



DRONE WARS

Winning the Fight against Terrorists, or Prolonging It?

By Michael Burnam-Fink

Warfare is partly defined by the images of its weapons, from medieval knights in armor clashing on the battlefield to the mushroom clouds of modern nuclear weapons. For warfare in the twenty-first century, consider the image of a video screen. In September 2000, the counter-terrorism advisor in the White House, Richard A. Clarke, watched a video of a tall man in white robes. The man was probably Osama Bin Laden, who by that time had organized the attacks on the American embassies in Tanzania and Kenya. The man's location was a compound outside Kandahar, Afghanistan. The videographer was a robot, an RQ-1 Predator drone aircraft.

Clarke, along with two senior Central Intelligence Agency officials who were also present, Cofer Black and Charles E. Allen, recognized the Predator's potential to revolutionize national security by providing real-time intelligence for precision missile strikes—using manned or unmanned weapons—on enemy targets. Then they put the idea aside, waiting for an opportunity when a drone mission might be the best weapon for a job. After the September 11, 2001, terrorist attacks on New York and Washington, DC, armed drones were targeting terrorists as well as providing air support for Special Forces troops in Afghanistan and Iraq. One decade later, the armed Predator is a key instrument of American statecraft. Missiles launched by the drones rain down over the tribal areas of Pakistan, Yemen, Somalia, and Libya, killing figures linked to Al-Qaeda or the Taliban, such as Anwar Al-Awlaki, Baitullah Mehsud, and Badar Mansoor, as well as thousands of foot soldiers and a significant number of civilians.

All of this is happening without very much awareness in the United States. The Pakistani government, the American Civil Liberties Union, the United Nations Human Rights Council, and Amnesty International—among others—have

◁ A United States Air Force Predator aircraft at Kandahar Air Field, Kandahar, June 5, 2006. *David Bathgate/Corbis*

condemned the ethics and legality of America's Drone Wars. The strikes are deemed violations of national sovereignty and a tool of war that inevitably leads to the deaths of innocent civilians. These moral and legal arguments are important, but they have failed to stop the Drone Wars, or even initiate serious public debate on the uses, merits, and limitations of this kind of warfare. Perhaps before asking questions like "Is the Predator drone an ethical weapon?" or "Is its use in this particular conflict within the boundaries of international law?", it is important to understand what the Predator drone *is*, how it came to be armed, how the armed drone changes military capabilities, and—most important—how the drone program evades democratic accountability.

The Predator drone has become a durable socio-technical object. Such technological artifacts are shaped by social and political forces. They channel information, energy, and power. The Predator drone is more than just a machine; it is the most visible node in a network that binds together pilots at Creech Air Force Base in Nevada, mechanics in air bases scattered across the globe, soldiers in combat zones, analysts that draw up lists of targets, and operators who decide that an image on the screen corresponds to an intended target. The Predator drone has created new institutions of state power, which formulate missions and in turn demand the continued existence and use of the Predator drone. The Predator is very effective at surveying battlefields and killing terrorists—and this effectiveness has forestalled a deeper consideration of American objectives in the War on Terror.

A Pilot's Story

The Predator is a creature born of the War on Terror, a combination of pre-existing technologies that was initially deemed useless by the U.S. Department of Defense and the CIA, and only became an accepted implement of war after missions against terrorists were carried out. The Drone Wars are shrouded in secrecy. Strikes in Pakistan are usually disavowed by both the American and Pakistani governments, although it is an open secret that Predators are routinely flown into Pakistan across the border from Afghanistan. In addition, the CIA has operated drones from bases inside Pakistan itself. Many of the operational details of the drone program are classified. Nonetheless, enough literature is available on the features of drone warfare to analyze its effects on the exercise of state power. There are a growing number of media accounts of drone strikes and investigative reports on the decision-making behind the attacks. Debates in *Air & Space Power Journal*, the professional journal of the Air Force, chronicle the history and theory of drone warfare. The New America Foundation in Washington, DC, keeps a record of drone strikes in Pakistan. Lt. Col. Matt J. Martin of the United States Air Force presents a considered, first-hand account of drone operations in his 2010 book, *Predator: The Remote-Control Air War over Iraq and Afghanistan: A Pilot's Story*.

The Predator drone refers to a family of Unmanned Aerial Vehicle (UAV) aircraft constructed by General Atomics Aeronautical Systems, Inc., including the unarmed RQ-1 Predator; the multirole MQ-1; the improved Army MQ-1C Grey Eagle; and the larger, technologically related MQ-9 Reaper. These systems share salient characteristics: high endurance, powerful sensors, high-bandwidth satellite links that connect those sensors with human operators in the United States—a single Predator uses bandwidth equivalent to the entire U.S. Army circa the first Gulf War—and the ability to carry and fire missiles. General Atomics is based in San Diego, and is the dominant player in drone development. General Atomics has five thousand employees and more than twenty-five years of experience, stretching back to Abraham Karem, an Israeli-born engineer who developed the basic technology of the Predator drone in the mid 1980s for the U.S. Defense Advanced Research Projects Agency (DARPA).

The Predator is an ungainly looking aircraft, with a blind, bulbous nose, flimsy-looking fuselage, thin straight wings spanning fifty-five feet, and three downward-pointing tail surfaces. The engine, a 115 horsepower Rotax 914, which is also used in civilian hobby aircraft, propels the drone at a top speed of 135 mph. The RQ-1 has a range of 770 miles and can remain in the air for up to forty hours, cruising at altitudes up to twenty-five thousand feet. It carries a payload of 450 pounds, including telescopic visual and infrared television cameras, and a ground-scanning Synthetic Aperture Radar. The MQ-1 variant is armed with a pair of AGM-114 Hellfire laser-guided missiles, while the MQ-9 can carry up to fourteen Hellfires along with five-hundred-pound JDAM GPS guided bombs and Stinger air-to-air missiles. The Predator can be flown by satellite link but must take off and land under line-of-sight control from a ground station.

Flying the Predator is a complex task, in some ways harder than flying a conventional plane, and certainly harder than the videogames it is typically compared to. As Martin explains in his book, ordinary pilots rely on the motion of the plane to maintain their orientation in the air, literally flying by the seat of their pants in a tradition that reaches back to the Wright brothers. The Predator pilot has no such connection to his plane. Controls operate through a computer system—with a lag that could reach several seconds when using the satellite link. And worse, its long wingspan bestows glider-like flying characteristics, making it extremely sensitive to wind and turbulence. The pilot's view is limited to a thirty-degree camera fixed to the nose, which makes landing and taxiing particularly fraught. As Martin summates, "It was like trying to fly while looking through a soda straw. Like riding a roller coaster without being able to turn your head or look up or down." During a single mission, a pilot could be flying the plane, coordinating with his or her observer to monitor conditions on the ground, communicating with friendly troops via a satellite radio

system, sending notes and images to intelligence analysts through Internet chat software, and firing missiles at targets—frequently all at the same time.

Growing Inventory

The genesis of the Predator lies in the realignment of America's national defense apparatus after the Cold War. During the Cold War, American strategic intelligence was focused on the Soviet threat; cataloging nuclear missile silos and bombers, and tracing the movement of armored divisions and submarines. Spy satellites able to cross Soviet territory without the risk of interception were the premier source of images and generated decades of records tracking the expansion of the Soviet military infrastructure. With the collapse of the Soviet Union, strategic planners studied the emergence of a more complex and fluid geopolitical environment. Threats could now originate in any corner of the world and for reasons stretching beyond the bipolar conflict of the Cold War. Satellite imaging was expensive and slow and images were dependent on the vagaries of orbital dynamics. Orbits that had previously swept Soviet missile fields at regular intervals could not be diverted to new trouble spots in time to generate useful images, and even if images were available, these new threats of insurgencies, terrorists, and criminal groups did not generate the same kind of large, highly visible footprints as missile silo construction or bomber runways.

One solution was a new spy plane, which could be easily shifted from theater to theater, loiter over trouble spots, and take high-quality images from a low altitude. This kind of reconnaissance aircraft faced several competing design priorities: survivability, cost, and technological capability. The competition was resolved in the mid-1990s by the first generation Predator drone.

Survivability is the foremost concern of the Air Force; every reconnaissance aircraft has to live with the legacy of the U-2 and the 1960 shoot-down and capture of Gary Powers and his aircraft over the Soviet Union, which became a diplomatic fiasco for the United States. A manned reconnaissance aircraft can be made more survivable by making it stealthy or difficult to intercept, a trend which reached its ultimate expression in the SR-71 Blackbird. However both these measures increase the cost and complexity of the aircraft—the SR-71 cost \$33 million per airframe in 1964, over \$200 million today and more than ten times the cost of a four-drone Predator unit—and with its Mach 3 speed and eighty-thousand-foot cruising altitude, the footage is less detailed than from a Predator. The need to protect the lives of pilots increases the cost of a program and decreases the quality of imagery gathered, making it less useful to military commanders and intelligence analysts.

With no pilots to protect, drones can fly slowly and without the need for powerful engines or expensive stealth materials. Because they are slow, they provide a

steady platform for observation. And separating the pilot from the plane allows missions to continue beyond human endurance; fresh pilots can be swapped mid-mission without having to land the aircraft. The geopolitical benefits of unmanned aircraft were demonstrated in 2011 with the loss of an American RQ-170 Sentinel over Iran. It is unclear if the drone was shot down or suffered equipment failure, but no one was killed, and Iran was unable to exact concessions, as it could have done if a pilot had been captured.

While building the Predator presented no major technical challenge to the engineers at General Atomics, unexpected problems arose. The Air Force is an organization of pilots, and this new technology posed an institutional threat to their prestige and careers. In commentaries in Air Force publications, pilots challenged General Atomics' claims about the potential of drone warfare, pointing out that UAVs had performed poorly in previous wars. Five of the six Pioneer UAVs deployed during Operation Desert Storm in 1990–91 had crashed; an unacceptably high loss rate even without human casualties. Plus, UAVs require an electronic tether to a command station, making them vulnerable to jamming. Finally, drawing on the experience of missile-armed fighters in the Vietnam War, Air Force commentators argued that no technological system could be as flexible as a pilot in the cockpit.

Even after 9/11, with Predators serving in Operation Enduring Freedom in Afghanistan and in Operation Iraqi Freedom, pilots were reluctant to transfer into UAV operations. Promotions in the Air Force require a certain number of flight hours for each rank, and time 'flying' the Predator from a trailer in Nevada did not count, at least initially. The training of non-pilots to fly drones was considered but rejected, for reasons of tradition and politics. In the words of Air Force Secretary James G. Roche, "I wanted to have pilots fly the Predator. If you try to stand up people who are not pilots, it is like an organ transplant, and I'm afraid the body might reject them." So the Air Force changed its policy in 2002 and began counting Predator hours toward flight time. Personal messages of congratulations from senior defense officials to Predator operators assuaged some of the concerns pilots had about the potentially negative effects of the program on career development. From 2003 to 2010, the number of drones in U.S. inventory expanded from 162 to 7,454—including 241 Predators—compared to a total of 10,767 manned aircraft. According to defense analyst John Robb, half the pilots graduating from the Air Force undergraduate pilot training course in 2011 were assigned to drones rather than conventional aircraft. Clearly, drones are now thoroughly integrated into the Air Force.

Israel has long been a leader in the field of remotely operated aircraft but other nations are showing interest. During the recent North Atlantic Treaty Organization military intervention in Libya, French and Italian forces were reliant on American

Predators for real-time intelligence. Those governments are now working to acquire their own drone capabilities. China has a number of drones, and Pakistan has asked the Obama administration for drones so that Pakistan can carry out its own drone attacks on terrorists.

Afghanistan, Pakistan, Iraq

As Air Force pilots were reconciling themselves to the drone program, the CIA began working on a covert project to survey terrorist leaders. In 2000, Predator drones conducted fifteen missions over Afghanistan, observing Osama Bin Laden at least once. At that time, the drones were not yet armed. Defense planners saw the Predator as the eyes of a larger strike mission, guiding bombs and missiles from conventional, manned aircraft. In the case of the Predator-sighting of Bin Laden, the target had moved on by the time the necessary attack plans could be coordinated. Predator video alone is a perishable source of intelligence, and often has to be acted upon immediately.

While General Atomics had not initially designed the Predator to carry weapons—to avoid the thicket of political and legal issues surrounding armed drones and to reduce the risk of technical complications—the Predator was designed with an excess payload capacity that could be used to carry weapons. The Air Force conducted armed drone tests with Hellfire missiles in May and June of 2001, and the missiles struck their targets with the accuracy expected from a laser-guided weapon. In the summer of 2001, however, there was no urgent need for this new capability and armed Predator development stalled in bureaucratic red tape. The Air Force and CIA were squabbling over who had responsibility for the operational, legal, and financial aspects of the program. Pakistan was willing to provide bases for these early surveillance missions into Afghanistan but did not approve the use of armed drones.

The 9/11 attacks on the U.S. changed everything. Suddenly, arguments over costs seemed to be unnecessary quibbles to a nation at war, and legal and diplomatic protocols took a back seat in the hunt for those responsible for the killing of thousands of Americans. The 9/11 tragedy created instant support for the armed Predator program in every quarter of government, from the White House to the Green Berets working with the Northern Alliance to overthrow the Taliban in Afghanistan. Armed drones were soon roaming the skies over Afghanistan, Pakistan, and Iraq.

In many respects, Iraq became the proving ground for drone operations. A mission added to the Predator's responsibility was defending U.S. troops from roadside bombs and tracking down the networks responsible for planting them. The rapid tempo of coordinated operations provided intense experience for Predator pilots,

ground crews, and infantry in a new kind of networked war orchestrated across the world in encrypted chat rooms. Immediate surveillance of the battlefield morphed into a larger strategic mission.

Iraqi insurgents used roadside bombs in their asymmetrical operations. Cheap to build and easy to emplace, the bombs allowed insurgents to strike at American soldiers without exposing themselves to retaliation. Skilled bomb-makers were shielded by an impenetrable network of operatives that could elude American firepower. Unable to find and confront this elusive enemy, American commanders protected their troops by retreating to heavily fortified bases and fast-moving armored patrols, effectively ceding control of the streets to the insurgency. But the Predator drone presented an opportunity to turn the tables. In his book Martin describes his time flying a Predator over the insurgent stronghold of Fallujah. He tracked groups of armed men and vehicles from suspected safe houses to bomb-making factories to holes by the side of the roads, creating a map of insurgent activity within the city.

As I panned cameras across the target house and into the neighborhood, I noticed several men acting suspiciously in the parking lot of a little greasy spoon café across the street. Defining *suspicious* wasn't always easy. It was like a cop who had a sixth sense that somebody or something was out of place, a sense that allowed him to distinguish criminal activity from the normal day-to-day routine.

As I turned for another look, the men began loading boxes into the trunk of a faded-red compact car. I couldn't tell what they were handling, but I doubted it was a shipment of olives. They finished what they were doing. All but the driver went back into the café. The driver slammed the trunk lid and looked all around. That was a dead giveaway for *suspicious*. People with nothing to hide didn't care if other people were watching them.

Martin followed the car to several safe houses, and then to the outskirts of the city where troops from a helicopter squad and an M1 Abrams tank captured the driver and recovered a load of ammunition.

The Predator Doctrine?

Technologies are political. They are not value neutral. The features of a technology make certain courses of action easier or more difficult. They allow the exercise of power, and changes in tools are mirrored by changes in the individuals and groups that use them. As technology writer Langdon Winner said, “[A] given technical system actually requires the creation and maintenance of a particular set of social conditions

as the operating environment of that system.” It is therefore necessary to consider the historical nature of warfare, a state’s use of force, and how the capabilities of the Predator drones have changed the face of war.

War demands the highest attentions of the state because there is always the potential to lose. Historically, warfare was defined as the aim of destroying an enemy’s will to resist by defeating his armed forces, occupying his territory, and subjugating his citizenry. However, firepower alone cannot achieve this end. As the United States learned in Vietnam, deploying the Marines without a plan for victory or at least a plan for a reasonable withdrawal ends in military disaster. This lesson was codified in the Powell Doctrine: military action should be undertaken only as an option of last resort, in support of clear national objectives, and with overwhelming force.

Despite the success of bombers in World War II, the results hardly validated the doctrine of strategic airpower that promised war with minimal casualties. In contrast to its usefulness in total war, airpower proved of only limited benefit in guerilla conflicts. This limitation is intrinsic to the nature of the bomber, and of indirect firepower in general: it attacks a time and place, and it is up to fate and military intelligence to determine if that time and place is occupied by a target worth destroying. Airpower proved somewhat effective against fixed targets like factories, bridges, and command centers, or, if deployed under the direction of a forward air controller, against enemy troops out in the open. Against mobile targets, it is far less effective. In Operation Desert Storm, hundreds of deep interdiction sorties destroyed a bare handful of Saddam Hussein’s Scud missile launchers. Tomahawk cruise missiles dispatched against both Osama Bin Laden and Saddam Hussein failed to hit their targets. Strategic airpower also carries a political cost; a war must be declared before these massive instruments of destruction can be used, and there is no way to limit the extent of the devastation. If the targeted individual remains in a city or town, he can effectively use the civilian population as a shield against air strikes, given the political cost of civilian casualties. A combination of imprecision, and the delay between targeting and effect, made strategic airpower a poor instrument for fighting the War on Terror.

One problem with the Powell Doctrine and strategic airpower after 9/11 is that America’s enemies are dispersed networks of individuals operating from regions with weak or no governments. Invading Afghanistan was a major strategic commitment; following that invasion, extending ground operations into the Pakistani border region, Yemen, and Somalia, along with Iraq, would have been militarily and politically impossible. Even in theaters with boots on the ground, terrorists and insurgents use guerilla tactics, blending with the population or crossing inviolable borders. During the most fraught periods of the Iraq war, American forces controlled little more than their own base areas and the major roads linking them. Aside from some

initial high-profile successes, like the Special Forces raid that captured Saddam Hussein, insurgent forces were able to largely avoid major battles. Fighting on these terms played directly into Al-Qaeda's strategy: drawing America into a war of attrition that would drain its morale and treasury while U.S. violence inflicted against Arab populations would draw more recruits to Al-Qaeda's cause.

The alternative to a massive invasion is covert operations, yet the tension between the need for secrecy and the demand for democratic transparency pulls covert operations in contradictory directions. Spies work in secret and resist oversight, which might compromise their operations. The 1974 Hughes-Ryan Act aimed to curtail secret intelligence activities by forcing the CIA to notify Congress of any covert action, and specifically prohibited the CIA from conducting assassinations.

Politically, the structures of government require that there be consensus when the state takes a life. In the case of terrorism, intelligence agents, the military, and democratically accountable political leadership must all agree that there is a clear and present danger. However, the inherent delay of this consensus cycle makes military power a blind and blunt instrument—ineffective and unpalatable when hunting down small, dispersed networks. A government that kills without consensus is a rogue government.

The armed Predator drone reduces the number of people required to form this consensus to kill by an order of magnitude. With satellite links, the Predator reduces the lag between Afghanistan and the United States to a matter of seconds. The drone gathers intelligence and carries out strikes as a single unit: all that is required to carry out a strike is the standing go-order from the National Security Council and the drone operator. While the Predator is theoretically amenable to direct political control at the highest levels, in practice it is unrealistic, as an example from the opening days of the Afghan war illustrates. On October 7, 2001, a large Taliban convoy was spotted moving through Kandahar. Intelligence assets/operatives suspected the convoy contained Taliban leader Mullah Omar. Permission to strike such a sensitive target—in an area where civilian casualties were likely—required not only the approval of U.S. Central Command Commander General Tommy Franks, but also the agreement of senior officials in Washington. Field commanders put in calls to Central Command's sophisticated operations center near Riyadh, Saudi Arabia, to Franks' command headquarters in Tampa, Florida, and to Defense Secretary Donald Rumsfeld in Washington, DC. Rumsfeld eventually gave an order to attack, but it was too late. The convoy had driven off.

Kill Lists

The policy of requiring approval through a chain of command extending to Congressional oversight committees proved too time consuming and was deemed too clumsy

for actual combat. Instead, in the Predator Drone program the process of deciding when and where to strike has been delegated to a group of principles comprised of members of the National Security Council, the Department of Defense, and various intelligence agencies. While the White House refuses to divulge details of this classified program, a January 31, 2012 statement by President Barack Obama acknowledged the existence of the program but rejected claims that it represents a threat to civilians and the international order. However, an in-depth investigation by Greg Miller of the *Washington Post* claims that, “[t]he convergence of military and intelligence resources has created blind spots in congressional oversight. Intelligence committees are briefed on CIA operations, and JSOC [Joint Special Operations Command] reports to armed services panels. As a result, no committee has a complete, unobstructed view.” Targets are added to a set of CIA and JSOC ‘kill lists’ that contain three hundred to four hundred names, ranging from Al-Qaeda and Taliban leaders to an international group of warlords and drug dealers connected to the financial and logistical side of the war. Although CIA and JSOC programs share aircraft, and possibly key operational personnel, they operate under different sections of the law, and are overseen by different Congressional committees.

Even more alarming is the way the drone program seems to obliterate what should be important distinctions about what counts as aiding and abetting terrorism. Anwar Al-Awlaki was the U.S. citizen and jihadist cleric killed in a drone strike in Yemen on September 30, 2011. While he undoubtedly played a role in Al-Qaeda’s propaganda, and his lectures and blog posts were cited as radicalizing factors for several known terrorist plots, decisive evidence linking him to operational details of any attack has not been uncovered.

In order to kill high value targets, the drone program has resorted to ploys that stretch the limits of morality. A May 19, 2012 attack on a Taliban safe house at Khaisur village in North Waziristan was followed by a second strike on rescuers combing through the rubble, in contravention of Article 15 of the First Geneva Convention, which prohibits the targeting of medical workers and protects wounded enemy soldiers. Similarly, an operation against the senior Taliban commander Baitullah Mehsud involved luring him into the open at the funeral of a lower-ranking Taliban officer. The strike, on June 23, 2009, was botched, killing eighty-three of the thousands of mourners attending the funeral but not Mehsud.

The Predator drone program raises disturbing questions about how technology has facilitated the development of a significant new policy for the conduct of war that is able to evade democratic accountability. Citizens in a democracy work collaboratively to define national goals and the proper means to achieve them. The Predator program, given its covert nature and technological dominance of the intelligence

system, has not been subject to this process of public negotiation. Because it kills bad people, it is assumed to be good. The technology of the Predator drone enables a seductive vision: anyone who intends to harm America simply dies—without the need for invasion or public debate. Yet, there is no way to cross every name off the list. The intelligence apparatus will always be able to find new enemies, valid or not. Rather than ending the War on Terror, the Predator drone has crystalized it. It has also crystalized the anger and resentment of the people who live under the cameras and missiles of Predator drones. The Predator has insinuated itself into the execution of American statecraft. It is unlikely that political leaders will end a program exploiting Predator drone technology that significant parts of the American government have come to rely on.