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NOVEMBER 2012

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ALSO

THE CYBER TERROR BOGEYMAN

P.W. SINGER

WORRY LESS ABOUT CHINA'S RISE THAN ITS FALL

COL. JOHN A. MAUK

DON'T BOX IN THE RED TEAM

LT. COL. BRENDAN S. MULVANEY

AND

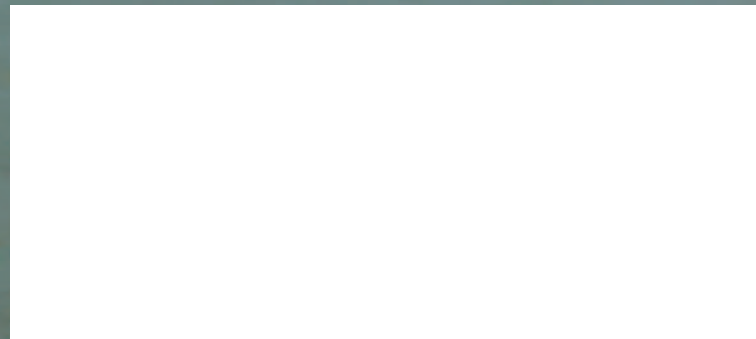
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In devoting more resources to manned aircraft and cutting unmanned systems, the Air Force is investing in the past, the authors say.

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In this issue



Bradley Peniston, Editor

Dissent is always difficult, yet history is rife with examples of people who spoke out against consensus and saved the day. In a military context, dissent is especially tricky. Good commanders value those who can resist groupthink long enough to levy thoughtful criticism of a policy or plan, but not at the cost of good order, discipline or too much precious time.

That's where red teams come in. These independent groups work under a commander to cast a fresh eye on everything a unit or organization does, providing — at least in theory — an antidote to groupthink, unexamined assumptions and rote. The idea is powerful enough that joint doctrine writers are looking at incorporating the idea.

Lt. Col. Brendan Mulvaney, who runs the red team for the Marine Corps commandant, applauds the move, but he also warns of a danger. Some see teams like his as a way to understand their operating environments, especially the people — allies and adversaries alike. Mulvaney argues that a red team's highest and best use comes when its spotlight is directed at one's own side.

AFJ, of course, works to facilitate a similarly orderly clash of ideas.



Singer

This month's cover article challenges Air Force leaders on the subject of unmanned aerial vehicles. **Lt. Col. Lawrence Spinetta** and **Missy Cummings** see disaster, or at least a long-term slide into irrelevance, in recent decisions that appear to undervalue UAVs in comparison with manned fighters and bombers. Another piece, by contributing editor **Peter W. Singer**, aims a dart at the ballooning fears that

somewhere, a terrorist is going to hit the Return key and unleash physical mass destruction — say, by opening a dam's floodgates. In his own article, **Col. John Mauk** says we may be worrying too much about China's rising economic and military might and not enough about internal difficulties that may foment instability in the country, the region and even the world.



Mauk

And just to show that we're not always about conflict, we offer **Lt. Col. John Johnson's** primer on what uniformed leaders should know about a national-security partner with whom the military is working ever more closely: the CIA.



Mulvaney



Spinetta



Cummings

Bradley Peniston
Editor

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Gutting its UAV plan, Air Force sets a course for irrelevance

BY LT. COL. LAWRENCE SPINETTA
AND M.L. CUMMINGS

In early 2011, then-Defense Secretary Robert Gates warned that the Air Force, which had bowed to pressure to fly more unmanned aircraft, might revert to its Cold War-era focus on manned fighters and bombers. “The view still lingers in some corners that, once I depart as secretary and once U.S. forces draw down from Iraq and Afghanistan ... things can get back to what some consider to be [the] real Air Force normal,” Gates said. “This must not happen.”

The secretary left several months later, and as if on cue, the Air Force began rolling back the inroads made by unmanned aircraft. The retrenchment is as shortsighted as it is unsurprising. The Air Force’s enduring relevance depends on its ability to give up the old and embrace the new.

UAS FLIGHT PLAN, GROUNDED

This year, the Air Force has announced three major decisions that eviscerate its “Unmanned Aircraft Systems Flight Plan 2009-2047,” a roadmap that provided for an increasingly unmanned force.

First, in January, the service terminated procurement of the Block 30 RQ-4 Global Hawk. It also revealed plans to ground and mothball its young Block 30 fleet, 18 aircraft with an average age of just two years. Remarkably, several birds currently in production will roll directly off the assembly line into storage.

Yet in June 2011, a month before Gates left office, the defense undersecretary for acquisition, technology and logistics had certified the Global Hawk Block 30 as “essential to national security” per the Nunn-McCurdy Act. The certification also asserted that the plan to replace the aging manned U-2 aircraft with Global Hawks would save \$220 million per year.

To justify its abrupt reversal on the respective merits of the Block 30 and the U-2, the Air Force changed the basis of comparison. The service reduced the range of its surveillance orbit requirement from 1,200 nautical miles, which favored the Global Hawk, to 400 nautical miles, which favored the U-2. Northrop Grumman, the Global Hawk’s manufacturer, called the Air Force’s justification and analysis “flawed.”

The Global Hawk was also supposed to pave the way for three more large unmanned aircraft: the MQ-La, MQ-Lb, and

Air Force leaders must recognize that manned aircraft development is at a point of diminishing returns.

MQ-Lc. The Air Force has yet to take any steps to develop those aircraft.

Second, in February, the Air Force ended the MQ-X program. The linchpin of medium-size UAS development under the UAS Flight Plan, its modular design was to help unmanned aircraft take on a host of missions monopolized by manned aircraft, including air interdiction, electronic attack, suppression of enemy air defense and mobility. That vision is now dead. Medium-size UAS development appears to consist of little more than a couple of Predator C test aircraft.

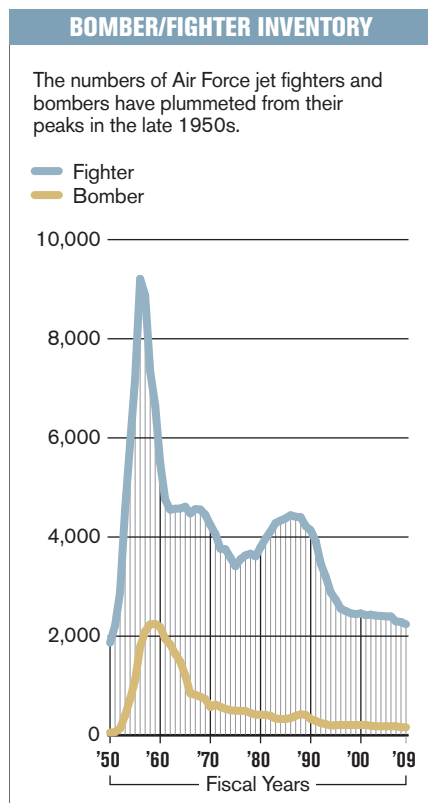
Instead, the Air Force said it would watch the Navy's Unmanned Carrier-Launched Airborne Surveillance and Strike system. The Navy, of all the services, is the farthest behind in terms of UAS development. Its UCLASS program is not scheduled to deliver any operational platforms for at least a decade.

It is possible that the Air Force moved UAS development behind closed doors, but that assertion is, at best, speculation. Moreover, it contradicts the reason service officials gave for killing the MQ-X: "At this point we do not see a need."

Third, and just two days later, the Air Force halved its planned acquisition of MQ-9 Reapers. Instead of 48 in each year from 2013 to 2017, the service will purchase just 24.

According to the UAS Flight Plan, the Air Force should be "accelerating" unmanned innovation, not canceling programs. Cutting the Reaper buy might be justified by the drawdowns in Iraq and Afghanistan, but the same cannot be said of the service's decisions to cancel the MQ-X and shrink-wrap and store its

LT. COL. LAWRENCE SPINETTA, an Air Force pilot with fighter and UAS experience, currently serves on the Joint Staff at the Pentagon. He holds a doctorate in military strategy and previously served as a Checkmate strategist and Council on Foreign Relations fellow. **MARY "MISSY" CUMMINGS** is an associate professor at the Massachusetts Institute of Technology and director of the MIT Humans and Automation Lab. She was one of the Navy's first female fighter pilots and served on a recent Air Force Scientific Advisory Board on unmanned aircraft. The views expressed are those of the authors and do not necessarily reflect the policy or position of the Air Force or the Department of Defense.



SOURCE: AIR FORCE ASSOCIATION

brand-new Block 30 Global Hawks. Moreover, given the drawdowns, one would expect similar cuts in manned aircraft; none such have occurred.

In fact, Air Combat Command's "Strategic Plan 2012: Securing the High Ground," released in March 2012, not only reaffirmed the Air Force's commitment to acquiring the F-35, it declared the development of a next-gen fighter and bomber a "must." Tellingly, the Strategic Plan makes no mention of unmanned aircraft.

To add insult to injury, the Air Force appears to be exploring ways to dump its promise to make its next-generation bomber optionally manned. Service officials accepted the requirement after Gates blocked the development of a manned bomber in 2009 and insisted on an optionally manned design as precondition for reviving the program last year. In May, Lt. Gen. James Kowalski, who leads the Air Force Global Strike Command, said that cost considerations are "probably going to make it difficult to

afford an unmanned solution. ... I think that would be a real challenge for industry."

He continued: "Right now, we're going through that process of determining [the bomber's required performance] parameters. I think what we will discover is that [cost] may, in fact, be what drives us in terms of the trade space on manned and unmanned [capability]."

A DEAD-END PATH

Retrenchment returns the Air Force to business as usual. Yet enduring relevance will not be secured by ever-more-sophisticated versions of manned aircraft such as the F-22 and the Joint Strike Fighter, a plane that if procured as currently planned will become the most expensive weapons program in history.

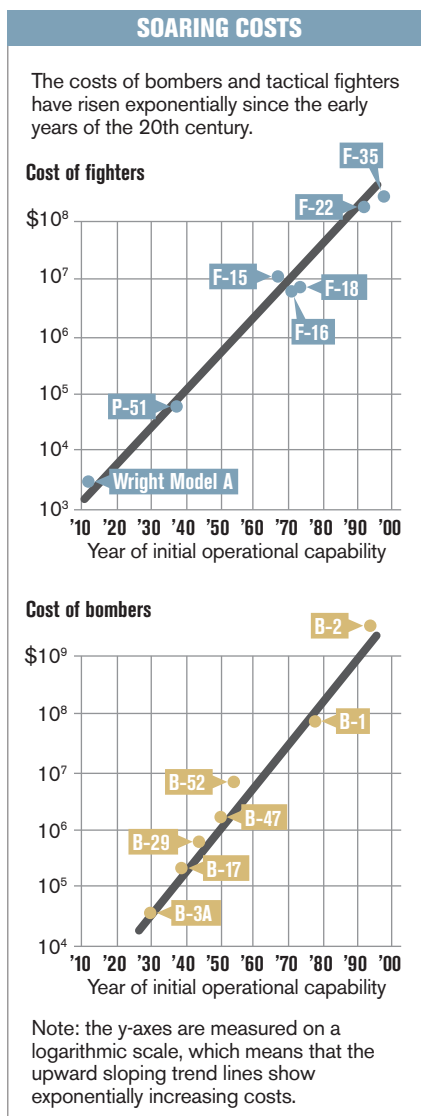
Indeed, the Air Force preserved much of its relevance over the last decade precisely because Gates pushed the service to accelerate its adoption of unmanned aircraft, a task he famously compared in an April 2009 speech to "pulling teeth." Two months later, Gates took the unprecedented step of firing

Gen. T. Michael Moseley, the Air Force chief of staff, and Michael Wynne, the service secretary. Gates publically cited lapses in maintaining nuclear surety as the reason for their dismissal, but intransigence over unmanned aircraft played a significant role in his decision.

Moseley disagreed with Gates's directive to get the Air Force to rely more heavily on unmanned aircraft. Furthermore, the general flatly refused to sacrifice the Air Force's prized program, the F-22, to pay for the increase in unmanned aircraft. Moseley cut nearly 40,000 airmen to free up money so the Air Force could internally re-program funds to continue F-22 production, thereby circumventing Gates's intentions to orchestrate a remix of airpower. Worse, Moseley continued to lobby Congress for F-22 funding after Gates made clear his priorities lay elsewhere. Moseley alleged a potentially catastrophic "fighter gap," something Gates dismissed as "nonsense." Incensed over the disobedience, the SecDef fired the chief and the secretary. Then he intervened to end production of the F-22, calling it "a niche, silver-bullet solution required for a limited number of scenarios."

Such scenarios have failed to appear and the F-22 has yet to fly a single combat sortie. Sen. John McCain called the advanced jet "largely irrelevant to the most predominant current threats to national security — terrorists, insurgencies and other non-state actors." He wryly notes that the plane's biggest contribution to national security has been its "occasional appearances in recent big-budget Hollywood movies where it has been featured fighting aliens and giant robots."

Unlike its fictional performance on the big screen, the F-22's actual operational record has been dreadful. In 2010, a dozen Raptors en route from Hawaii to Japan for their first peacetime overseas exercise turned around when a Y2K-type glitch caused their electronics to go haywire after crossing the International Date Line. In 2011, recurring flaws in the plane's



SOURCE: NORMAN R. AUGUSTINE.

oxygen system, vital for sustaining life in an airborne cockpit, led the Air Force to ground the jet for five months. McCain calls the Raptor fleet "the most expensive corroding hangar queens ever in the history of modern military aviation."

By contrast, the MQ-1 Predator, which took to the skies at about the same time as the Raptor, became a workhorse in the wars in Iraq and Afghanistan. Over the last decade, it has racked up over a million combat flight hours, more than any other Air Force platform. The Predator's combat record is especially remarkable considering that unmanned technology is still in a relatively early stage of development. If the UAS revolution continues, the Predator will equate to the Ford Model T or the Wright Flyer. The Predator spawned the bigger, more lethal Reaper (originally called the Predator B), which made its combat debut in 2007 and has since amassed combat flight hours at a frenzied and accelerating pace. Today, the Air Force flies 65 Predator and Reaper combat air patrols — that is, keeps that many aircraft on station 24 hours a day. That's up 300 percent from five years ago, yet it has not dented what Gates called "insatiable" demand for UAS support.

The Air Force's abandonment of its UAS Flight Plan not only squanders this promising growth opportunity, it unwisely conjoins the service's future to the life cycle of manned combat aircraft. The accompany-

ing graphs chronicle a persistent pattern of decline that suggests a moribund, if not a "terminal," prognosis. Bomber numbers have plummeted more than 90 percent from nearly 2,500 in the late 1950s to a relatively miniscule 162 today. Fighter numbers have suffered a similar, albeit less precipitous, drop.

Two factors have accelerated the decline of manned combat aviation. First was the adoption of the intercontinental ballistic missile. The first unmanned revolution in airpower, ICBMs

UAV continued on Page 32

essentially replaced bombers one-for-one. Second, exponentially rising unit costs have made manned combat aircraft increasingly unaffordable. Without exception, every generation of bomber and fighter aircraft since the Wright Flyer has been an order of magnitude more expensive than its predecessor.

In 1983, Norman Augustine, an aerospace executive who became the chairman of the board of Martin Marietta, offered a tongue-in-cheek prediction: "In the year 2054, the entire defense budget will purchase just one aircraft. This aircraft will have to be shared by the Air Force and Navy 3½ days each per week except for leap year, when it will be made available to the Marines for the extra day." Thirty years later, Augustine's observation about exponentially rising unit costs remains, to use a pun, on the money.

Augustine's prediction for persistent inventory declines also proved accurate, although fighters temporarily bucked the downward trend in the 1980s. Flush with cash after the Reagan administration increased defense outlays 213 percent, the service went on a fighter spending spree, reversing 20 years of declining numbers. (Why fighters? In 1982, fighter pilots wrested the institutional helm from the "bomber mafia" who had dominated the service for more than 30 years. Once the service's largest subculture, bomber pilots, undermined by the adoption of the ICBM, were now outnumbered four-to-one by fighter pilots. The appointment of Gen. Charles Gabriel, the first fighter pilot to become Air Force chief of staff, marked the start of a 26-year unbroken succession of eight fighter pilot chiefs — or nine, counting the 1990 interim term of Gen. John Loh.)

The reprieve, however, was short-lived. Defense spending shrank with the end of the Cold War, and the downturn struck just as the Air Force was already struggling to fund the B-2, the "bomber mafia's" last hurrah, and the F-22, a fifth-generation air-to-air fighter championed by newly empowered fighter pilots. As Augustine predicted, both the B-2 and the F-22 were an order of magnitude more expensive than the aircraft they were designed to replace. As a result, although the Air Force wanted 120 B-2s, it ended up with two

dozen; instead of 750 Raptors, Gates terminated production at 187.

The Air Force demands, and receives, more capability in each new generation of manned aircraft, and this drives complexity and cost skyward. As another of Augustine's laws puts it, the "last 10 percent of performance generates one-third of the cost and two-thirds of the problems." As an analyst quoted by Defense News said when problems in the Joint Strike Fighter program led to cuts in planned production: "This is a vicious cycle, as each decline in purchases reduces economies of scale, which in turn raises prices, which in turn results in more reductions in purchases." The smaller quantities lead the Air Force to demand even higher performance from the following generation of manned aircraft, and the cycle begins anew.

A NEW WAY

Continuing to add layer upon layer of cost and complexity onto fewer manned platforms is not a viable path. As it stands, the Air Force's planned purchase of 54 aircraft in 2013 translates into a 100-year replacement rate.

Unmanned aircraft, while in no way immune to Augustine's laws, nonetheless offer so much capability for so little money that they represent a way out of the service's force structure death spiral. If the Air Force is to ride this disruptive technology to continuing relevance, leaders must recognize that manned aircraft development is at a point of diminishing returns. They must also be willing to cannibalize the very technology to which the service owes its past success, identity and power. By definition, adopting disruptive innovation requires a service to destroy, reinvent or redirect an important part of itself. In this case, the challenge of embracing unmanned aircraft is that it requires signing an organizational death warrant for fighter pilots, which is difficult for a service that prefers to measure its force structure in "fighter wing" equivalents. Indeed, the service still accounts for UAVs as "other aircraft," underscoring the view that unmanned aircraft are ancillary — notwithstanding that the Predator and Reaper are the top-requested air assets in Iraq and Afghanistan.

Gen. Norton Schwartz, the first Air

Force chief of staff without a fighter or bomber background, was appointed by Gates after he fired Moseley. Schwartz observed that the Air Force faces a remarkably similar choice to one it confronted 50 years ago. "There was a time when some in our Air Force thought that missiles and other unmanned vehicles were not a good fit into our core mission, and thus had no place in our service," he said. "We are at another one of those points of inflection. Now, it is clear that we must reconsider the relationship between people, machines and the air. The technology that initially allowed us to slip 'the surly bonds of Earth' has progressed to the point where pilots on the ground can now remotely operate highly capable, highly maneuverable and highly versatile unmanned vehicles."

In highlighting the ICBM story, the general hoped to impress upon his service the following point: "Those who are able to capture and embrace technology have a significant advantage over those who have not."

Schwartz, an advocate of an increasingly "unmanned" Air Force, suggested his service should use lessons from its ICBM experience to guide its UAV development and adoption decisions: "History, in all its aspects — good and bad — informs our efforts today. We [must] seek to learn from our shortcomings, and to avoid them in the future; but, the storied history of the United States Air Force suggests that much of what we have done are things that we do want to repeat."

Schwartz made strides. For example, he created a career field specifically for UAV pilots. But no chief can order a service to innovate. Much of a chief's power lies in the power of persuasion, and it helps to have backing from above. Schwartz, whom the fighter pilot coterie saw as a creation of Gates, became a lame duck with the SecDef's departure. Consequently, he was unable to prevent the UAS Flight Plan from being cast aside.

With Gates gone, Schwartz retired and the return of a fighter pilot as chief, it appears the Air Force plans to invest in its past rather than the future. The Air Force should heed the advice of former Army Chief of Staff Gen. Eric Shinseki: "If you dislike change, you're going to dislike irrelevance even more." **AFJ**

Defending cyberspace | Flying backwards | Culture-savvy Marines

**TO DEFENSE
SECRETARY LEON**

PANETTA for establishing a baseline cybersecurity doctrine for the U.S. military and for simultaneously pressing Congress to do its part to shape national policy on the issue.

Panetta's Oct. 11 speech defined America's justification for the use of offensive cyber weapons: Attack us and we will strike back.

In putting a white-hot spotlight on a particularly baffling aspect of national-security policy, he laid bare Congress' failure to create laws that ensure privately held national infrastructure is adequately protected.

Yet in doing so, Panetta earns a dart, as well, for muddying the public debate with over-the-top rhetoric. Cybersecurity experts have long quipped that the proper response to the words "cyber Pearl Harbor" (and yes, Panetta used those very words) is to go find someone else to talk to. There are indeed threats aplenty in the still-new cyber domain. But conflating the likely and unlikely ones is a real recipe for disaster.



TO THE AIR FORCE for attempting to return to the thrilling days of yesteryear, when manned jets ruled the skies.

Looks like Bob Gates called this one. A few months before he retired, the outgoing defense secretary warned that Air Force leaders would try to tear up the inroads that UAVs had made into the service's pilot-centric culture. Sure enough, the service now intends to hustle new Global Hawks into storage, halve its Reaper buy and abandon research into the next generation of midsize UAVs. The USAF's defenders may blame the defense downturn, but they didn't cut manned aircraft as a result, only the ones without cockpits.

There's no use denying that remotely piloted aircraft are a disruptive technology. Compared to manned aircraft, they deliver a large fraction of capability for a small fraction of the price. Historically, organizations that cling to the old in the face of the new are ultimately forced to change or die.



TO THE MARINE CORPS for requiring all new sergeants to get culture-and-language training.

Starting last month, Marines who ascend to E-5 and above enroll in familiarization courses focusing on one of 17 regions around the globe. The Corps has been running similar programs for new lieutenants and warrant officers, and rightly saw the value in equipping its enlisted leaders with matching skills.

The logic is simple enough: Marines can be sent anywhere in the world on short notice, so it's important to establish a cadre who can help those around them get up to speed on relevant cultural nuances, paving the way for productive cooperation with partners, allies and locals. Linking the training to promotions sends the proper message: Senior leaders see cultural training as essential.

