On the Cusp of the Unmanned Airpower Revolution

by

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Something is rattling in the war machine of the United States. Second-rate Yugoslav air defenses shot down a stealth fighter last year. Uncannily, in the same conflict U.S. commanders nearly exhausted the nation's stockpile of cruise missiles, and refused to let even a B-2 enter enemy airspace without jamming escorts. The Kosovo air campaign demonstrated that the possibility, however remote, of losing a manned aircraft over enemy territory was overwhelmingly unacceptable. But that lesson is not new. In recent years despite having Carrier Battle Groups (CBGs) and deployed Air Force squadrons in theater, America has chosen to fire hundreds of cruise missiles in attacks on Iraq, Afghanistan, and Sudan. Evidently, even when they have manned forces on hand, leaders prefer spending hundreds of millions of dollars on unmanned weapons to putting any Americans in the line of fire.

These trends signal the need for a radical change in the structure of U.S. airpower. It is time for unmanned ordnance delivery systems to replace manned aircraft. This will keep air warriors at safe distances in a paradigm shift that could be as revolutionary for airpower as the development of precision artillery was for ground war. Technology has already proven that you don't need a man at the scene to carry out either tactical or strategic air missions. In fact, when the moment of truth approaches, leaders scramble for unmanned alternatives. There are powerful motives for this tendency, and, fortunately, there are unmanned technologies in the wings ready to meet the demands.

Vicious Cycles of Risk

To begin with, large, expensive, manned military systems are prone to a vicious cycle of resource consumption. For example, in order to ensure that a multi-million dollar pilot in a single $50-million plane is not on a one-way mission, it is now necessary to furnish a vast strike package of jamming, SEAD, refueling, and interceptor aircraft. This mass of manned aircraft requires an extensive forward support infrastructure, including elite rescue forces for both man and machine. As the tolerance of the American public for risking its warriors tightens, it becomes increasingly difficult to ensure their security since every manned precaution is also a liability. In fact, our experience in Kosovo suggests that U.S. tolerances are becoming so demanding that practically no amount of support can reduce our warriors' risk to an acceptable level.

Aware of this vicious cycle, the Air Force maintains that it was worth $40 billion to buy 20 B-2 stealth bombers. In theory, these planes take off from a single base to any point on the globe, rendezvous with a few tankers, and penetrate enemy airspace without escort to drop up to 32 bombs. In this extreme case of investment to reduce risk to

warriors, we are told that the ability to put only 2 pilots in harm's way is worth spending $2 billion on a single airplane—even one that is notoriously hard to maintain and effective only at night! Surely this can't be the most cost-effective means of putting ordnance on target.

This vicious cycle hits Navy airpower even harder because its mobile hardware is more limited and vulnerable. Not only do naval warriors require additional nautical support personnel, but every person and dollar of hardware floating in a hostile theater demands some extra amount of security to protect the investment. Once the U.S. has put a $4 billion aircraft carrier at sea and loaded it with $1 billion of arms and 5000 sailors, it must then invest in numerous support and protection ships. The result is the U.S. Navy's modern Carrier Battle Group which ties up tens of billions of dollars in resources. The mission of the CBG is to maintain air superiority and project airpower with its F-14 interceptors and F/A-18 bombers, yet these aircraft are a tiny part of the support and security machinery of the CBG. Though they are massive and inefficient at projecting airpower, the Navy is trying to maintain twelve CBGs!

The only way to break the vicious cycle we currently face is to remove warriors from ordnance delivery systems. Fortunately, current unmanned weapons technologies promise to do this while saving money. The goals of maintaining air superiority and projecting airpower can be handled completely by Unmanned Aerial Vehicles (UAVs) and long-range missiles. The solution to America's airpower quandary is ripe for the picking.

Promises of Unmanned Weapons

While America's only operational long-range UAV is the Predator, even this relatively unremarkable reconnaissance system was in such high demand during the Kosovo conflict that there weren't nearly enough Predators to go around. These UAVs proved so useful that, had the air campaign run any longer, emergency plans were equipping them with laser targeting devices to guide smart bombs onto the targets they found. Unmanned aircraft have the capacity to fill every role currently handled by manned airplanes—from reconnaissance to SEAD, air-to-air combat, and bombing—while keeping pilots out of danger. In a day in which pilots rarely see their targets and increasingly defer to automated systems, the value of "a pair of eyeballs in the cockpit" is actually a liability. Designs for combat aircraft without cockpits (UCAVs) promise order-of-magnitude increases in stealth with triple the maneuverability and a third the price tag of manned variants. Whether pictured as glorified cruise missiles in which the motor, guidance, and control systems fly home for reuse, or as fighters minus-the-cockpit, UCAVs are not only more capable than manned aircraft, but also uniquely expendable.

The adoption of unmanned airpower would allow the Navy to replace its CBGs with arsenal ships—stealthy, armored vessels capable of delivering as much firepower as an aircraft carrier. The benefits in terms of both dollars and vulnerability of such a substitution are astounding: It could cut hardware at sea by at least 90%, and deployed personnel by up to 99%. Aside perhaps from a submarine escort, an arsenal ship stands

alone, able to launch missiles and UAVs in all weather and at any time of day to reach targets well over 1000 miles away. In contrast, the new F/A-18 aircraft—the keystone of CBG airpower—have a combat radius of about 400nm at best, and prefer not to fight during the day or in severe weather.

What Are We Waiting For?

Although these unmanned technologies are widely acclaimed, acceptance by those in power has been unenthusiastic, at best. Northrop Grumman designed a $500 million arsenal ship requiring a crew of only 50. The Navy decided not to build any, although it recently commissioned a $4.5 billion Nimitz-class aircraft carrier, is building another, and plans to begin a third in 2001. DARPA committed $116 million this year to pay Boeing for a "demonstration" of UCAV technology. Meanwhile, however, the Air Force has spent close to $20 billion on engineering and manufacturing development of the F-22 air superiority fighter (which will cost at least $100 million per copy to produce). Plans are in motion for a manned Joint Strike Fighter program to cost $1 trillion over the next 35 years.

UCAVs are clearly not a priority with decision-makers; arsenal ships, for the time being, are dead in the water. This is devastating loss for the United States. From a purely financial perspective, arsenal ships and UCAVs are less expensive to buy, less expensive to train on, and less expensive to employ than any of the hardware they replace. Never mind the fact that they drastically reduce the number of American warriors at risk—to practically zero for the types of air operations performed recently.

We have become accustomed to the application of military force from increasingly safe distances. In a time when the alternative to using a dozen aircraft for a single bombing mission is a $2 billion airplane, it is clear that the only way to continue reducing the risk/force ratio is to completely remove warriors from ordnance delivery systems. Today we can say that there are unmanned alternatives to manned weapons. And while the capabilities of the human being are not changing very rapidly, the technologies behind unmanned weapons are advancing at a fantastic rate. It is clear that in the near future unmanned weapons will so dominate manned variants in every measure that unmanned will be the standard, not the alternative.

In the place of one CBG, we could deploy a dozen arsenal ships. In the place of one B-2 we could deploy a hundred UCAVs. With such compelling numbers, it cannot be long before the services embrace these new technologies to save both money and lives. Indeed, for the "Nintendo war" generation, UCAVs look like an obvious technological step. It would not surprise those accustomed to cruise-missile warfare to see a missile return home after releasing its payload, nor would it surprise a person accustomed to playing computer games or riding in computer-controlled commercial planes to have a remotely-operated aircraft perform a reconnaissance or SEAD mission. The casualties associated with traditional war will no longer be tolerated as it becomes clear that unmanned military platforms are both effective and economically attractive.

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