational tools—they are not a substitute for strategy. They are appealing because they appear to offer a cheap and painless (for the United States, at least) path to the strategic end of rooting out terrorism in faraway lands before U.S.

shores are once again visited by jihadists bent on mass murder. However, the administration would be wise to determine whether pursuing that strategic end via drone strikes will lead to the dead end of a world of enraged populations who hold little love and even less respect for the United States.

Peter Mansoor, colonel, US Army (retired), is the General Raymond E. Mason, Jr. Chair of Military History at Ohio State University. A distinguished graduate of West Point, he earned his doctorate from Ohio State University. He assumed his current position after a twenty-six-year career in the US Army that included two combat tours, culminating in his service as executive officer to General David Petraeus in Iraq. He is the author of *The GI Offensive in Europe: The Triumph of American Infantry Divisions, 1941–1945* and *Baghdad at Sunrise: A Brigade Commander's War in Iraq*. His latest book, *Surge: My Journey with General David Petraeus and the Remaking of the Iraq War,* a history of the surge in Iraq in 2007– 8, will be published by Yale University Press in November 2013.

Drones—Saving Our Soldiers

By Gary Roughead

The warrior's endless quest is to be more lethal and more precise and to enhance the probabilities of human survival and victory in war. Technology has always influenced war and war has always influenced technology. From spear to bow, bow to gun, gun to missile, sail to steam; all have changed the way humans deliver violence. Soon after man took to the air, military use of airplanes followed quickly. Drones do not increase precision or lethality; in fact, payloads are well under those of manned vehicles. Superficially, drones may be seen as a small step in the natural evolution of air and naval warfare, but they are more than that.

Throughout history, human endurance has been a weighty consideration in military operations—drones change the equation. The limits of human endurance no longer apply. Removing the human from the vehicle, whether airborne or under the sea, eliminates constraining human physical factors. Drone endurance limitations exist but are far less a factor than those of a human. While few think of underwater drones, their endurance transforms markedly undersea warfare—consider an underwater drone that can remain undetected or even dormant in the battle space for months.

Above all else, removing human risk changes warfare in a fundamental way. Taking the human from the battle space while keeping sensors and lethal force present to kill or hold an enemy at risk is a very unbalanced equation in the drone's favor. Gone, too, is the need for significant planning, dedicated forces, and the additional risk to combat search and rescue forces always in place for manned combat operations. I have responded to manned and unmanned aircraft losses, the physical and emotional differences are profound. The benign air space of recent wars

has not driven this home, but future wars will be different. Knowing a human life is not at risk, above all else, will change the calculus of combat.

Admiral Gary Roughead, USN (Ret.), an Annenberg Distinguished Visiting Fellow at the Hoover Institution, graduated from the US Naval Academy in 1973. In September 2007, he became the twenty-ninth chief of naval operations after holding six operational commands and is one of only two officers in the navy's history to have commanded both the Atlantic and Pacific Fleets. He served as the commandant of the US Naval Academy, during which time he led the strategic planning efforts that underpinned that institution's first capital campaign. He was also the navy's chief of legislative affairs, responsible for the Department of the Navy's interactions with Congress, and the deputy commander of the US Pacific Command during the massive relief effort following the 2004 tsunami in Southeast Asia and the Indian Ocean.

Lt. Col. Matthew Atkins on "The Personal Nature of War in High Definition"

By Benjamin Wittes

This essay was previously published by Lawfare *in January 2014, and can be found at http://www.lawfareblog.com/2014/01/matthew-atkins-on-the-personal-nature-of-war-in-high-definition/#.UulEp2iYaKy*

I met Matthew Atkins, a Lieutenant Colonel in the Air Force, recently at the Hoover Institution, where he is currently a military fellow. Lt. Col. Atkins has worked in targeting and intelligence a fair bit. And following some conversations at Hoover, he sent me this brief essay, whose conclusions and opinions are those of the author alone and do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University:

> Numerous articles have recently decried the impersonal nature of using "drones" to conduct strikes on terrorists and insurgents. The authors surmise that using remotely-piloted aircraft makes killing cold, clinical, and impersonal. Nothing could be farther from the truth.
>
> The ultimate expression of killing comes in hand-to-hand combat, where you can smell and feel your opponent; this carries with it a certain chivalrous concept that closing with and destroying your enemies is virtuous. However, this form of fighting and killing carries too much risk by modern standards, and has been largely abandoned in our recent forms of warfare.

While there will always be examples of intense physical combat from the battles in Fallujah or the outpost assaults in Kamdesh, those are the exception and no longer the rule. Good soldiers always seek to exploit the advantage of overwhelming firepower, something that American forces now hold in abundance. Close air support, artillery, helicopters, mortars, and armed ISR platforms present our ground forces with a dizzying array of tools to safely kill from a distance. This is the new normal, and has been employed with devastating effectiveness in our post 9/11 conflicts.

So, to whom falls the burden of intensely personal killing? Pilots, snipers, artillery, and special operations forces are most likely to be the ones that deliver the killing blow. The weapons of choice nowadays are Hellfire missiles or small-diameter bombs that are precisely engineered to kill people while minimizing collateral damage. But most of these operators deliver their munitions from a distance, and oftentimes know nothing of their target other than a grid coordinate or laser designator spot. The nature of warfare actually has shifted that burden to the finders of targets, the intelligence and special operations personnel that identify the people that need to die.

Counterinsurgency and counterterrorism are intensely personal forms of combat, ones that call for intimate knowledge of people's lives and behavior. In order to deliver maximum pressure on an enemy network and minimize collateral damage, intelligence personnel spend hundreds, if not thousands, of hours watching and studying potential targets. Precision and accuracy are essential, and the consequences of

killing the wrong individual can have strategic repercussions. Finding targets by watching and listening is by nature intensely personal.

This method of killing takes a toll on our nation's watchers and finders. You eventually come to know everything about that individual, to include his family life and personal habits. And when you recommend that target folder for approval, you do so with the explicit knowledge that you are recommending the death of not just an enemy of our nation, but a person. This creates an intense moral and psychological burden that intelligence personnel carry with them every day, a persistent stress that is compounded over years and multiple deployments.

That stress is amplified even more amongst the aircrew and intelligence personnel that comprise our remotely-piloted aircraft fleet. They have the unique confluence of both being part of the intelligence process and delivering the fatal blow. They watch for days on end, learning everything about their intended target. And when the approval is granted for a strike, they execute the Hellfire shot and watch the results in high-definition. This is the most intimate and personal form of warfare short of an intense room-clearing operation, and one likely to increase in prevalence as we reduce our physical presence in major combat operations.

This highly personal nature of killing creates unique stresses in remotely-piloted aircrews because they are literally engaged in killing and combat in the day, and coaching little league baseball at night. Being physically deployed to combat provides a certain degree of resiliency because

of the focus you have on doing your job with no distractions. For the duration of your tour you are a finely-honed man-hunting machine with absolute dedication to your craft. When your tour is over, you stop hunting and go home.

Remotely-piloted aircrews don't have that luxury; they go home every night to their families and carry on a somewhat normal life. They do so with the underlying knowledge that tomorrow they will be back in the booth, back in combat, and carrying out their lethal tasks.

It is clear that our ongoing counterterrorism missions are not cold, sterile operations that make it easy to kill. On the contrary, our RPA and intelligence personnel are engaged in an intensely personal hunt where they can count the children of the terrorist they seek to target. The human in the loop always makes the decision. And the human in the loop always bears the consequences of making that life or death decision.

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Discussion Questions

Do drones present new military opportunities or are they simply an updated technological variant of age-old weapons and tactics?

1. In what way do drones differ from targeted assassinations of enemy operatives and leaders of the sort that the United States is on record opposing?

2. Are drones all that efficacious? Have they decimated al-Qaeda and its affiliates in Afghanistan or Pakistan, or simply inspired more terrorists and effective counter-measures?

3. Can we envision circumstances in the very near future in which our enemies will have the technology and skill to pilot drones against American assets?

4. How far are we away from the use of drone armored vehicles, ships, planes, and infantry replacing most of their human-operated counterparts?

5. Ethically, will drone warfare mitigate the losses of war, or simply transfer the carnage to yet another mode of operations that in some sense in more amoral by the greater absence of human presence and accountability?

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