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John Chapman Medal of Honor

For his heroism in Afghanistan, TSgt. Chapman was awarded the nation's highest honor for valor in combat.

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FEATURES

DEPARTMENTS

STAFF

ON THE COVER

John Chapman, MOH recipient. In celebration of *Air Force Magazine's* 100th year, our cover also features a vintage logo from 1964.

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By Adam J. Hebert, Editor in Chief

John Chapman and Inspiring Leadership

Gen. David L. Goldfein, Air Force Chief of Staff, has a large framed picture of a sergeant on his Pentagon office wall. It is, naturally, not just any sergeant. It is John Chapman, the combat controller killed in March 2002 while fighting entrenched al Qaeda terrorists high in the mountains of Afghanistan.

Nearby, in Goldfein's office sitting area, a propeller blade is mounted on the wall. This is the propeller from the MQ-1 Predator aircraft that flew over Chapman, "in his last hours, while he was fighting the enemy," Goldfein told *Air Force Magazine* in a recent interview.

Video from this Predator captured Chapman's extraordinary heroism, which eventually led to Chapman's Air Force Cross being upgraded to a Medal of Honor—the nation's highest award for valor in combat.

The Predator, orbiting overhead, showed Chapman repeatedly attacking enemy positions. He was hit by enemy fire and presumably knocked unconscious. Later, when he recovered enough to resume fighting, he did exactly that—again attacking enemy positions at close range.

"As he fought his way to his death on that mountaintop, he did so to protect his teammates," Goldfein said. "He did that in as tough an environment as one could ever imagine, and he refused to stop until the very end."

Chapman was there for his teammates, an example that resonates in today's Air Force.

"When we see these young airmen like John Chapman [exhibit] extraordinary courage under the worst conditions," it is an inspiration to all airmen, Goldfein said.

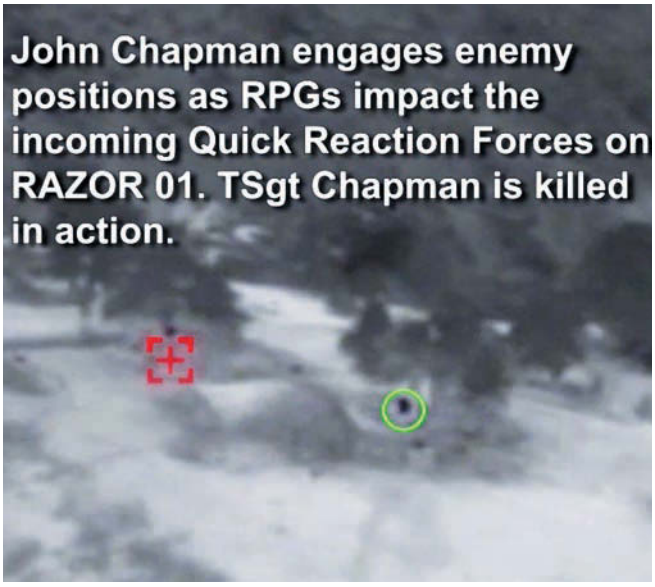
Chapman's example resonates in today's Air Force, which has been at war nonstop since 1991. Even the terror attacks of 2001 are now 17 years in the past. Some 96 percent of today's Air Force joined after 9/11, which means "the vast majority of airmen ... have never actually known a day of peace," Goldfein observed.

"Probably the most important thing we can do to keep people in the United States Air Force ... is to put in inspirational commanders and leaders, both officers and NCOs," Goldfein explained. The wrong leaders create hostile environments and send airmen heading for the exits.

"Our airmen are far too smart to walk by or not see a say/do gap," Goldfein said, referencing leaders who would tell their subordinates one thing but behave differently. "If they see me saying one thing and doing another they're going to see right through it."

The Air Force recognizes the importance of leadership by example at all levels—from NCOs, to squadron commanders, to generals—and is working now to find and develop the 21st century leaders it needs.

USAF asks much of its airmen and families, so "this to me is nothing short of a moral obligation, to make sure we put the best leaders in place," he said.



A still image from a grainy Predator video shows Chapman, circled in green, during the battle on a mountainside in Afghanistan, fighting for his life and the lives of his teammates.

Photo: USAF

The corollary is that abusive, toxic, autocratic leaders are not going to find success in today's Air Force.

"There was a period of time in our Air Force some years ago where the autocratic phone slammer [was] able to survive," Goldfein said. "My sense is that that kind of leadership will not survive ... anymore."

At the end of the day, he said, officers and NCOs are graded on two things: character and competence. Many airmen honored for valor in recent wars humbly say they were just doing their jobs, and anyone in the same situation would have done the same thing. The right leaders rally the troops behind them and create a culture in which airmen will eagerly go the extra mile to ensure success, whatever the mission might be.

"When it comes down to it, you're looking to your left and to your right and saying, 'please God, don't let me let my buddies down,'" Goldfein said.

Although "only" a tech sergeant, subsequently promoted to master sergeant, Chapman led by example. He did not let his buddies down.

"We may look at what John did and say he is a hero, but then we are not one of his team or the other teams that go in where angels wouldn't tread," Chapman's father, Gene Chapman, wrote to his son's squadron commander after his son was killed.

"John is proud to be part of you, and if you could ask him right now, he would tell you what he did was for his family, friends, and the teams he worked with."

The Air Force is blessed to have airmen like Chapman, those willing to put others first regardless of the circumstances. May the Air Force continue to attract and develop America's best, men and women who will lead by example. ✪

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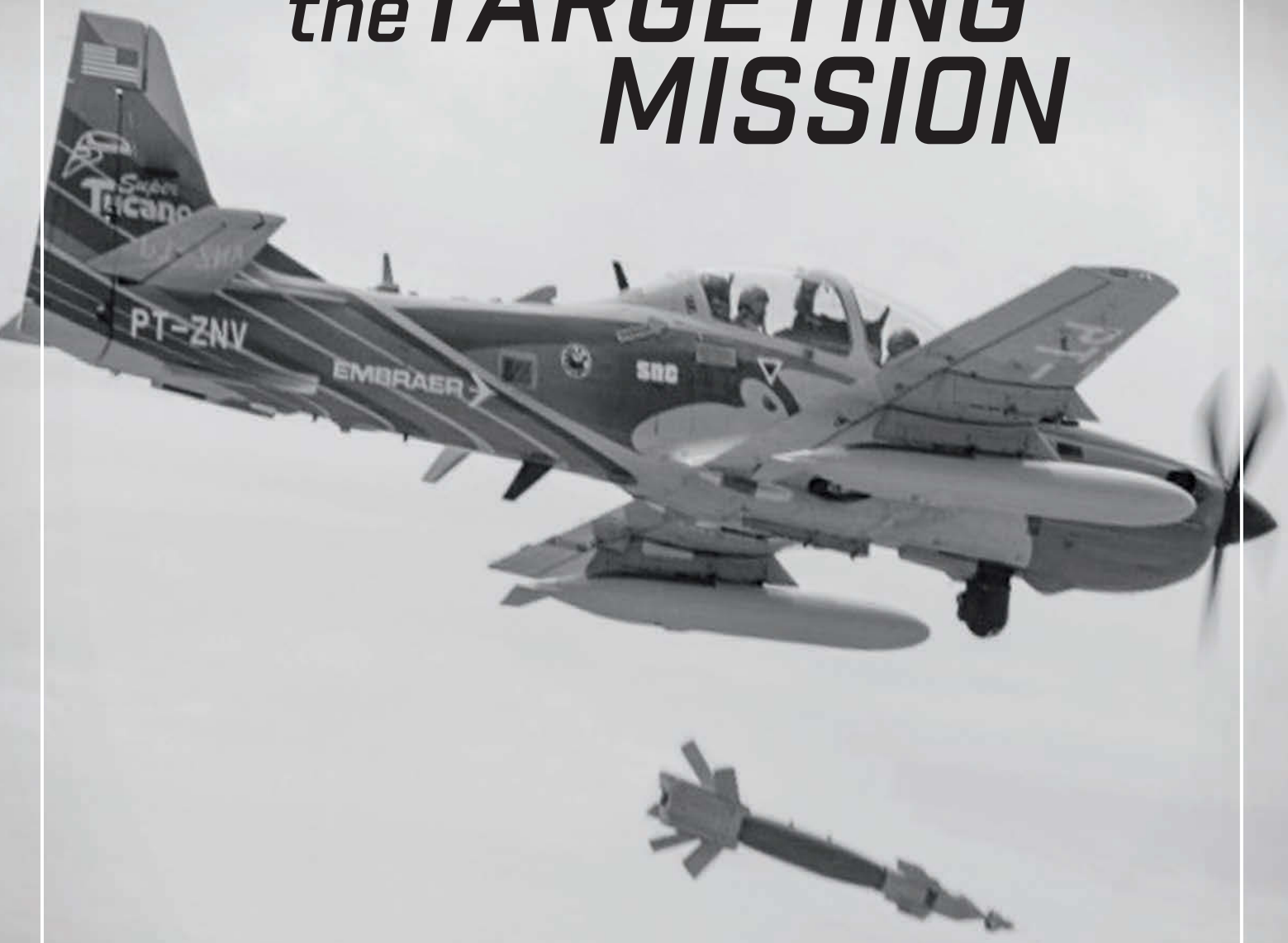

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Letters

Monetary Collusion

Regarding your July issue's "Verbatim: Revenge of the Nerds" [p. 60]: While 3,000 Google staffers protest their employer's involvement in a Pentagon [artificial intelligence] project, Amazon staffers are silent about their company's profitable collusion with US intelligence agencies.

Amazon gets $600 million of taxpayer's money for providing cloud computer services to the entire federal Intelligence Community. The 10-year contract, awarded by the CIA in 2013, puts all classified data from 17 US intelligence agencies on a cloud operated by Amazon Web Services. Classifications range from sensitive to top secret. "This is a radical departure for the risk-averse Intelligence Community," noted *The Atlantic* magazine (July 2014).

Some serious security mistakes have occurred, which Amazon was seeking to remedy, reported *The Washington Post* (Nov. 20, 2017).

Security risks aren't the only problem. Amazon CEO Jeff Bezos faces a huge conflict of interest. He owns *The Washington Post*, which covers the Intelligence Community, while Amazon gets a multimillion dollar payment from US intelligence agencies. He may soon get a "$100-billion handout" from the Pentagon, warns an outfit named Less Government in a recent full-page newspaper ad. The DOD "is set to award a no-bid 10-year contract for all of its IT infrastructure to administration enemy Jeff Bezos' Amazon." Why should a high-tech tyrant who's worth $120 billion (*Forbes*) receive one dime of tax payer's dough? And why does our president allow this insanity?

President Trump blasted Amazon for exploiting the US Postal Service's low mailing rates and not paying state and local sales taxes. He condemned *The Washington Post's* "biased" coverage of his administration. Why doesn't he cancel the contract or ask tough questions about it? For example: Why do our intel agencies need Amazon's cloud computer services? Do they deliver packages instead of hell-fire missiles to terrorists and other bad guys? Why didn't competing bidder IBM get this contract? It has cloud computer capability, decades more experience in cyber technology, and reportedly submitted a lower bid. IBM filed a protest over the CIA's contract award decision.

Taxpayers must ask a larger question. Why does more than 50 percent of our federal intelligence budget go to private contractors who place a higher priority on their bottom line than on the front line of the war on terror and defense against major power competitors? Amazon isn't the only culprit. Consulting firm Booz Allen Hamilton got an NSA multimillion dollar contract while paying a six-figure salary to high-school dropout and traitor Edward Snowden.

It's time to tell these high-priced hired guns to take a hike.

Richard Reif
Flushing, N.Y.

WRITE TO US

Do you have a comment about a current article in the magazine? Write to "Letters," *Air Force Magazine*, 1501 Lee Highway, Arlington, VA 22209-1198 or email us at letters@afa.org. Letters should be concise and timely. We cannot acknowledge receipt of letters. We reserve the right to condense letters. Letters without name and city/base and state are not acceptable. Photographs cannot be used or returned.

—The Editors

Represent!

I thank Mr. Endsley for his service and respect his right to an opinion, but (with all due respect) he seems to have failed to consider some relevant points ["Letters: Walmart Isn't a War Zone," August, p.4].

First, the Active Duty Air Force had approximately 900,000 members during his period of service, which is nearly three times what it has today. This sharp decrease in personnel (combined with an increased number of missions and widespread unit manning shortages) mean there are fewer airmen doing far more work, which leaves less time for "spit-shining" shoes. Second, the military was still using conscription when he served, so many of those airmen from yesteryear were compelled to do virtually whatever their higher-ups demanded for the privilege of leaving the installation. The vast majority of today's airmen don't live in barracks or require permission from their chain of command to leave the base anymore. Third, there is a huge difference between giving "an appearance of professionalism and discipline" and actually demonstrating those qualities. Today's airmen are a team of highly professional warriors, and a review of disciplinary actions taken against the airmen of 1956 to 1962 compared to those of recent years would likely show quite a difference in level of relative discipline. Fourth, although some may prefer fashion over function, the airman battle uniform (and soon the operational camouflage pattern) was designed to best meet the needs of military members in accomplishing their everyday missions. The military spent a great deal of time, money, and effort to determine the most appropriate utility uniform to get the job done.

I have some suggestions for anyone who holds an opinion similar to that of Mr. Endsley. If you'd like to see military personnel in service dress uniforms, attend ceremonies at which that uniform is generally worn (such as a commissioning, promotion, change of command, wedding, funeral, graduation parade, or event at which civilian counterparts wear an equivalent outfit). If you believe the official guidance from the Air Force should be changed, submit your specific recommendations to the uniform board that decides what improvements should be included in future versions of AFI 36-2903. I suspect (and hope) our military will never return to the days when looking "attractive" took priority over being militarily competent, but if that is what you prefer as a citizen then contact your elected officials to encourage the tripling of current manning levels across the board ... and don't forget to mention how incredibly eager you are to fund it with related tax increases!

Jamey Haigh
Montgomery, Ala.

About the Air Force adopting the Army's operational camouflage pattern: What a waste of my taxes! I joined the Civil Air Patrol cadet program in 1966. Within two years, all the patches and collar insignia I purchased were

deemed obsolete, and so began a cycle of constantly purchasing new items. There was the change from silver chevrons and name tags on the fatigue uniform in 1978. There were the "blueberry" airmen stripes in 1976 (who was the flaming genius who thought of that?). Then it was BDUs in 1987. Before I retired in 1992, there was the change to the master sergeant stripes ("top three", really?). For what? All because some colonel or some chief master sergeant with too much time on their hands decided to make a change, which confirms my opinion there are no improvements, only changes. None of this had anything to do with winning wars, which should be the main consideration when any "improvement" is contemplated. I enjoyed serving in the Air Force; the uniform changes are one thing I don't miss.

MSgt. Michael R. Betzer, USAF(Ret)
Lancaster, Calif.

North Korea Nukes

In the August 2018 editorial ["For Korea, the Hard Part Comes Next," p. 2], Mr. Hebert summarizes by normalizing the actions of this current president. Trump was not aware or did not care to understand that NK had no intention to denuclearize its country. Trump is known to discount and dismiss intelligence briefs. By "inverting the normal diplomatic process," Trump gave Kim an equal footing internationally with the United States. This is something no other president fell victim to and was circumspect in avoiding. A "radical new approach" may be necessary, but within diplomatic circles only. Trump is ignorant of how diplomacy should evolve. His tactics may work for his base, but not on the international stage.

Lt. Col Gerald P. Gilbert, USAFR (Ret.)
Diamondhead, Miss.

Forced Space

I read your article in the August 2018 issue regarding President Trump's pontifical directive for the creation of a United States Space Force with distress ["Making the Most of Military Space," p. 38]. I had heard about this pronouncement in the news, but had not really taken it seriously. I find this proposal totally unrealistic and feel it makes no sense either militarily or economically. This is particularly true given the fact that the United States currently does not even have the capability of putting a person in orbit and has not since the retirement of the space shuttle fleet in 2011.

Considering the fact that the Air Force is currently struggling to keep aircraft flying that can only be described as antiques, the nation can ill afford the expense of creating another military service with redundant and superfluous function.

Another point to consider is the effect of further militarizing space to this extent. Should this questionable directive proceed, it would surely prompt our potential adversaries (Russia and China) to proceed in a similar manner. Both those nations actually do have the ability of placing manned spacecraft in Earth orbit. We need only to look back on the results of the United States pulling out of the Anti-Ballistic Missile (ABM) treaty with the Russians and placing Patriot missile systems in Europe. This caused a respondent withdrawal from the START II treaty followed by major nuclear and missile development by the Russians, including addition of MIRVed [multiple independently targetable re-entry vehicle] warheads to their missiles.

If President Trump wants to increase our capacities in space, he should press for increased funding for manned spacecraft and heavy lift boosters, both civilian and military. Unless he is aware of an imminent invasion by extraterrestrial beings, his "directive" should be regarded by Congress as yet another occasion of his off-the-cuff statements that are out

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of sync with the best advice of people who actually know what they are doing. Congress and the Defense Department should just ignore it!

Frederic Albrecht,
US Navy (Ret.)
Rohnert Park, Calif.

So the President of the United States directs the Pentagon to begin creation of a Space Force and it's on p. 38 with no mention on the cover. It does not surprise me that Congress has the impression that the Air Force doesn't prioritize Space.

Space is the high ground. In any battle the advantage is from the high ground. It can also be it's own battleground as well. The people that enter the Space Force—or, I think it should be Space Corps—need to know the difference and how to apply space assets in battle. Having a Space Corps will gather experts in warfare with experts in space assets, the technology.

Space training is unique. Space has it's own history, its own pioneers, its own leaders across all of the services and in the scientific field. You don't learn this in basic training in any of the services. You learn it later through space courses taken throughout your career. The Air Force tracks these airmen, Marines, soldiers, sailors, and government civilians and tags them as space professionals. Then there is the technical training to use the systems. The number of people required to operate the systems is small, so it doesn't fit the large pipeline models of military training.

Space acquisition and the space budget needs to be different. You cannot spend 10 years building a system, not fully fund it, and then expect it to work like it's supposed to. Having shorter procurement times and fully funded budgets brings systems online faster and capabilities to the warfighters faster as well. It also keeps current space systems working and operational. I've seen it and know it can work.

The Space Corps will come from all of the services. Yes, the majority of space assets and people are in USAF, but there are many in the Navy, Marines, and in the Army and other agencies. There are space professionals working in all branches of the military. This Space Corps may not start with new accessions, but come from all of the services. Like the Marines are under the Department of the Navy, it can be kept under the current Department of the Air Force.

Can we have a Space Corps in three to five years? With our current president and the right leadership, yes.

Lt. Col. Janet Pattison,
USAF (Ret.)
Lucedale, Miss.

Obviously, all this Space Force talk has not played out. One option I think to be considered: Rename the "Air Force" to the "Aerospace Force." Problem solved.

USAF has had the aerospace mission, for many years, thus, enter Space Command.

This option would save the taxpayers money and get the job done.

MSgt. Larry Breazeale,
USAF (Ret.)
Anaheim, Calif.

Getting Bearish

Your article titled "Intercepting the Bear" (April/May, p. 52) about Cold War aerial engagements prompted a letter by Col. Richard Graham in the August issue reminding us of the role SR-71 Blackbirds played in peripheral reconnaissance around the USSR. Developed to replace the U-2 Dragon Lady for overflights of the USSR, it was never employed in that role. Meanwhile, the U-2 continues

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its astounding service life that began with the first operational mission over Eastern Europe in June 1956 by Carl Overstreet, a "sheep dipped" former USAF pilot for the CIA.

The USAF U-2 operations began a year later with peripheral reconnaissance missions flown by SAC's 4080th SRW based at Laughlin AFB, Texas. For six years overflights remained a CIA responsibility but that would change dramatically in mid-October 1962 when President John F. Kennedy (JFK) gave the lead to the USAF at the start of the Cuban Missile Crisis. Maj. Steve Heyser brought back the first pictures confirming Soviet nuclear-tipped ballistic missiles were secretly emplaced in Cuba just 90 miles off Florida's shores. Heyser, Maj. Rudolph Anderson Jr., and nine others would fly near-daily missions over Cuba from McCoy AFB in Orlando tracking the status of missile sites under construction. Their efforts were in direct support of JFK as he strategized how to resolve the crisis that threatened to turn the Cold War red hot. They were joined by RF-101 Voodos conducting low-level photo missions with then-Lt. Col. Carl Overstreet returning to the fold and flying on the first day.

The nuclear missile sites were defended by 24 SA-2 Surface-to-Air (SAM) sites, a proven threat to the U-2s. On orders from Moscow the Soviet-manned air defense radars had not been activated early on, but at the urging of Castro, they were brought to combat-ready status on the night of 26 October. Late the following morning Major Anderson's U-2 was shotdown by a SA-2 without the consent of USSR Chairman Khrushchev. Khrushchev and JFK realized events were spiraling out of their control and just 24 hours later reached an agreement to end the crisis. Poshumously, Major Anderson, the only casualty of the crisis, was awarded the first Air Force Cross as noted in the June almanac.

We now know that due to an intelligence communications failure he was tasked to fly over eight SAM sites with no means to warn him of impending peril. Inexplicably, a newly released book by *New York Times* bestselling authors relates a discredited story that another U-2 pilot had been fired at by the same SAM site two days before. They further speculate that Gen. Curtis LeMay and perhaps Gen. Maxwell Taylor conspired to cover-up this incident, fearing JFK would cancel U-2 missions! Most damning, the lead author alleges that Major Anderson's family was ordered to vacate base housing at Laughlin almost immediately after his death and states this was customary by the military as their presence would lower morale! I would hope AFA would take issue with this assertion with the publisher.

Col. H. Wayne Whitten,
USMC (Ret.)
Lutz, Fla.

I Like Ike, I'm Fond of John

Reference the August 2018 "Eisenhower's Farewell Warning" article in *Air Force Magazine* [August, p. 56].

I've been an admirer of President Dwight D. Eisenhower since I proudly wore an "I Like Ike" button during the presidential election of 1952. I'm also a long-time admirer of John T. Correll whose many articles in *Air Force Magazine* have inspired and educated me for many years. As a reader of *Air Force Magazine* and supporter of the Air Force Association since my commissioning, it is articles like this that helps keep me close to the Air Force, even in retirement.

Thanks for all that you do for airpower.

Col. George M. Kobernus,
USAF (Ret.)
Traverse City, Mich.

Four-in-One

This is in regard to "Is It Time to Get Serious About the E-4 NAOC and Missile Defense in Alaska?" ["From the Daily Report," July, p. 13].

Following the KC-X project for the last 10 years, it has come up how Boeing has wanted to replace the vast majority of USAF planes with the 767 air frame or a version of the KC-46 rather than from the RC-135s to the E-3s and the E-4. From a business point of view this would be a golden opportunity too good to pass up and a great internal goal to work towards. And the last I saw was that they were looking at trying to combine the duties of the C-32A(VIP) & B(AFSOC), and the USN's E-6 Mercury into a common KC-46 derivative. For the first two this seems like no problem at all, but the issue comes when trying to make a version to replace the E-6. Talking about it seems like a no-brainer, except when you look at the fact that the E-6 has a massive trailing antenna it has to have out back to talk to the subs just like the the E-4, but it causes so much drag that it flies above stall speed while it orbits. If all the equipment from the E-6 is loaded onto the KC-46 along with whatever is brought over from the E-4, with a full combat crew and fuel, then have to orbit with that trailing antenna out, it is a very big possibility the plane would stall and fall out of the sky, forcing the crew to cut the antenna and make an emergency landing, or worse, killing the crew. Now the talk is trying to combine the duties of the E-6 and E-4 together into the same common KC-46 derivative airframe, and for the Navy this would be a huge upgrade plane as they would have more floor space and be able to upgrade computers and operator stations with newer, better equipment.

But for the E-4 operators, this would be a downgrade, since the E-4 was originally a combination of two different planes, including "Looking Glass," that had "Air Force One" capabilities essentially added among other things over the years making it a 4-in-1 plane. So even though it is a large plane it has an abundance of capabilities that would be hard-pressed trying to squeeze into a 767 air frame after being in a 747 airframe, let alone the shorter range of the 767, too. There is a possibility that if forced to leave the 747 in favor of the 767 airframe, that many capabilities could be lost, in favor of saving money and having a common airframe that seems to benefit Boeing more than to actually address national defense needs. If USAF is smart, they will look at it from the E-4s' point of view and just start looking at either the 777-200ER or 787-9 (even though the latter might be expensive) to combine the capabilities with that of the E-6 and be able to drag those massive five-plus-mile-long antennas and anything else needed to talk to the sub and land-based nuclear missiles. After the capabilities of those two planes are addressed and the appropriate airframe is chosen, fulfilling the C-32 roles will be easy.

Chris Brown
Charleston,S.C.

Correction: "Tiny But Mighty Knob Noster," a letter published in September ["Letters," September, p. 6], was written by MSgt. Stephen J. Spear, USAF (Ret.), San Antonio. We regret the misattribution.

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By Jennifer Hlad

Airmen from the US Indo-Pacific Command and Thai SEAL team members stage for dive operations at Chiang Rai, Thailand.

THE AIRMEN AT THE THAI CAVE RESCUE

KADENA AB, Japan —

SSgt. James Brisbin was on vacation with his family in Kyoto, Japan, when he got the call on June 27. The search and rescue pararescueman with the 31st Rescue Squadron had already planned to return home to Okinawa that afternoon, but when he arrived at Naha Airport, he was "scooped up curbside" and taken straight to the Kadena flight line, where he walked onto the waiting C-130 wearing board shorts, a T-shirt, and a few days' stubble.

Maj. Charlie Hodges, commander of the 320th Special Tactics Squadron, was sitting in the cockpit, because the normal passenger area was too full for him to find a seat. Hodges, Brisbin, and about 30 other airmen knew they were headed to Thailand for a search and rescue effort involving a cave, flooding, and mountains, but they didn't know much else.

The team became part of the Thai-led multinational effort to rescue 12 boys and their soccer coach, who had hiked into a labyrinthine cave system and were trapped inside when water flooded the caves.

At first, rescuers were not sure the boys and their coach were still alive, and they did not know exactly where they were. But after days of searching for alternate routes into the caves, two British divers found the boys and their coach safe, deep inside the cave.

Though some people had proposed taking food and water to the team and letting them wait out the rainy season, others were concerned that oxygen would run out before they could make it out. They decided to use a plan created by the Thai military and the international team to dive into the cave and bring the boys out, one by one.

The plan was not easy. Maj. Craig Savage, a spokesman for Air Force Special Operations Command, said the dive operations carried "significant risk and probable death," but noted that the Thai government's decision to approve the plan demonstrated its confidence in the Thai Navy Seals and the international team of rescuers, as well as the government's commitment to rescue the boys and their coach. Unfortunately, former Thai Navy Seal diver, Saman Kunan died while volunteering with the rescue.

The boys had to be sedated to prevent them from panicking underwater, Savage said. An Australian anesthesiologist and an Australian veterinarian were stationed with the team and coach in what the team called "Chamber Nine," to sedate each child before the dive began. Escort divers would guide each sedated boy through the nine chambers to the mouth of the cave, taking care not to let them collide with a rock or wall that could dislodge their face masks.

Additional divers from Thailand, Europe, and the US were stationed throughout the cave's other eight chambers. Brisbin, who was a cave-diving enthusiast before he joined the Air Force, and USAF SSgt. John Merchand manned Sump 3, a semi-submerged hollow, narrow pathway—measuring about 20 feet wide and only two or three feet high—helping to move the boys from Chamber Three to Chamber Two.

Hodges, who served as the mission commander for the US rescue team, said it took the divers anywhere from three to four hours to move a child from Chamber Nine to Chamber Three. It could then take an additional hour or more to get to the mouth of the cave, where the children were sent to a field hospital and then a waiting ambulance.

"Throughout this entire cave, from the mouth back to Chamber Nine where the kids are, there's many, many sections, some of which are fully submerged underwater, some of which are partially submerged—so maybe you're swimming or wading but your head is above water—and there are sections that are completely dry," Brisbin explained.

The layout of the cave is "as if you create a tunnel through the rock that is traveling in random directions, and then you dump a bunch of boulders into that," Brisbin continued.

Divers had to climb and swim through the space between the rocks, some of which were "the size of a human rib cage," forcing them to take their dive gear off to be able to squeeze through, he said.

But despite the extreme difficulty of the mission and a number of very close calls, the international team was able to rescue all 12 boys and their coach.

"We absolutely took some risks," Hodges said, noting that they thought it would turn out well but weren't certain it would turn out as well as it did.

"My guys knocked it out of the park," he said. ✪

Photo: Capt. Jessica Tait


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By John A. Tirpak, Editorial Director

ACQUISITION AT THE SPEED OF FEAR

The Pentagon and industry agree that a faster tempo of military prototyping and experimentation is key to getting ahead—and staying ahead—of China, Russia, and other world competitors. The Air Force is on board, but it'll take time and dedicated effort to shake off the risk aversion that has settled on the service in recent years.

In an interview with *Air Force Magazine,* Gen. Ellen M. Pawlikowski, head of Air Force Materiel Command (and slated to retire after 40 year's of commissioned service) expressed confidence that USAF will get there—that there are world-leading achievements ahead in hypersonics, directed energy, biology, materials science and artificial intelligence, to name a few—but overcoming the fear of failure won't be a trivial task.

"We are where we are in acquisition because this is what we asked for," Pawlikowski said. "And we woke up and realized it was taking too long to get technology out there."

The culprit was a push in the last decade to closely tie research dollars to a predictable outcome or to answer a stated operational requirement; an approach that makes it easier to justify budgets but discourages the risk-taking necessary to achieve scientific breakthroughs.

"Especially after sequestration, we have [a] structure—even outside the acquisition community—that has driven us to scrutinizing every single dollar we spend and trying to justify that we absolutely have to spend it," Pawlikowski said.

She continued that USAF has "an appetite to … put money into these experiments" without a certainty that "you're really going to get anything out of it."

The services are being given new authorities to try new approaches. However, "We can put all kinds of rules in place that will allow program managers to go fast and allow us to team up with the operators" on quick solutions to operational problems, "but our budgeting and programming system has not adjusted to that." Until it does, the Air Force will struggle to accelerate its technological advance, she said.

Pawlikowski considers the OA-X or "Light Attack Experiment"—evaluating small armed turboprops to substitute for high-end combat jets in uncontested airspace—a success so far, but even with this high-profile venture, the money couldn't keep up with the pace of the project.

"First of all, there's the automatic two-year lag" between getting a "great idea" and creating a budget line for it, much less a "program of record," Pawlikowski observed.

With the OA-X, "we were able to demonstrate we could use … other transaction authorities," she said. "I'm very proud of my test team, on how they were able to run fast but still put together a structured test program that enabled us to collect data to help us make a decision." That, she said, is "the key to an experiment, right? It's not a demo, it's not a stunt." The project was created in order "to learn from it."

Hampering the project is the fact that the requirements community can't really make up its mind whether it actually wants the Light Attack asset, Pawlikowski said.

It's still struggling with, "how much 'off the shelf' am I willing to accept?" she noted. Ultimately, money was put into the Fiscal 2019 budget request to pursue OA-X.

Speed is going to require batting down the fear USAF will "spend money that we get nothing for." Also, because of the two-year budget lag, "we're going to need to have flexibility to move dollars around in the year of execution," she warned. If OA-X needs more money than planned, "I can't really influence that until I do an omnibus [reprogramming of funds] next spring, right?"

Speeding development requires "buy-in across the spectrum, to include the Congress, all the way through the Department of Defense, the Air Staff" and financial managers. The need is to "have the flexibility within the dollars in a year to be able to make a decision and then in six months be on contract," she said. "Because if you don't, then no matter how fast I make the acquisition process, if there's no money to spend, we're not going to go fast."

The Airborne Laser prototype at Andrews AFB, Md., in 2007.

Photo: Brian Everstine/Staff

LESSONS OF ABL

Is there a risk in "trying to do something too fast, too soon? Oh yes," Pawlikowski said, holding out the Airborne Laser (ABL) program, which she led for nearly five years, as the "poster child for that."

For Pawlikowski, who holds advanced degrees in chemistry

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An Embraer Super Tucano A-29, left, on the tarmac as a Beechcraft AT-6 taxis at Holloman AFB, N.M., during the Light Attack Experiment.

and has extensive program management experience, ABL was seemingly a perfect project to direct. An enormous flying chemistry set, ABL was a 747 crammed with the plumbing needed to feed the enormous chemical-oxygen iodine laser (COIL). The idea was to shoot the laser at a ballistic missile in its boost phase from over 100 miles away, rupturing its casing so the missile would explode and fall back down on the country that launched it. The prime threat it was meant to counter was North Korea.

When she took the program over she was told "all that was left was the engineering of it." ABL proved far more complex than that, and Pawlikowski agreed with the program's termination, on the grounds that it was too expensive and cumbersome, even though it worked. "It needed another cycle of tech maturity and engineering, and nobody had the stomach to put another $3 to $4 billion into another single airplane," she observed.

Breakthroughs can't be planned, she said. The only way to mitigate the risk, on any brand-new technology venture, "is not to make it resource-constrained, and not to have … set an expectation that at a given point, you're going to have something" operationally useful.

USAF is also going to have to get comfortable with accelerated systems not having a fully developed logistics tail behind them, because developing those support systems takes time.

"More rapid fielding means we're going to have to accept that things are not going to be perfect, and we're going to have less of a stable baseline," she noted.

Pawlikowski thinks the future may be marked by buying new systems in small numbers and discarding them when they get hard to support, much as a cell phone user typically buys a new phone instead of trying to sustain one that's 15 years old.

With regard to the light attack aircraft, ideally she'd buy 20 a year, "and when they reach the point where the parts … aren't available anymore," she'd either retire them to the boneyard or sell them to an interested ally and "buy a new one." Increasingly, the effort to support aging airframes is "penny-wise, pound-foolish."

The future Air Force may also not align its program offices under platforms like "fighters" or "bombers" but "align under a mission; … a capability [rather than] under an individual platform, she predicted. "And when we do that … those things that we put on those platforms I believe will be closer to 'throwaway,'" she forecast. Keeping hardware in the system for decades "is killing us" in cost and manpower, she added.

YEA THOUGH I PROTOTYPE…

Much has been made of the "Valley of Death," wherein an experiment is successful, but doesn't make the transition to a program of record.

Pawlikowski said operators will often react to a succesful prototype by saying, "that's not exactly what I want." Then there's "a change in leadership, and the technology sits … sometimes … for years or decades," she explained. But "we never throw anything away," she insisted, and some things resurface later. Some experiments also offer technology that's just too expensive, as with the ABL.

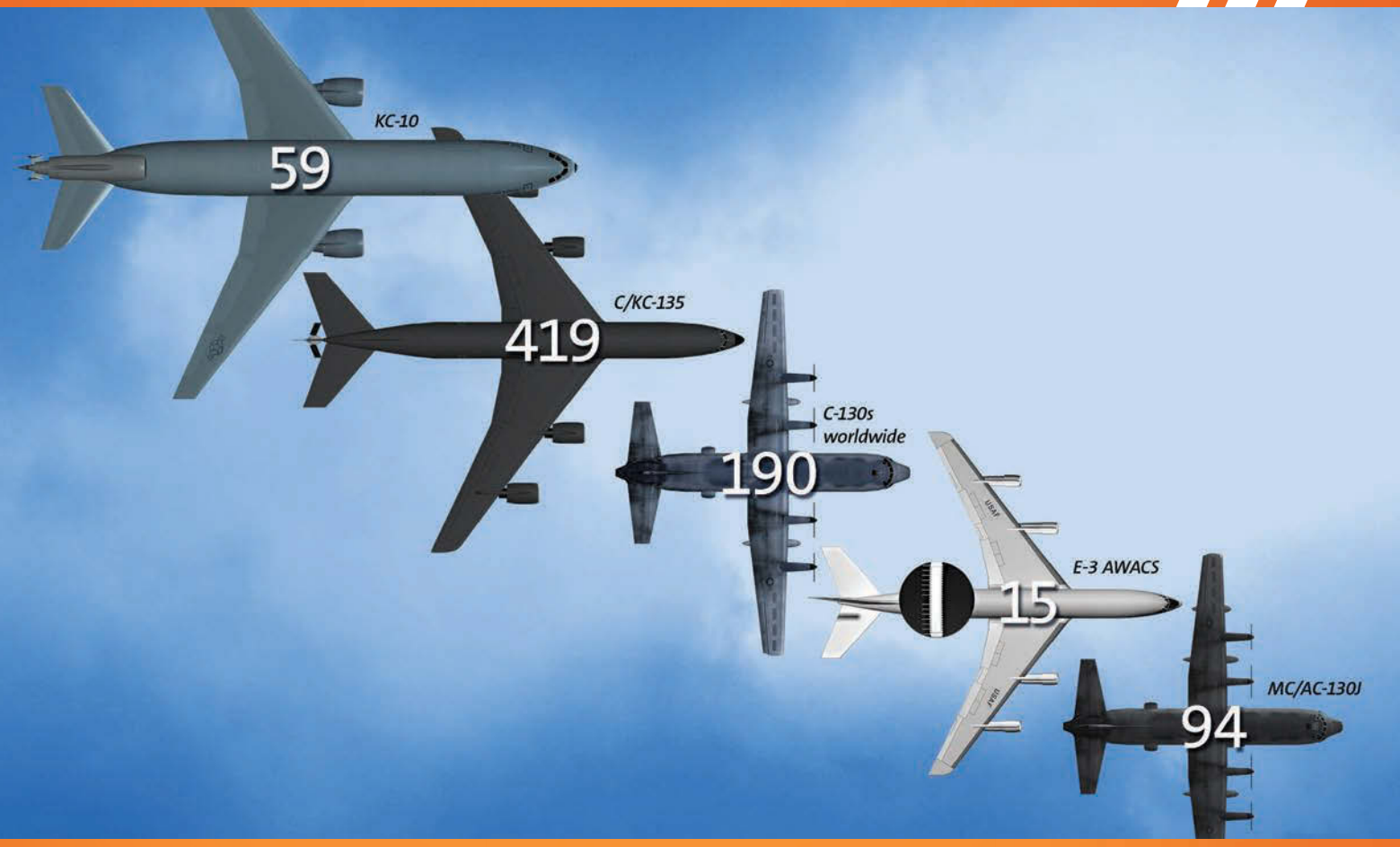
In the future, she predicted "we're going to end up with smaller fleets" of platforms in a multitude of configurations. Information will be the "coin of the realm," and the emphasis will shift from the platform to "what's on the platform."

She thinks quantum computing and quantum sensors will be "a huge enabler" for the Air Force of 20 years hence. Additive, or 3-D printing, will also be "a huge game-changer," because it will disrupt the concept of the supply chain. Biological science—and here she specifically suggested machines that mimic nature, like insects, as well as adapting human beings themselves to be better able to process information—will also be a leading technology push for USAF.

Pawlikowski sees continual shift to robotics, autonomy, and machine intelligence because the idea will be to "get our great Americans further and further away from the pointy end of the spear."

In sum, the Air Force she sees in 2030 is networked, where the primary activity is moving information to where it's needed, uses quantum sensing and communications; employs "disposable" technology and machine intelligence, all to free up a smaller number of humans for only the tasks that absolutely demand them. ✪

Photo: Bobby Jones/USAF



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JOHN CHAPMAN'S MEDAL OF HONOR

The Medal of Honor presentation was a long time coming for TSgt. John Chapman's family, and for the Air Force.

President Donald J. Trump on Aug. 22 awarded the nation's highest honor for valor in combat to Chapman, posthumously, in a crowded White House ceremony. It was the first Medal of Honor awarded to an airman for actions that took place since the Vietnam War, the first for a special tactics airman, and the 19th for the Air Force.

The honor comes more than 16 years after the battle on the Afghan mountaintop where Chapman fought, alone, until his last breath to save his team. It has been more than 30 months since an Air Force investigation determined exactly how valiantly Chapman fought.

Trump presented the blue-ribbon medal, resting in a brown wooden box, to Chapman's widow, Valerie Nessel, on what would have been their 26th wedding anniversary.

"Our nation is rich with blessings, but our greatest blessings are the patriots like John ... who carry our freedom on their shoulders, march into the face of evil, and fight to their very last breath so that we can live in freedom and safety and peace," Trump said.

On March 4, 2002, the air atop the 11,000-foot mountain of Takur Ghar was frigid, and snow was piling up to beyond knee-deep. It was the early days of the War in Afghanistan, and US special operators were deeply engaged in Operation Anaconda—an effort to find and clear al Qaeda operatives in the Shah-i-Kot Valley, in the east of the country.

Chapman's team piled in an MH-47E Chinook, call sign Razor 3, which had its sights on Objective Ginger, a ridgeline on the mountain with a landing zone expected to be clear. At about 4:27 a.m. local time, the lumbering Chinook approached the landing zone, and concealed al Qaeda fighters

John Chapman's Medal of Honor was presented to his widow, Valerie Nessel, at the White House on Aug. 22.

opened up on it with everything they had.

Machine gun fire erupted on the helicopter and RPGs destroyed the aircraft's hydraulic lines. The pilots veered off course and tried to regain control. In the explosions and chaos of the approach, one SEAL—Petty Officer 1st Class Neil C. Roberts—was knocked out of the helicopter and fell to the ground, surrounded by insurgents.

Razor 3 crash-landed almost five miles from its original landing zone, which was teeming with al Qaeda. Roberts, the SEAL, was left behind, his status unknown, and the team had a decision to make.

Chapman trained and fought hard and lived for his teammates, said CMSgt. Michael West, Chapman's best friend and a former teammate. He knew the risks. Given the chance to say no and avoid danger, Chapman volunteered to get back on the helicopter and fight to retrieve Roberts.

"He could have said, 'No, this isn't for me.' But no, he was part of that team, he volunteered to go back up there," West said.

Air Force documents described their decision to fly directly into sure enemy contact to retrieve a teammate, calling it just one measure of Chapman's heroism that night.

The team piled into another Chinook and flew back to retrieve Roberts. This time, the helicopter was able to land and its back door slowly opened. Insurgents were firing directly on them, and two of Chapman's teammates were immediately killed upon exiting the helicopter.

Chapman, according to a video feed from a circling MQ-1 Predator, stormed out and directly engaged an enemy machine gun position—known as Bunker 01. He burst into the enemy's pillbox and killed the insurgents in close-quarters combat. He then focused his fire on a second enemy position—Bunker 02—suppressing their fire and allowing his team to advance.

That's when Chapman was shot the first of nine times.

SEALs, in cover nearby, could see Chapman's gunsight coming out of the bunker. It rose and fell with each breath he took, slowing as time ticked by. Eventually, at about 4:42 a.m., the sight no longer moved. The SEAL team thought Chapman had died in the bunker. The SEALs kept taking fire, and ultimately moved down the mountain. The SEAL team credited Chapman for saving their lives.

"If John hadn't engaged the first enemy position, it would have surely killed us all before we reached cover," one SEAL said in an after-action report.

(The initial version of his actions that night focused on everything that happened up until this point. An Air Force board at the time reviewed the evidence and voted in favor of awarding Chapman the Air Force Cross, though some added that his actions were deserving of a higher honor. One board member wrote if Chapman's actions here did not merit the Medal of Honor, "what would?")

Minutes later, after Chapman's team had left, he came to and continued to fight, trading fire with the enemy in Bunker 02 just meters away.

A friendly team in another position about three miles away heard fuzzy, interrupted radio calls and could make out an American voice saying Chapman's call sign—MAKO 30C.

"I distinctly heard MAKO 30C transmitting," another combat controller on the mission said in an after-action report. "This occurred over a 40-min period. I am absolutely positive that [it] was John's voice. I have no doubt whatsoever. This is based on working with him for several years at the same unit."

Friendly forces and a translator could hear the al Qaeda fighters talking about an American who was still fighting. The circling Predator and two AC-130 gunships could see infrared patches and glint tape moving in the bunker.

A quick-reaction force (QRF) jumped into another Chinook and was approaching the ridge as Chapman was firing on the insurgents. By now, the sun had risen.

Chapman, already wounded by several gunshots, emerged from the bunker and engaged an al Qaeda RPG team on a ridgeline to his right. The al Qaeda fighters in Bunker 02 remained in their position behind him. Chapman continued firing on the RPG team, limiting their effectiveness and allowing the QRF to land. In this final fight, an al Qaeda fighter shot Chapman in the back with a large-caliber machine gun.

Seventeen hours after the battle began, Chapman died on the mountaintop.

Because of the classification of the mission, the Air Force medal board at the time was only able to focus on the initial actions. In 2015, the Defense Department directed each service to identify awards cases that could merit elevation, and Chapman's case was immediately picked. New technology greatly improved the ability to track what happened on that mountaintop.

Using pixel-tracking software, investigators were able to identify Chapman as a blurry mess of pixels and specifically track where he moved and how he fought. While viewing his action, "heroism jumps [out] at you," and shows "the incredible sacrifice" Chapman made, said a special tactics officer who was a part of the investigation.

The team re-interviewed dozens of people involved in the initial fight. They reviewed the video feed from not only the Predator, but also video and radio traffic from the AC-130s. They reviewed Chapman's autopsy, which showed that only two of Chapman's nine total gunshot wounds could have been fatal, and the direction of the bullet proved he had to have been shot in his back from a position below him. All together, these sources told a story of an airman who survived to fight alone, and gave his life to protect the team on the Chinook.

"In this final act of supreme courage, John gave his life for his fellow warriors," Trump said. "Through his extraordinary sacrifice John helped save over 20 American service members."

The review focused on one main finding: The Air Force Cross submission was incomplete and didn't account for everything Chapman did that day.

Chapman's awards package rose through multiple levels, each requiring additional review, and Defense Secretary Jim Mattis eventually granted final approval for the Medal of Honor. He sent the package to the White House.

In the final approval, Mattis determined that two actions satisfied the Medal of Honor criteria: First, Chapman volunteered for the mission, where he charged into fire, seized the bunker, and moved from cover to assault the machine gun. Second, with complete disregard for his own safety, Chapman exposed himself to accurate machine gun fire to protect the quick-reaction force.

For Chapman's family and friends, the fact that he would receive the nation's highest honor for military selflessness isn't a big surprise—it's who he was.

"His whole life, he was a Medal of Honor winner, because he always put others before himself," his mother Terry Chapman said Aug. 22.

When Chapman graduated high school in his home town of Windsor Locks, Conn., he picked an anonymous quote for his yearbook: "Give of yourself before taking of others," Terry Chapman said.

Chapman enlisted in the Air Force two years out of high school. He had an original plan to become a combat controller, but Terry talked him out of it because of the dangers, she said. After four years working in a computer job, focusing on satellite communications, John told his mother he could not take desk work anymore. He decided to cross-train into combat control.

"He made it, and he loved it," she said. "He said, 'This is me.' He was good at it."

The award is "validation" for what John Chapman did on the mountain, said Valerie Nessel, his widow. While "it doesn't change anything," it proves how heroic he was. "He was there by himself, [and] he fought 'til the end protecting his teammates," she said.

Chapman's former squadron commander, retired Col. Ken Rodriguez, said Chapman knew the danger he was in, but the mission, and his team's lives, were more important.

"John would never say 'I knew for a fact I'd never get through this,'" Rodriguez said. "John was very much, 'I'd do whatever I can to get through this.' "

"But he knew in his heart of hearts, I'm convinced," Rodriguez continued. Chapman "knew what kind of danger he was exposing himself to, the enormous risk he put himself in when he struck out to defend that quick-reaction force helicopter and all the men on board." ✪

Photo: SSgt. Rusty Frank

FARNBOROUGH AIR SHOW

SOFTWARE, NETWORKING KEY FOCUS

—Amy McCullough

Farnborough, England—

As the Air Force moves toward an even more connected force that utilizes open architecture systems, artificial intelligence, and machine-to-machine learning, it must also change the way it acquires and develops those systems to ensure they are protected.

"Cyber is something you worry about every day if you do acquisition because software is in nearly everything," Will Roper, assistant secretary of the Air Force for acquisition, technology, and logistics, told reporters at the Farnborough International Air Show in July. "It's embedded in things that 10 years ago did not have software."

Aircraft today have many touch points where malware can be introduced, from the diagnostic systems used by maintainers to the smart bombs hanging off the wings to the data links that enable pilots to talk to each other in the air.

That technology can also pose grave risks.

Roper said most of the conversations he's had here at Farnborough have centered around networking, saying DOD has a lot to learn from industry on how it can improve software development—one of his top priorities.

While industry regularly looks inside its software for things that are unusual or seem out of place, the Defense Department has traditionally opted to build a perimeter to keep cyber attackers out, assuming that anyone operating inside the network had already cleared security.

"That's probably not the right way to build a cyber defense," said Roper. He compared it to the many once-grand castles throughout Europe that were burned to the ground, noting how the moat that had surrounded them proved to be a pretty poor defense.

Kevin Fahey, assistant secretary of defense for acquisition, told reporters those assessments will let DOD know where it should be spending money, though the work will never quite be complete. "It will be ongoing," he said.

Fahey said there is a "concerted effort" across the department to incorporate cybersecurity into acquisition programs from the very beginning. "We're calling it, 'delivered uncompromised,' " he said.

Eric Chewning, deputy assistant secretary of defense, said industry has requested—and DOD plans to provide—regular red teaming exercises to ensure industry is included in the process and there are no security gaps.

Undersecretary of the Air Force Matthew Donovan (l) and USAF assistant secretary for acquisition, technology, and logistics Will Roper answer questions at the Farnborough Air Show.

At its chalet, Raytheon had a cyber dome. Once inside you were transported into an intricate, 3-D cyber world that took the viewer inside the anatomy of a hack, providing a firsthand look at what could happen if an aircraft, or military network, was attacked.

"Everything is connected, everything is vulnerable," cautioned one of the videos playing in the dome. That's why the company—which is most known for its missiles—has made cybersecurity a "major focus" area.

"We deal with high-consequence mission operations and everything that goes with that," said Todd Probert, Raytheon's vice president of mission support modernization.

Raytheon also has a 31,000-square-foot cyber center located in Northern Virginia, where it researches vulnerabilities of platforms, systems, and software. Inside that center it also conducts training exercises for "folks working inside" air operations centers, said Michael Daly, Raytheon's chief technology officer for cyber.

As Roper mentioned, many of Raytheon's cybersecurity capabilities look inside the system and try to understand what's normal and then flag what is not.

Cybersecurity is "never done. It's constantly changing," said Probert, who noted that Raytheon has "deployed numerous systems … across all manners of aviation platforms."

DOD, LOCKHEED REACH F-35 AGREEMENT

The Pentagon and Lockheed Martin announced they have reached a "handshake deal" on the next lot of F-35 strike fighters, saying the agreement sets the stage for future cost savings through multiyear block buys.

Speaking to reporters, officials said the unit price decreased "significantly" for all three variants of the strike fighter. Although the company declined to provide a total price until the deal is finalized, Reuters reported it was worth about $13 billion.

Greg Ulmer, Lockheed Martin's vice president and general manager for the F-35 program, said the Pentagon and Lockheed are "still working to definitize the agreement," which

will cover 141 F-35s, including 50 A-variants for the Air Force.

"Lockheed Martin is on track to reduce the cost of an F-35A to $80 million by 2020, at which point the F-35 will be equal to or less than the cost of legacy fighters, while providing a transformational leap in capability," according to a company statement.

Production also continues to ramp up. In Lot 5, Lockheed delivered nine aircraft a year, compared to 66 last year. Ulmer said it is "on track" to deliver the scheduled 91 F-35s this year, and by LRIP 14 [Low-Rate Initial Production Lot 14] that number will grow to 145 aircraft per year. Lockheed has delivered a total of 309 aircraft to date, he added.

Lockheed, its industry partners, and the Defense Department first rolled out its "Blueprint for Affordability" in 2014, with the overall goal of getting F-35 costs to fall more in line with the cost of fourth generation fighters by 2020. Ulmer said the first iteration generated about $4 billion of savings over the F-35's life cycle, and there are "many hundreds of projects in the works" today associated with Blueprint for Affordability 2.

"We're already forecasting greater than $2 billion of initial savings," he said. "I can't tell you there will be a Blueprint for Affordability 3 yet, but we're having discussions with our customer about that, and that's very much in our forefront."

BOEING RECAPTURES C-17 TRAINER CONTRACT

Boeing has won back a lucrative contract to update the Air Force's C-17 aircrew trainer and maintenance trailer systems, a program it had lost to L-3 Link Simulation and Training back in 2010.

Ed Dolanski, president of US Government Services for Boeing Global Services, said the six-and-a-half year, $986 million contract to replace all of the Air Force's C-17 trainers was a "very meaningful award."

Boeing has had a performance-based logistics contract to sustain USAF's C-17 fleet for more than a decade. During that time, the company has "reduced support dollars for aircraft by 40 percent while maintaining best in class mission capability of 81 percent or greater," said Dolanski.

Now, with the new trainer contract, Boeing can simultaneously make modifications to both the airframe and the trainer, ensuring USAF C-17 operators always have the most up-to-date training available to them, he said.

"We paid really close attention to how we could bring value to this one. We understand the airframe very, very well," said Dolanski. "What changed this time, is this more streamlined and agile approach to how we run services."

A C-17 takes off from a coalition airfield in Syria on June 26.

In July 2017, Boeing reorganized its services division, adopting a matrix approach that brought military and commercial services together across four fundamental areas: parts supply and supply chain; engineering modifications; maintenance, training, and professional services; and data analytics.

"While we've maintained a consistent view to the customer, with the solutions we bring to the table now, it's very, very easy for me to bring commercial best practices," said Dolanski.

GE TO OFFER TWO OPTIONS FOR B-52 RE-ENGINING

GE Aviation plans to offer two engines in the Air Force's B-52 re-engining program, which is finally gaining steam after decades of debate.

Speaking to reporters, company CEO David L. Joyce said GE is confident the CF34-10 engine and the more advanced Passport engine are both "good candidates" for the program.

Joyce said the Dash-10, which flies on the Embraer 190, is proven technology, with 7,000 departures every day. It's not only "incredibly reliable," but also the "perfect thrust size" for the B-52. However, if the service prioritizes fuel efficiency, Joyce said GE can offer the Passport, which will allow for about 14,000 hours time on wing.

"This is one of my favorite stats. If they pick the Dash-10, they get sustainability right now. That engine is performing on wing with the Embraer 190, 20,000 hours ... between overhauls. If you take the 20,000 hours time on wing and put it on a B-52, the airplane might go 50 years without having to remove an engine because of deterioration," said Joyce, emphasizing the significant cost savings that come with a commercially available motor "that's demonstrated that level of maintainability and reliability."

But the Passport, he says, could be equally attractive, because it would decrease the fuel burn by double digits, creating a "whole different mission profile."

Tony Mathis, president and CEO of GE's military systems operation, said he was encouraged by discussions at the December 2017 industry day, saying it appears the Air Force is trying to speed up the program through a rapid acquisition process.

The service's Fiscal 2019 budget request includes $64.5 million to begin the re-engining program.

Pratt & Whitney, Rolls Royce, Northrop Grumman, United Technologies Corp., and Safran USA, also have expressed interest in the program.

Photos: Amy McCullough/staff; SrA. Izabella Sullivan

Gen. Robin Rand, left, and the B-1 crew during their Distinguished Flying Cross presentation in July at Dyess AFB, Texas.

■ B-1 Crew Awarded DFCs for Actions Following In-Flight Emergency

The B-1B crew in the May emergency incident made a split-second decision to stay together and try to land their hobbled aircraft, facing the possibility of spreading fire or malfunctioning egress systems that could launch them out of the plane at any time, USAF Chief of Staff Gen. David L. Goldfein said in July.

Air Force Global Strike Command boss Gen. Robin Rand awarded Distinguished Flying Crosses to Maj. Christopher Duhon, Capt. Matthew Sutton, 1st Lt. Joseph Welch, and 1st Lt. Thomas Ahearn on July 13 for their role in the May 1 incident.

The crew was on a routine mission when their Lancer displayed three fire warnings. While they were able to extinguish two of the fires, one warning remained, and they decided to punch out. However, when one crew member pulled the handle to go, it didn't function, Goldfein told reporters.

"They were on fire, it's never a good thing to have a fire on an aircraft full of fuel," he said, adding, "That young man was sitting on a live ejection seat."

The crew then decided to remain with the plane and try to land. "You gotta think about what was in that crew's mind, never knowing if a gust or something was going to fire them out of the aircraft," Goldfein said. "They made the decision to stay together."

The crew was able to land at a local airport. The investigation found that a component of the egress system was "crimped," and when the crew member pulled the handle, the signal didn't make it to the ejection seat. The B-1's ejection systems have two separate ways to initiate ejection, so the Air Force allowed the Lancers to return to flight after a short stand-down and is now going through technical change orders to ensure the systems are working properly, Goldfein said.

■ Pilot Awarded DFC

Maj. Michael Tolzien, of the 8th Special Operations Wing, was awarded a Distinguished Flying Cross with Valor in July for heroism as an aircraft commander in Afghanistan in January 2016.

Tolzien, the chief of current operations for the 58th Operations Group, received an alert that a special operations ground team had come under heavy fire, was isolated from conventional support, and near being overrun by enemy forces. He immediately prepared his MC-130J Commando II with needed supplies and took off.

The fighting was so intense, the airdrop location was changed a number of times, increasing pressure on the crew to determine the right release point. Tolzien made the airdrop at critically slow airspeeds, just 800 feet above the ground. The aircraft was hit multiple times but Tolzien's actions provided needed ammunition and medical supplies within 50 meters of the special forces team, which prevented further loss of life and "directly contributed to a successful counterattack," the Air Force said.

Two airmen from Cannon AFB, N.M., had already been awarded DFCs for the mission.

A portrait of SSgt. James Grotjan at his memorial service in early August.

■ Airman Dies in Inherent Resolve

An airman deployed for Operation Inherent Resolve died on July 12, reportedly after being exposed to methane gas at Al Dhafra AB, UAE.

SSgt. James T. Grotjan, 26, of Waterford, Conn., died at Landstuhl Regional Medical Center, Germany, after a "noncombat related incident" on July 8. He was assigned to the 4th Civil Engineer Squadron at Seymour-Johnson AFB, N.C.

According to a Facebook fund-raising page, Grotjan was working in a manhole underground when he was exposed to a methane gas leak. While trying to climb out, he became unconscious and fell.

The War on Terrorism

US Central Command Operations: Freedom's Sentinel and Inherent Resolve

Casualties

As of Aug. 22, a total of 54 Americans had died in Operation Freedom's Sentinel in Afghanistan, and 69 Americans had died in Operation Inherent Resolve in Iraq and Syria.

The total includes 119 troops and four Department of Defense civilians. Of these deaths, 53 were killed in action with the enemy while 70 died in noncombat incidents.

There have been 309 troops wounded in action during OFS and 72 troops in OIR.

Photos: SrA. Emily Copeland; SSgt. Brittain Crolley


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BOMBERS WATCHING

Anderson AFB, Guam, is the focal point of USAF's Continuous Bomber Presence and all that goes into supporting It.

By Brian W. Everstine, Pentagon Editor

Twenty-seven years after the Cold War ended, US bombers crisscross the Pacific almost daily, making a show of presence and strength that can't be ignored by Beijing, Pyongyang, or Moscow. Beefy B-52s, slender B-1s, and stealthy B-2s routinely fulfill what the Air Force calls the "Continuous Bomber Presence" (CBP) mission. Its focal point is Andersen AFB, Guam.

Bombers staging out of Andersen fly practice missions throughout the region. They hook up with tankers and exercise with American escort fighters from the Air Force, Navy, and Marine Corps. They have joint missions with allied aircraft, making visits to allied countries and, as necessary, showing off America's "big stick" without subtlety.

Bomber flights over the Korean Peninsula and in the vicinity of China's artificial islands in the South China Sea have sent an unmistakable message that the US is nearby, watching, and

Airmen at Andersen AFB, Guam, ready a B-52 from Barksdale AFB, La., for a practice bombing run in June.

OVER THE PACIFIC

ready to respond as necessary if controversies erupt into armed conflict.

Guam, with its roughly central-western Pacific location—outside the range of most adversary aircraft and missiles—is considered an ideal chunk of US territory from which to mount the bomber presence mission.

USAF began its constant presence of heavy bombers at Andersen in 2004, seeking to assure allies in the region of a strong US presence as North Korea continued its nuclear program. Now, 14 years later, the bomber presence is as busy as ever, and new threats have emerged that require the mission to continue unabated.

"What it does do, aside from building readiness, is it assures partners and allies that we are in the Pacific AOR in support of them," Maj. Gen. Russell L. Mack, deputy commander of Pacific Air Forces, told *Air Force Magazine* in an interview at PACAF headquarters in Hawaii. "It's hard to build partnerships if you are not there."

Besides show-of-force flights over Korea and the South China Sea, bombers regularly fly alongside Republic of Korea Air Force and Japan Air Self-Defense Forces aircraft. They have also made recent short-term deployments to Australia for joint training.

"Building that partnership is presence," Mack said. "We've been doing it since 2004, we will continue to do it for the foreseeable future."

The crews of these aircraft have earned some celebrity in the process. In April, two B-52s from the 20th Expeditionary Bomb Squadron flew a training flight from Guam to Diego Garcia in

Photo: Brian Everstine/staff

A skiff with six passengers, missing for six days in the Pacific Ocean, was located by B-52s operating out of Andersen in a real-world tasking using the bomber's Sniper pod.

the Indian Ocean, flying over the South China Sea along the way. Days after the flight, the sortie made international news and prompted a comment from the Chinese Defense Ministry.

"Everybody loves the B-52," said Lt. Col. Jerred Prier, the director of operations for the 20th Expeditionary Bomb Squadron. The aircraft "is one of the most recognizable airplanes in the world; it carries a lot of different weapons types. Both partners and allies recognize it."

On a recent mission, cruising at about 19,000 feet and 150 miles north of Guam, a B-52 from Barksdale AFB, La., linked up with a KC-135 tanker en route to a bombing range at the tiny island of Farallon de Medinilla. The bomber, named *Ol' Crow Express II,* carried 27 inert GBU-50 bombs on its two wing pylons and in its capacious internal bay. After refueling, it made two passes over the simulated targets: a runway, fuel trucks, and ammunition storage.

The KC-135, tail No. 57-1419, was deployed from the New Hampshire Air National Guard. Its distinction is that it is the oldest jet in the Air Force's inventory. Together, the two four-engined aircraft have logged 119 years of strategic USAF service.

"The region has evolved" since the CBP began, "but the mission has remained constant," said Prier.

When the B-52, the second of a two-ship flying with the code name Raider 22, flew close to the range, it released 18 GBU-50s. The bombs were made of concrete rather than explosive fill, and the release caused the aircraft to shudder and the cockpit to shake. The bomber's Sniper targeting pod tracked the direct hit, showing the impact on screens in the cockpit.

The practice run created new craters on the island, already heavily pockmarked from CBP training. On the second pass, the bomber's massive internal bay emptied its nine bombs and the designated target-points were destroyed.

CHINA PLAYING COPYCAT

While North Korea has been the principal intended recipient of the CBP "message," the 2018 National Defense Strategy, released by the Pentagon in January, focused largely on "great power competition" with China. That country has become a "revisionist power," said the document, which offered China's man-made island-building campaign in the South China Sea as an example. The new islands have been quickly converted into air bases, sensor locations, and staging grounds for military equipment.

The Chinese People's Liberation Army Air Force (PLAAF) has about 120 H-6 Badger variants available, and while most cannot be refueled midair, the new island bases can extend their range far into the Pacific, according to a June Air Force briefing to congressional members.

The PLAAF buildup, and specifically the deployment of the aircraft, looks familiar to the Air Force.

"Is it surprising that they may be copycatting us? No, not really," Mack said. "Because they've been watching us. I guess that could be considered a form of flattery."

Russia, too, has stepped up its bomber flights in the Pacific, primarily in the form of making dry-run flights toward—and then paralleling—US and Canadian borders in the Arctic.

One of the CBP missions, and for Pacific Air Forces writ large, is to preserve rights to freedom of navigation and overflight in the vicinity of the South China Sea, which China largely

Two B-1s, deployed for the Continuous Bomber Presence, fly with a Japan Air Self-Defense Force F-2 over the South China Sea in 2017.

claims as territorial waters without legal justificatioin. The CBP mission is to ensure that access is "free and open to the global commons." China's rhetoric and actions have complicated that environment.

Mack, who was assigned to the Pacific for the third time, described this deployment as more "robust" than his last tour here, which ended in 2015.

"(China) has expanded their capability, expanded their military, ... they're expanding their horizons," he said. "They've watched us for the past three decades. ... They know how the US likes to fight."

In turn, this requires a "challenge to stay innovative," he said. Bomber crews interpret that challenge as meaning they must train for a wide range of possibilities. While the strike mission described above focused on the relatively simple task of refueling and then hitting stationary targets, B-52 training in the Pacific needs to also include exercises such as long-range flights, maritime surveillance, flying in contested environments, and maintaining nuclear proficiency.

"We have to be prepared for any situation, any weapons employment," squadron ops director Prier said.

A DIFFERENT TYPE OF MISSION

In late June, as the 20th EBS deployment was wrapping up, two of the B-52s got the chance to fly a mission that isn't typically in the repertoire of the Stratofortress: search and rescue.

On June 25, the Coast Guard called the squadron's operations center with a real-world tasking—a small sailing skiff had been missing for six days south of the island, and the Coast Guard needed help.

The only aircraft available and ready were the two B-52s, call sign Raider, which had taken off with inert munitions to train at an isolated island north of Guam. The B-52s headed south, about 350 nautical miles from Guam and were tasked with checking two locations where the missing boat might be.

"That's another advantage of the B-52, we have long legs and we carry a lot of fuel," Prier said.

The bombers set up two tracks to fly up and down the area, with a search grid of 230 nautical miles north to south, 500 nautical miles east to west. The pilots searched with their eyes, while "offensive" and "defensive" airmen—the weapons systems and electronic warfare officers, respectively—used the bomber's Sniper pod to search. The real-world tasking now also had training value.

The B-52s arrived at the first set of coordinates, near a small chain of islands, and initially didn't see anything. The boat, which was described in the initial radio call from operations as "like the one in Moana"—the Disney animated movie—wasn't metallic and so it wouldn't reflect sunlight back into the air or give much of a radar return.

When they arrived on scene, the bombers switched to "best endurance" mode; a speed and altitude that would allow them to sip fuel and search as long as possible. They figured they had "about an hour of playtime," said 1st Lt. Jordan Allen, a pilot on one of the aircraft.

Capt. Sean Simpson, the aircraft commander of one of the jets, spotted a tiny white speck to his left. The bomber flew closer, and other members of the crew climbed up in the cockpit to try to see the speck as well. The electronic warfare officers trained the Sniper pod on the location. The pod's grainy monochrome footage showed the boat, with the six lost sailors waving into the sky as if to say, "No kidding, help us," Allen said. The bomber marked the coordinates for the Coast Guard and stayed in the vicinity as long as possible before heading home.

Bomber crews searched the area for just 45 minutes and located the sailors less than four hours after the call. The bomber's "long legs" and capable sensor suite was able to find the lost boat quickly, but it was almost miraculous that the

Photos: USAF; SSgt. Jackie Sanders

crew, from 19,000 feet, spotted the 12-foot boat. There were "puffies"—small white clouds—everywhere, blocking the crew's view of the ocean.

While the boat was spotted relatively quickly, it would take much longer for the sailors to be reached. The nearest ship was 74 miles away and didn't make contact until several hours later. The wayward sailors asked not to be rescued, instead asking for directions and additional supplies. They eventually made landfall mid-morning on Tuesday.

The mission, which forced the crews to immediately shift from direct attack to maritime surveillance without a filed instrument flight plan, was "seamless," Prier said. The crews had been deployed since January, and this was effectively the "capstone" of the deployment.

"It shows how far we've come and how well-trained we are to accomplish this mission," Prier said.

B-52 crews train extensively to drop bombs and destroy an enemy effectively, so it was "nice to do something we don't do a lot," Simpson said. "We're excited to help." ✪

The B-52 *Ol' Crow Express II* on the line at Andersen before a training flight. On one recent sortie out of Guam, it was refueled by the oldest aircraft in USAF's inventory, KC-135 tail No. 57-1419.

Fueling the Fight

ANDERSEN AFB, GUAM —

The flight line here has a long history with the B-52. It was the staging area for hundreds of the big bombers during many high-profile bombing campaigns in Vietnam, including Linebacker II. While it was originally built to handle more than 200 bombers, it rarely hosts more than a dozen today. However, the base infrastructure still needs to be ready for surge operations in a Pacific contingency.

The base has capacity for 66 million gallons of fuel, mainly stored in 12 massive five million gallon tanks and four operating hydrant systems. The fuel comes through Defense Logistics Agency pipelines, running from the Navy post to the south to large storage tanks south of the flight line. Either 25 R11 tanker trucks or 15 hydrant servicing vehicles take the fuel the rest of the way to spigots strategically placed along the tarmac.

All that fuel gets the bombers into the air, but there are continuously deployed tankers flying regularly with the bombers. They also service aircraft transiting through the area of responsibility.

In late June, the tanker force included refueling jets from the New Hampshire, Nebraska, and Alabama Air National Guards, along with Active Duty aircraft from MacDill AFB, Fla., and Reserve aircraft from Tinker AFB, Okla. The Guardsmen typically rotate through the base every 60 days, and fly often.

Guam is "a harsh environment, bringing unique challenges," said Lt. Col Nelson Perron, commander of the 506th Expeditionary Air Refueling Squadron, deployed from New Hampshire. The heat and salt air of Guam demands that the aircraft be thoroughly washed about every 30 days, to hold corrosion at bay.

New Hampshire's jet, 57-1419, still has a "pretty impressive" mission capable rate, he said, though it doesn't have the modernized avionics that the Block 45 variant—deployed throughout much of the fleet—already has installed.

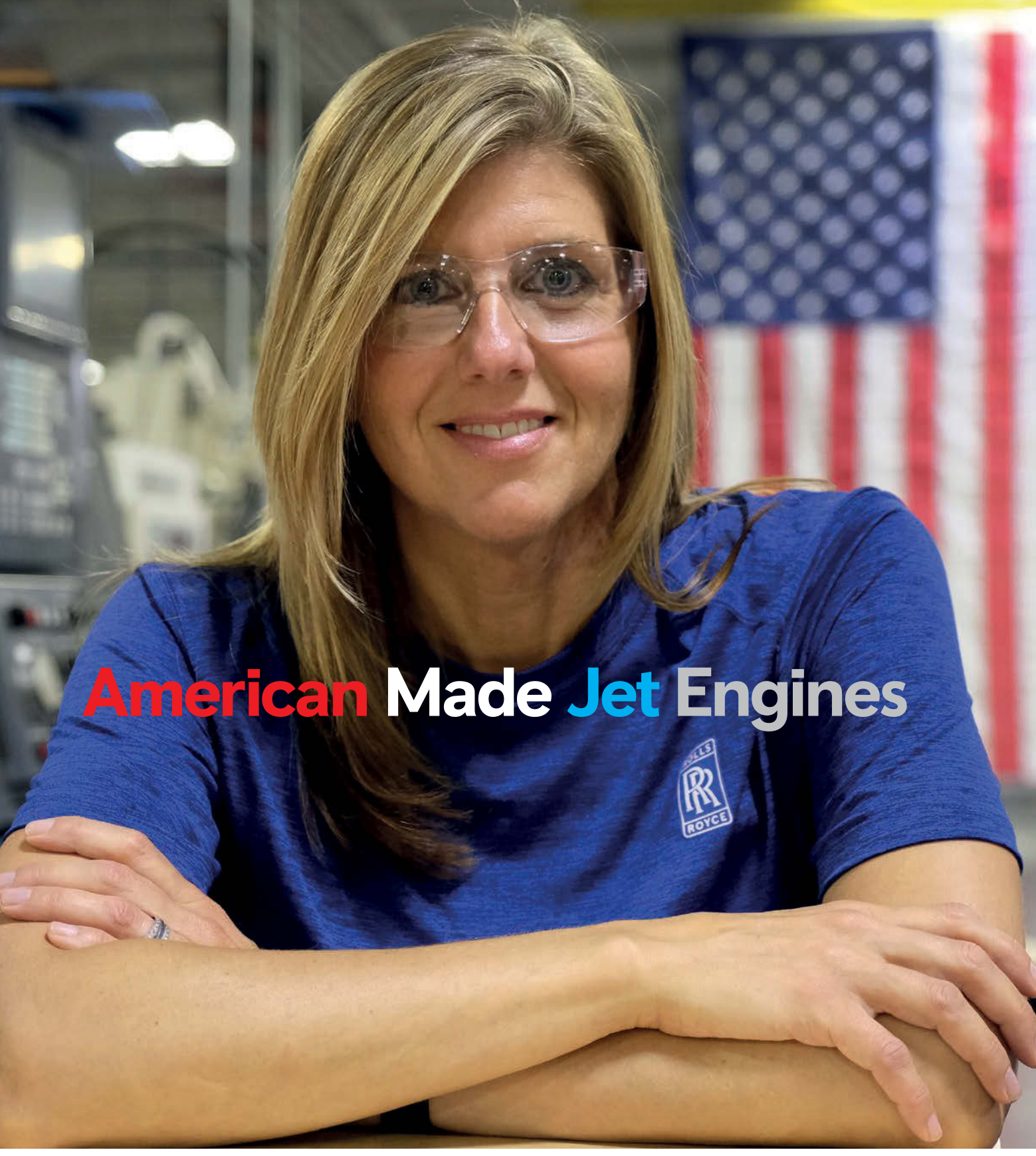
In addition to topping off the B-52s, the recent deployment has seen "coronet" missions, which include refueling fighter jets deploying across the Pacific. For example, the tankers supported F-22s deploying to Kadena AB, Japan, as well as the F-35s that filled in behind them when they left.

Perron himself said he first deployed to Guam in 2005 and has been here six times since. "Now we're flying more missions and more of a variety of missions," he said. The mission is "dynamic," because sometimes tankers surge for large-scale exercises, such as Cope North at Guam, or fly support for high-profile missions, such as the B-52's deterrence flights through the region.

Supporting those missions make the airmen "proud, seeing how much people care about this," said SrA. Clare Handy, a maintainer with the 506th EARS, who was on Guam on her first deployment.

While the New Hampshire airmen are deploying with the Air Force's oldest, they could soon return with the Air Force's newest. The unit will soon retire its KC-135s, swapping them in 2019 for next generation KC-46s.

Photo: Brian Everstine/staff



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GOLDFEIN'S MULTI-DOMAIN VISION

Future success requires quick decisions and wide-ranging action.

By Amy McCullough

SSgt. Carl Josephson (l) talks to USAF Chief of Staff Gen. David Goldfein (r) about his mission with the 16th Electronic Warfare Squadron at Eglin AFB, Fla.

Two years after Chief of Staff Gen. David L. Goldfein named it as one of his top three focus areas at AFA's 2016 Air, Space & Cyber Conference, the service has now matured its thinking on multi-domain operations, or MDO. Goldfein said in an August interview with *Air Force Magazine* that he is confident USAF is heading in the right direction when it comes to communicating and fighting across air, sea, land, space, and cyberspace.

Goldfein said when he first took the helm as USAF's top uniformed officer he asked himself where the service "needed to be in 2030."

The Air Force, he determined, no longer has the luxury of being able to take its time developing new capabilities. Peer adversaries have studied US military operations, are quickly improving their capabilities, and "contest our dominance in all domains." USAF must move fast to ensure it stays ahead of these adversaries, and "if deterrence fails, we must be ready to win in a peer-to-peer conflict," he added.

To accomplish this, the service set out to better organize its squadrons and make them more lethal, develop its leaders and give them the tools they need to successfully lead joint teams, and to figure out how it can leverage technology and improve its force presentation, enabling airmen to make quicker decisions while simultaneously operating in multiple domains.

"Multi-domain operations is really about thinking through how we penetrate, where we need to penetrate; how we protect what we need to protect inside a contested space; how we persist in that environment for the period of time that we have to remain there," said Goldfein. He added, "Our nation knows how to do that, but that muscle has atrophied a bit. That's why you hear a lot of us talking about this attribute of speed. It's not only speed in executing warfare. It's speed in how we're preparing for warfare. It's speed in how we acquire. It's speed in changing our concept of operations. It's speed in terms of how we develop the leaders of the future."

But future Air Force supremacy is not just about ensuring dominance in the air, space, and cyber domains mentioned in USAF's mission statement. The US also must maintain dominance on the land and sea, and each branch of the military must be able to work together to make that happen. That's what Brig. Gen. B. Chance Saltzman, the director of current operations and the head of Goldfein's multi-domain command and control (MDC2) initiative, has been working on, building MDC2 to enable better multi-domain operations.

"Our MDC2 structure directing operations will be resilient and operationally agile," Goldfein added.

The Air Force has met with general officers from the Army, Navy, Marine Corps, and US Special Operations Command to figure out how the services can work together to improve multi-domain operations in a contested environment.

A round of these talks, said Goldfein, concluded this year and now the services are moving forward with a series of exercises aimed at testing out the theories discussed. The question, said Goldfein, is "How do we actually move forward with building the resiliency we need to be able to operate?" Resiliency, he emphasized, comes from leaders who "understand mission command and can operate without being ultraconnected, and in our systems to ensure that not only do we have multiple pathways to be able to operate, but that we understand the operational picture in ways that our adversaries just can't."

The Air Force and the Navy conducted such an exercise earlier this year, during which the services connected systems that aren't typically connected to see what would happen. "It was really successful," said Goldfein. "I think in terms of not only what we were able to accomplish, perhaps more importantly, [in] laying out the path for the future."

USAF and Army leaders also met on Aug. 6 to look at ways to better integrate open architecture systems to

bolster "speed, precision, and agility on the battlefield," according to an Army press release. The summit was a "precursor to a sensor-to-shooter demo planned for spring 2019, which will prototype an open architecture, machine-to-machine capability to integrate targeting solutions generated from Air Force intelligence, surveillance, and reconnaissance platforms into Army long-range precision fires to dramatically shorten the kill chain," states the release.

That exercise will be a collaborative effort between the Air Force and Army Rapid Capabilities Offices.

"If you have those Air Force assets, how do you get that information to the Army in a challenging environment to bring those fires to bear?" asked Lt. Col. Rodrick Koch, program manager with the Air Force RCO, in the Army release. "How do we address threats in denied environments? There is a lot of opportunity here."

Speaking to an Air Force Association Mitchell Institute crowd last year, Saltzman said in the future things like targeting cycles will require multiple combatant commanders to work together to determine what targets should be placed on what list. "That's not an inconsequential thing, when you're talking about a battle rhythm," he said. Sometimes that "requires crossing 12 to 16 different time zones to orchestrate."

But in such an operation, what does the command structure look like, and what are the general rules of engagement?

To answer those questions, and many others, the service is establishing the "Doolittle Wargame series," which will be held annually. The first exercise is slated for October at Maxwell AFB, Ala. The players will be a mix of subject-matter experts from the 505th Command and Control Wing at Hurlburt Field, Fla., which overseas initial qualification training for airmen assigned to the service's Air Operations Centers, as well as joint and coalition partners, and students from the Air Command and Staff College and Air Warfare College, said Saltzman.

Industry also is taking it upon itself to exercise concepts and technologies that can be utilized in multi-domain operations. Also in August, Lockheed Martin hosted its fourth Multi-Domain Command and Control exercise with 14 Active Duty airmen from various air, space, and cyber backgrounds, including some representatives from the 505th CCW, at Lockheed's innovation center in Suffolk, Va.

USAF and Navy personnel train together at JB Lewis-McChord, Wash.

The exercise took Lockheed Martin eight months to plan and cost the company about $1.5 million. The goal was not necessarily to "win" the exercise, but to test out a whole new concept of operations for planning and force presentation. Also being evaluated were new tools under development by the company and the Air Force Research Laboratory to allow the customer—USAF—to more quickly and efficiently conduct operations across multiple domains. The domains in this case were air, space, and cyber, said Bryan Gates of Lockheed Martin, one of the coleaders of the exercise.

Representatives from AFRL and those planning the Doolittle exercise observed the Lockheed exercise, and the company plans to conduct a "road show" in the fall where it can share lessons learned with others working on MDC2.

"The next step in the evolution of our Air Force is to unleash the potential of [multi-domain Operations,"] Goldfein told *Air Force Magazine*. "Our foundation for conducting MDO is fielding exceptionally well-trained, educated, and experienced airmen."

Moving forward, training and education will be key, because USAF doesn't currently have a process that builds command and control experts, Saltzman has said. Today, roughly 86 percent of airmen who are assigned to work in an air operations center only do one AOC assignment, "never to return again," he said. "It's a very small percentage of people who do multiple tours in an AOC, which gives them the chance to really get good at it."

Saltzman acknowledged another problem is the Air Force's "tribal nature," in which airmen stick closely to their Air Force Specialty Code throughout their career to ensure they continue to be promotable.

"In recognition of that, we decided we have to create a new tribe," he said. That "tribe," will be the new "13 Oscar" career field. The idea is for airmen to spend the first half of their career working in their "accession career field," gaining expertise in their specialty area, whether it be flying fighters or tankers, operating space assets, or operating in cyberspace. Then at the nine- to 12-year point, "a small portion" of airmen will crossflow over to the 13O career field, where they will spend the rest of their career doing command and control work in places such as air operations centers or at Fort Meade, Md.

Goldfein said the service will organize, train, and equip its force in a way that sets it up for success leading and executing future multi-domain operations. USAF will train airmen to think and fight through adversity even when their capabilities are somehow degraded. Better Air Force MDO capabilities will undoubtedly preserve the ability to hold enemies at risk even in evolving, unpredictable battlespaces.

Enemies have studied the way the US goes to war and are pursuing anti-access and area-denial strategies to offset American advantages. Goldfein asked, "How do we think our way through ... not having complete dominance over a particular area," but retaining the ability to perform "the military missions that we're required to accomplish?

Anti-access/area-denial strategies tend "to give a visual that some country can put a block of wood over the top of it," he noted, but successful multi-doman capabilities will allow the Air Force to counter this.

"I like to think of it more like Swiss cheese. There are holes there, and it's our job to be able to understand what those are and exploit them," said Goldfein. He added, "So it's beyond the business of just merely integrating. It's about actually being able to converge capabilities in ways that today we haven't been able to put together in meaningful ways."

Ultimately, Goldfein concluded that these MDO improvments will come together to ensure the Air Force is ready "to meet the challenges" laid out in the National Defense Strategy. ✪

Photos: Samuel King Jr./USAF; Douglas Stutz/Naval Hospital Bremerton

Mission Ready: Keep 'Em Flying

By Bruce Litchfield
Vice President, Sustainment Operations
Lockheed Martin Aeronautics

Before joining Lockheed Martin, I proudly wore the uniform of the U.S. Air Force for 34 years. As both a veteran and a Lockheed Martin employee, I've experienced firsthand how the work we do makes a difference to the warfighter. We have the ability to impact the readiness and relevancy of our fleets for decades to come.

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A satellite image shows Typhoon Maria near Japan at its peak intensity.

LIFE IN TYPHOON ALLEY

The civil engineers and weathermen at Kadena AB, Japan, are kept busy during Okinawa's storm season.

By Jennifer Hlad

In Okinawa, the question is not whether a typhoon will hit. It's a question of how big it will be when it makes landfall.

But no matter what the answer to that question is, airmen with the 18th Wing at Kadena AB, Japan, will have done everything possible to prepare.

"The good thing about being at Kadena and being in a tropical environment is we expect typhoons, right? So all of our structures are concrete structures. So they're 100 percent ready for typhoons," said SMSgt. Eric Davis, superintendent of heavy repair for the 18th Civil Engineer Group, a week after the island's first typhoon of the season. "They're made to withstand these types of winds," he said.

Because the buildings are solid concrete, there is "not really a concern with facilities blowing over," and there's far less storm prep required than for brick or wooden structures, Davis explained. Still, that doesn't mean the civil engineers can sit back and relax as a storm churns toward the island.

The Department of Defense has a Tropical Cyclone Conditions of Readiness (or TCCOR, pronounced "tea core") system to keep US service members and their families updated about severe weather; the commander of the 18th Wing makes all decisions regarding TCCOR status for the entire island of Okinawa, using information provided by the Kadena weather flight.

The idea behind the system is to allow for good preparation leading up to a storm and to allow for a quick recovery to full mission capability afterward, 18th Wing Commander Brig. Gen. Case Cunningham said in a written release.

Okinawa stays in TCCOR 4 status—which means destructive winds of 50 knots or greater are possible within 72 hours—throughout typhoon season, which runs from June 1 to Nov. 30.

"Seasonally in Okinawa, we stay in TCCOR 4 because we're a little bit further south, we're out here in the Pacific further, we're closer to the action," explained MSgt. Michael Rosales, flight chief with the Kadena weather flight.

The warm water and other favorable conditions during the season mean that a storm in the vicinity of Okinawa could form "at any moment's notice," Rosales added, and they "do take off fast."

Once a storm has developed and is within 300 miles of the island, Rosales said, the weather flight will keep a close eye on it and give the wing commander all the information he needs to determine whether and when to change the TCCOR condition.

In the past year, the Air Force weathermen have made a concerted effort to reach out to Marine Corps and Navy weather professionals on the island and incorporate their information into the forecast as well. This way, the airmen can give the wing commander "one product that is the most accurate, reliable, credible source of information to make a good decision," Rosales said.

"It's not just about what happens here at Kadena," he added. "What we're

For the first time, all 18 F-15s from Kadena Air Base were evacuated to Yokota Air Base in Japan ahead of a typhoon threat.

18th AMS maintainers at Kadena AB, Japan, prepare for Typhoon Maria by moving jets and equipment from the flight line.

saying here affects everybody."

The goal is "not to change [the TCCOR condition] unless we do have a storm formed that we're tracking to come close to and/or over the island of Okinawa," Rosales added. "We don't really want to decrease in TCCOR for no reason."

Even before a change in TCCOR condition, the civil engineers start preparations.

An hour after Davis spoke to *Air Force Magazine,* he attended a meeting about the impact of Super Typhoon Maria, which was not a direct hit but still pounded Okinawa with 160 mph winds and heavy rain in early July.

And as the TCCOR condition goes from 4 to 1—winds of 50 knots sustained or greater anticipated within 12 hours—the civil engineers have a checklist of things to do. One of the first tasks is making sure the sand piles at Kadena are ready so people who live or work on base can fill their sandbags.

They also take down directional signs prior to a big storm, he said.

"So, those big signs that say BX over there, commissary over here, we remove those just to make sure there's not any flight hazard during typhoons," Davis noted.

Civil engineers also move critical vehicles and water buffalos (large-capacity water trailers) inside, so they won't be damaged during the storm. The equipment can then be used for recovery operations, he said.

"We have an A-to-Z checklist for each TCCOR," Davis explained.

Every building has a facility manager who makes sure everything's sealed up, including computers, so that if there's a leak, there won't be an impact on the network, Davis said. They also sandbag windows and doors to keep rainwater from coming in, and aircraft are moved into hardened hangars.

"Facility managers are kind of extensions of our eyes and ears ... [and] also play a huge role in the typhoon readiness process," since the civil engineers can't be in every building all the time, Davis said.

Storms hit Okinawa pretty frequently during the summer, but Lt. Col. Jason Somers, deputy commander of the 18th Operations Group, said Kadena leadership is "rarely surprised by the weather" because of the 24/7 work of the Operational Support Squadron's Weather Flight, which disseminates observations, forecasts, weather watches, and advisories for the airfield and surrounding area.

When a serious storm is coming, aircraft are either hangared for the duration or flown to different locations, Somers said.

"High or excessive wind speeds potentially damage cars, buildings, windows, power lines, and even the most technologically advanced aircraft in the world. When the aircraft are hangared to avoid storm damage, it is easy to conclude that no flying and therefore no flight training or operational missions are possible," Somers explained.

Photos: Japan Meteorological Agency; Yasuo Osakabe; Naoto Anazawa/USAF

In preparation for Typhoon Maria, an F-15 is towed into a protective shelter to prevent damage.

But for the aircraft that evacuate elsewhere, there can actually be "new opportunities," he said.

"Evacuating aircraft are often available for operational or training missions where, under fair weather conditions, these Kadena aircraft are normally previously tasked and unable to accept the mission," he noted.

When the planes are going to be evacuated, other combatant commands are informed and may request Kadena aircraft to support other missions outside the Pacific region, Somers explained.

Col. Scott Rowe, commander of the 18th Operations Group, "looks for the silver lining in even the most severe typhoon phenomena," Sommers said.

Members of the ops group look to "utilize every opportunity to improve themselves, their readiness, and their ability to accomplish the mission," Somers said. While typhoons have an impact, they don't exempt the airmen from that challenge, so the Kadena community will attempt to maximize training where they can.

Once the storm is imminent, a team of 30 technicians from the civil engineer group takes their places in their specific shops, connecting with the weather flight through a hotline forum for continuous updates.

After the storm has passed, that "ride out" team is the first to go outside and check the conditions for everyone else.

Even with all the preparations, "there's always going to be some kind of recovery," Davis said.

For example, Typhoon Prapiroon, which was a Category 1 typhoon when it passed by Kadena in early July, was not a very big storm, but it still downed tree branches, clogged the drainage system, and caused a few power outages in the munitions storage area, Davis noted.

Super Typhoon Maria was a bigger threat. The Air Force evacuated 18 F-15 Eagles and eight F-22s from Okinawa to Yokota Air Base on mainland Japan in advance of Maria, which marked the first time all of Kadena's F-15s were moved to Yokota, according to the Air Force.

The storm shifted and weakened before passing Kadena, but the island still felt periods of tropical-storm-force winds and a peak gust of 58 mph, The Weather Channel reported.

Security forces and civil engineers go out as soon as the TCCOR status is changed to 1-R (recovery), so security forces can open the gates, and civil engineers can clear any hazards for mission-critical people to return to base. Once the wing commander gives the all clear, everything goes back to normal—until the next storm. ✪

Civil Engineering: Where Salt is in the Air

Kadena Air Base, Japan —

Though Okinawa's location in "Typhoon Alley" may be the most obvious difference between Kadena and other USAF bases, the storms aren't the only challenge for civil engineers.

The island's extreme humidity and high levels of salt in the air can also be damaging. SMSgt. Eric Davis, heavy repair superintendent for the 18th Civil Engineer Group, pointed out a hole in the concrete wall of the room where the interview was taking place. But the facility managers and a robust maintenance team help combat those issues, as well as adverse effects from the storms.

For any type of asset, the manufacturer provides a suggested preventative maintenance schedule, Davis said. For example, the manufacturer may suggest a particular type of maintenance yearly; however, on Okinawa, they'll do the maintenance two or three times a year, he said.

MSgt. Michael Rosales, chief of Kadena's weather flight, said the environment also takes a toll on the weather equipment.

"One of the challenges of living here in a tropical environment is there's high humidity all the time. That tends to break down and corrode parts," he explained. The airfield weather sensors and their radars break down frequently.

The buildings here are also older than at most USAF bases, Davis said—an average of 41 years old, compared to the Air Force average of around 35.

"That's why we have a robust preventative maintenance schedule, to make sure everything's squared away," he said. "With any structure, especially if it's 40, 45 years old, there's going to be minor concerns. … Being in a corrosive environment, it kind of eats a little bit through the concrete and some of the structure as well."

The civil engineers work with the facility managers to stay on top of issues throughout the base, but also take steps like buying stainless steel equipment for the electrical grid, which lasts longer in the tropical environment than the equipment they would normally buy in the US.

And their work is not limited to Kadena, Davis said. The 18th Wing is responsible for all US military family housing on the island, which means civil engineers respond to water breaks, power outages, and other issues at several other bases.

Photo: Naoto Anazawa/USAF

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A coalition air strike on an ISIS target in Kobani, Syria, also known as the "Kurdish Alamo" in October 2014.

THE SIEGE OF KOBANI

The city seemed doomed until airpower came to the rescue.

By Rebecca Grant

When the so-called Islamic State set its sights on Kobani, Syria, in mid-September 2014—encircling Kurdish fighters there—then-Secretary of State John Kerry warned that the city couldn't be saved. As Turkish tank crews watched tensely from across the border, the US Air Force and coalition airpower went into action, making supply drops and hitting surrounding ISIS forces with bombs dropped from B-1B bombers. The 112-day siege proved to be the turning point in America's commitment to fighting in Syria, and a battle lab for dynamic air and ground tactics.

Mosul, Iraq, fell to ISIS in June 2014. Three months later, ISIS fighters were battling Iraqi forces less than 25 miles from Baghdad. US and coalition airpower intervened, releasing 1,200 weapons in strikes during August and September 2014.

Kobani—also known as Ayn al-Arab—lay to the east of the Euphrates River. The town had grown up around a 1912 train station built as a stop on the Ottoman Empire's Berlin-to-Baghdad railway. The city was home to Armenians and Kurds and had a population of about 45,000 when Syria's civil war began in 2011.

In July 2012, Kurdish forces took over protection of the city of Kobani and the district around it.

Kobani held a strategic position on the border with Turkey. From Kobani in the West, past Sinjar and toward Irbil in the East, lay a corridor of oil pipelines and refineries. ISIS was tapping the oil for more than $2 million per day in revenue, the Pentagon said. Control of Kobani would help solidify ISIS control of Syria's oil fields. Locking down that revenue was part of the goal for creating the ISIS caliphate.

Under ISIS control, Kobani would also be a haven for recruits going south to fight in Iraq.

It looked easy. On Sept. 16, ISIS forces seized a key bridge over the Euphrates. A drive with tanks and artillery captured small villages and brought ISIS to within 10 kilometers of the city of Kobani by Sept. 20. Soon artillery fire was falling into the city. Turkey counted 130,000 Syrian Kurdish refugees streaming across the border four days later.

Up to 4,000 ISIS fighters were advancing in parts of the city. Countering them was a determined force of fighters, starting with groups of Syrian Kurds. They were soon joined by Peshmerga, official Kurdish forces of Iraq's autonomous Kurdish region, and numerous other groups.

Kobani's defenders were in trouble, though. ISIS took an important hill from the YPG—Kurdish militia in Syria—on Sept. 26. The momentum could overwhelm the city. Brazen ISIS forces behaved like an army moving freely, out in the open on the roads and arid terrain.

"As you know, this has been an important week for the US and our coalition forces as we began air strikes in Syria," Defense Secretary Chuck Hagel said Sept. 26. US and Arab allies carried out 43 air strikes into Syria, he reported.

The first US air strikes near Kobani began on Sept. 27. Air Force F-15Es struck an ISIS command and control center; a typical target for that phase of the campaign. Also in action were aircraft from the carrier USS *George H. W. Bush.*

For the next two weeks, coalition air strikes continued, but only in small doses. Coalition planners struggled to pinpoint suitable targets and to work with Kobani's defenders. By Sept. 30, the Pentagon reported 76 air strikes in Syria, mostly near Kobani.

Washington was in shock. The Intelligence Community and Director of National Intelligence James R. Clapper "acknowledged that they underestimated what had been taking place in Syria," President Barack Obama told "60 Minutes" on Sept. 30, 2014.

Defending Kobani would take a direct US commitment to defeating ISIS in Syria. While US and coalition partners were pledged to chase ISIS out of Iraq, Syrian policy was another matter. Fighting for Kobani meant more intelligence, surveillance, and reconnaissance, more air strikes, and forging a relationship with groups of Syrian Kurds as new partners on the ground.

"You can't defend Kobani, Baghdad, Mosul, Erbil, and Sinjar," as well as conduct strikes "against the Islamic State in places such as Raqqa, with a limited number of ISR orbits to collect necessary intelligence," a senior Pentagon official told Kate Brannen of *Foreign Policy* on Oct. 7.

NO CAN DO?

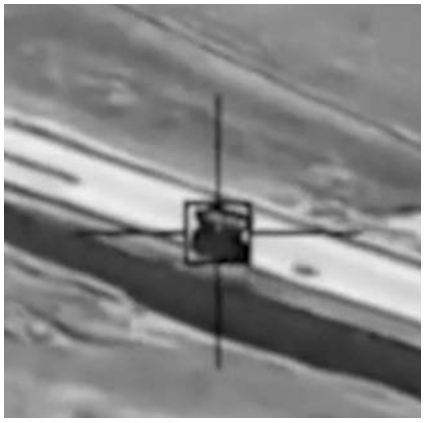
Although the coalition apportioned air strikes to the beleaguered town, pessimism prevailed.

A total of 135 air strikes had been carried out on Kobani targets by Oct. 9. "The US has now struck Kobani more than any other target except the Mosul dam," Jim Sciutto of CNN tweeted on Oct. 9, 2014.

Still, Washington wavered. The Obama administration had committed publicly and at the United Nations to pursuing ISIS through Iraq. What about Syria?

"As horrific as it is to watch in real time what is happening in Kobani … you have to step back and understand the strategic objective," Kerry said at a news conference in Washington with Philip Hammond, Britain's foreign secretary.

"We are trying to deprive ISIS of the overall ability to wage [war], not just in Kobani but throughout Syria and into Iraq," Kerry added.



As part of Operation Inherent Resolve, the images above show a US air strike against an ISIS vehicle-borne improvised explosive device (VBIED) in Syria.

"No Can Do" screamed *Time* magazine's headline on the prospects of saving Kobani.

"The US has been restricted in its ability to battle ISIS for two reasons: it waited for months before taking action, and then—per Obama's orders—it decided not to commit any US ground troops to the fight," Mark Thompson wrote in *Time* on Oct. 9, 2014.

Katherine Wilkens of the Carnegie Endowment for Peace called Kobani "A Kurdish Alamo."

"In a coalition where most of Washington's regional partners are primarily focused on regime change in Syria, the jihadist attack on Kobani offers a test case of whether the United States can get its partners to temporarily set aside their other priorities and act effectively against the Islamic State," Wilkens wrote in an Oct. 10, 2014, piece.

NATO allies such as the Netherlands and Belgium were deploying forces to join the coalition, and France was already in the fight. For the time being, their parliaments had restricted air strikes to territory in Iraq only. Ultimately, Bahrain, Britain, Jordan, Qatar, Saudi Arabia, and the UAE air forces participated alongside the US providing air support for Kobani.

Airpower was the main tool available. "Just to remind, there's not going to be a US ground combat role here," Rear Adm. John Kirby, Pentagon spokesman, said on Oct. 10, 2014. "I'm putting that out very clearly."

As for airpower, some doubted its effectiveness, given the slipping situation.

"I don't know what's going to happen because, again, in the absence of any ground force there, it is going to be difficult just through airpower to prevent ISIS from potentially taking over the town," then-Deputy National Security Advisor Tony Blinken told NBC News on Oct. 13.

MORE THAN A DRIZZLE

Air strikes were, however, definitely having an effect. The attacks quickly constricted the mobility of ISIS forces. "Before the air strikes happened, they pretty much had free rein," admitted Kirby. "They don't have that free rein anymore, because they know we're watching from the air."

ISIS forces got better at concealment, according to Kirby.

Two types of air strikes were underway. First was dynamic targeting of what Kirby called "mobile assets on the ground." These included tanks, command posts, even trucks used in the oil smuggling. Deliberate, preplanned targeting also went against "fixed targets, a headquarters building, command and control nodes, a finance center, oil refineries." The idea was to prevent ISIS from consolidating its gains.

Photos: Scott Bobb/Voice of America; CENTCOM video

However, a sprinkling of strikes wasn't going to be enough. ISIS forces and tanks advanced closer to the center of Kobani on Oct. 10. A spasm of suicide vehicle bombings followed as ISIS fighters tried to dislodge Kurdish strongpoints.

Both sides were now determined to prevail.

Saudi Arabia joined US fighters and bombers striking ISIS targets southwest of Kobani on Oct. 13.

"Rather than the bombing prompting a tactical retreat" by ISIS units, "they appear to have doubled down in their quest for Kobani," observed Derek Flood, a journalist who was in Turkey on Oct. 15, 2014. As American air strikes rapidly increased in and around Kobani, ISIS fighters "ushered in reinforcements from their reservoir of recruits in al-Raqqa and Aleppo, and ramped up their employment of vehicle-borne suicide bombers," Flood wrote in the *CTC Sentinal,* West Point's counterterrorism journal, in November 2014.

For ISIS, too, this was chosen ground. It clearly mattered to ISIS, Kirby said, "because they kept presenting themselves there and presenting targets."

In fact, the air strikes put Kobani in the global spotlight. For the US and coalition partners, Kobani was on the verge of becoming a major failure.

Across the border, Turkish tanks lined up to keep a wary watch. Turkish civilians could see the fighting in Kobani from the town of Suruc on their side of the border.

ISIS fighters took over checkpoints, a key hill, and drove Kurds out of a school building.

With Kobani nearly defeated, Washington made its move. NATO ally Turkey had entered the anti-ISIS coaltion on Oct. 2. Now Turkey agreed to allow resupply to the Kurds to sustain the fight in Kobani.

Washington placed its bet on airpower.

On Oct. 20, three USAF C-130s conducted multiple airdrops to resupply Kurdish forces, defending the city. In the airdrops were 24 tons of small arms and ammunition. The airdrops also included 10 tons of medical supplies. Kurdish authorities in Iraq provided the supplies, according to Central Command. As the opertion progressed, Operation Inherent Resolve would log over 1.4 million pounds of supplies airdropped from August to December of 2014.

A B-1B over Syria. B-1s conducted air strikes against ISIS targets, dropping 1,700 guided weapons on Kobani during the seige.

HOPE FROM ABOVE

From a strategic perspective, there was hope.

"For its campaign against Kobane, [ISIS] has converged en masse for a conventional attack upon a fixed geographic point," observed Jill Sargent Russell of Kings College London. While ISIS "might momentarily hold an advantage against any concerted defense with effective fire support, they are weak and soft targets," she pointed out in an Oct. 20, 2014, comment to Britain's *Daily Telegraph.*

"Suddenly, the fight for this little-known town took on vast symbolic significance," wrote Fred Kaplan in *Slate* on Oct. 31, 2014. "And if ISIS was telling the world that Kobani was a decisive battle along the path to the Islamic State's victory, then Obama—who'd put American resources and credibility on the line—had little choice but to treat it as a decisive battle as well," Kaplan assessed.

By early November, ISIS was failing to gain new ground. Four attempts to take a border crossing with Turkey had failed.

ISIS called for reinforcements. So did the Kurdish fighters. Backed by steady US and coalition airpower, the Kurdish groups were securing their foothold in Kobani.

ISIS controlled about 60 percent of Kobani as of Nov. 5, 2014. It would prove to be their high-water mark.

The decision to assist Kobani marked a change in the US strategy in Syria. Now the US had to "deliver on helping develop a trained, moderate opposition in Syria that has the requisite leadership and military skills to actually go ahead and defend territory inside Syria," as Kirby explained at the Pentagon.

What followed was two months of street-by-street fighting. For US airpower, the problem was that ISIS fighters had wrapped themselves around the city and what was left of its civilian population.

It was up to a combination of ISR and battlefield input from the Kurds to outline areas for strikes. As the force on the ground improved tactically, so did its use of airpower. Open supply lines from Turkey also had a significant effect.

US and coalition aircraft striking Kobani faced a long flight from deployed bases. They also had to fly past Syria's air defenses. Syria's integrated air defense system usually looked

westward, toward Israel, and coalition aircraft operated in the East. Yet the threats were real.

American F-22s in-theater helped quarterback the strike packages. Aircraft such as B-1 bombers, F-15E and F-16 fighters, and others carried electronic warfare systems able to process and jam signals. The B-1s were especially good at dealing with electronic threats.

Dynamic targeting was sharpened during the siege of Kobani. Joint Tactical Air Controllers rarely deployed with the Kurds. Instead, they employed ISR to watch the fight. As targets developed, JTACS did collateral damage estimates and forwarded targeting. Sometimes cell phones were part of the process.

Lt. Gen. John W. Hesterman III, then-commander of US Air Forces Central Command, explained that the vast majority of dynamic targeting strikes were "well away from friendly troops in contact. And we use a multitude of sources to initially ID the enemy and communicate what we see. Then JTACS in operations centers do a collateral damage estimate and then we deconflict friendlies. And when that's done, a senior officer clears the sortie."

"You know, the average time for those strikes, by the way, is measured in minutes, not hours, or even halves of hours."

B-1s AT KOBANI

By far the single largest amount of ordnance pounding ISIS targets in Kobani came from B-1 bombers, which dropped 1,700 precision guided weapons on Kobani during the siege.

"Bones" from the 9th Bomb Squadron at Dyess AFB, Texas, deployed to Qatar in July 2014 expecting six months of long combat overwatch flights to and from Afghanistan's airspace. They had been used consistently since 2001 to loiter and drop bombs, provide overflights, or simply keep watch. Previously, in Afghanistan, the 9th Bomb Squadron's B-1 crews found it could take four to five hours to develop and strike a target.

In 2013, they'd dropped just 93 bombs in Afghanistan over six months.

At Kobani, the intensity of the fight ratcheted up. "It was a massive shift in rules of engagement," said Lt. Col. Erick Lord, the 9th BS commander, to Military.com in a January 2018 interview.

In Kobani, "It was just go. Blow everything up," Lord said.

"It was an urban environment, so it was a lot of buildings," Maj. Charles Kilchrist told the website.

"We had jets there every single day for 24 hours a day. Along with the F-15E Strike Eagles," he said.

An F-16 pilot described her missions over Kobani. Especially after night sorties, dawn would break over the deserted town. It looked "like a moonscape," she said.

One ongoing concern was interference from Syria's Air Force. This F-16 pilot appreciated how F-22s often just took care of air superiority and let the F-16s concentrate on air-to-ground work.

Maintaining air patrols over Kobani meant six or more hours on station. Depending on what happened, fighters were often rerouted back into Iraq to refuel.

The F-15s and B-1s would tag each other, handing off targeting coordinates as they rotated in and out for the days-long watch.

"We were just bombing them back, and back, and back ... to the West, and [ISIS] would try to sneak around to the South, and then we would see them, and ... it was just a huge battle," Kilchrist said.

On the ground, the arrival of Iraqi Kurd Peshmerga troops brought forces with experience in coordinating US air strikes.

"There were times we were bombing across the street, and as soon as the weapons were going off, they are charging into the rubble to take out what's left and move forward that line of troops to the next block," one B-1 pilot told *Air Force Times*. "It's an amazing job the [Kurdish forces] did and how they are, more so than air- power, critical to victory in Kobani."

The B-1s went Winchester—dropping their entire bomb load in one mission—a total of 31 times in the fight for Kobani. That was a credit to smooth air-ground coordination. Typically, crews would release weapons on individual targets throughout several hours.

"The more they [ISIS] try to act like an army ... they just reinforce failure, and we kill them at a very great rate," concluded Hesterman.

"They were very willing to impale themselves on that city," one B-1 crew member told *Air Force Times*.

VICTORY

On Jan. 19, 2015, Kurdish YPG fighters retook Mistanour Hill. Kobani was declared fully liberated about a week later.

The "air strikes helped a lot. It helped when we had a reliable partner on the ground in there who could help us fine-tune those strikes," Kirby told reporters at the Pentagon on Jan. 27.

Kobani was a significant defeat for ISIS. It lost personnel, territory, and its command and control safe haven. The ISIS plan to mass and exert military force over the city fell apart.

CNN reported ISIS fighters withdrew from Kobani because "we no longer had places to hold there," an ISIS fighter said. "We were inside Ayn al-Arab and we occupied more than 70 percent, but the air strikes did not leave any building standing, they destroyed everything." The targets even included motorcycles, he added.

Also in late January, Hagel announced the US would begin to train and arm Syrian opposition forces. The success of combining Kurd ground forces and coalition airpower at Kobani had proved the concept.

Then-USAF Chief of Staff Gen. Mark A. Welsh acknowledged that his service flew about 60 percent of the sorties in the air war against ISIS. However, he shrugged off the credit.

"The DOD approach is not to defeat ISIS from the air. The intent is to inhibit ISIS, to attrit ISIS, to slow ISIS down, to give a ground force time to be trained because the ground force will be required," Welsh said in a State of the Air Force press conference on Jan. 16, 2015.

Holding Kobani was not the end of the ISIS fight. It took a huge acceleration of air strikes from 2015 through 2017 to secure Iraq and bottle up the worst of ISIS. The weapons release count for Operation Inherent Resolve reached 106,808 at the end of 2017.

However, at Kobani, airpower again stepped in as the workable option in a foreign policy crisis, with lives on the line and the world watching. As with Bosnia, Kosovo, and the early days of Afghanistan, allies found their airmen provided a way to fight.

Concluded one B-1 crewman: "I look forward to telling my grandkids that I got to help these people and to defend their homes." ✪

Rebecca Grant is president of IRIS Independent Research. Her most recent article for *Air Force Magazine* was "The Dawn of Airpower at St. Mihiel" in the September issue.

Photo: SSgt. Perry Aston

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Compiled by Chequita Wood, Assistant Managing Editor

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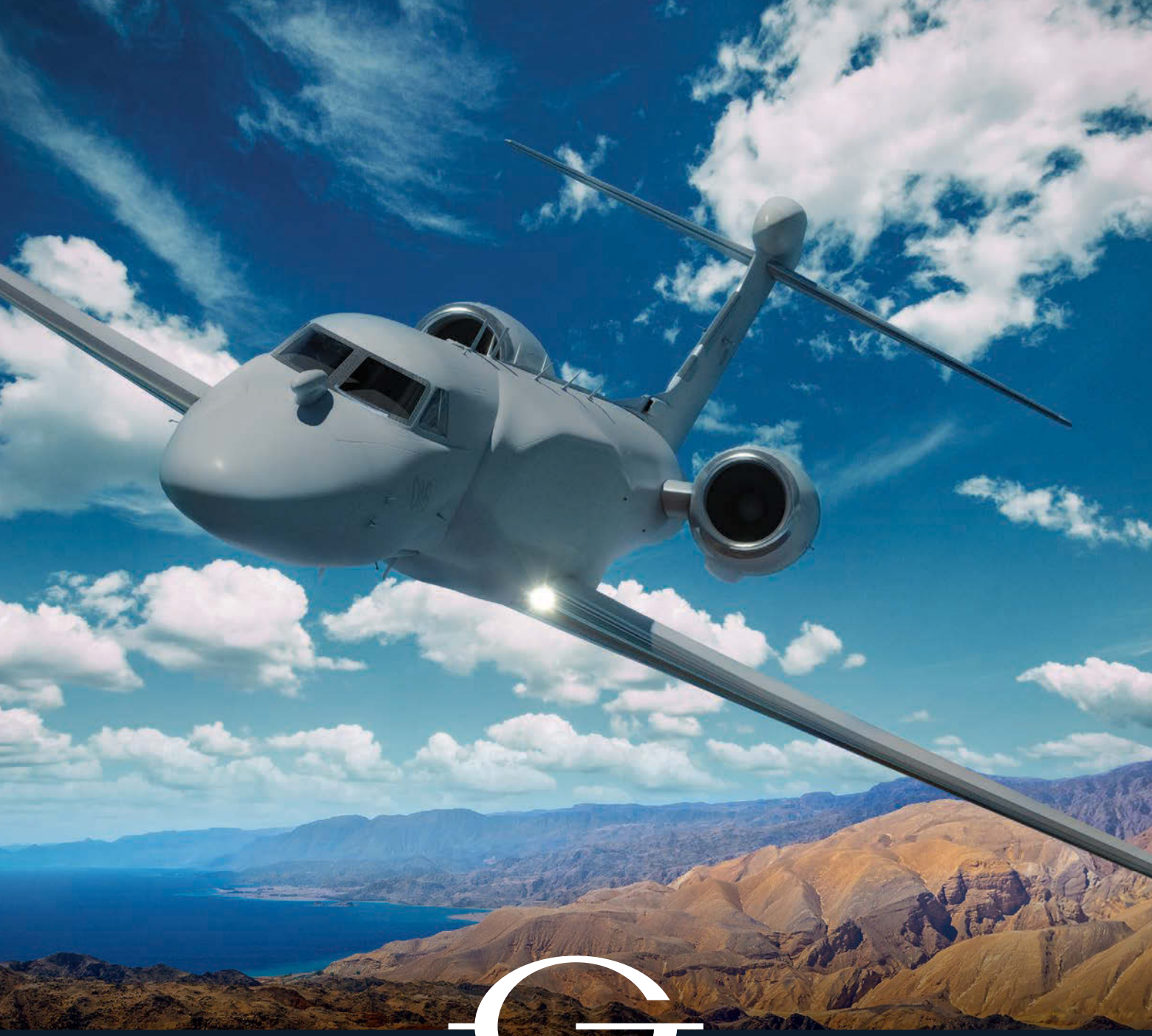

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USAF LEADERSHIP

Compiled by Chequita Wood, Assistant Managing Editor

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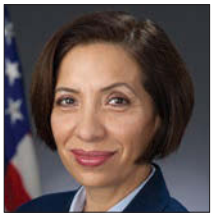

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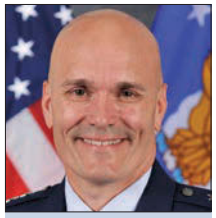

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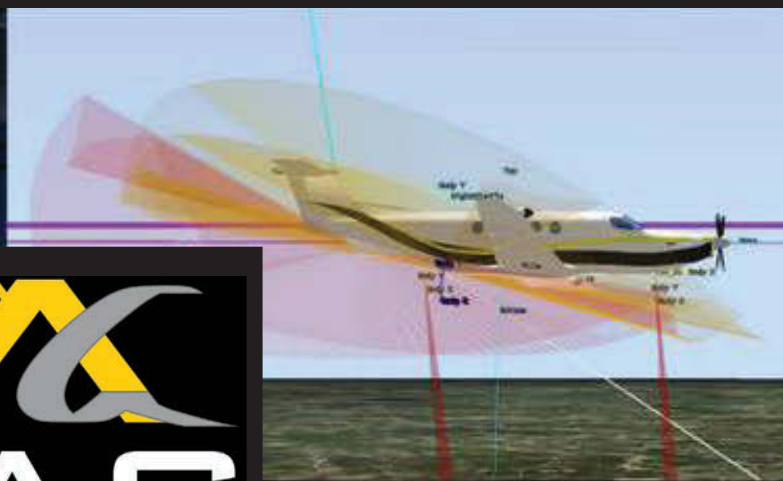

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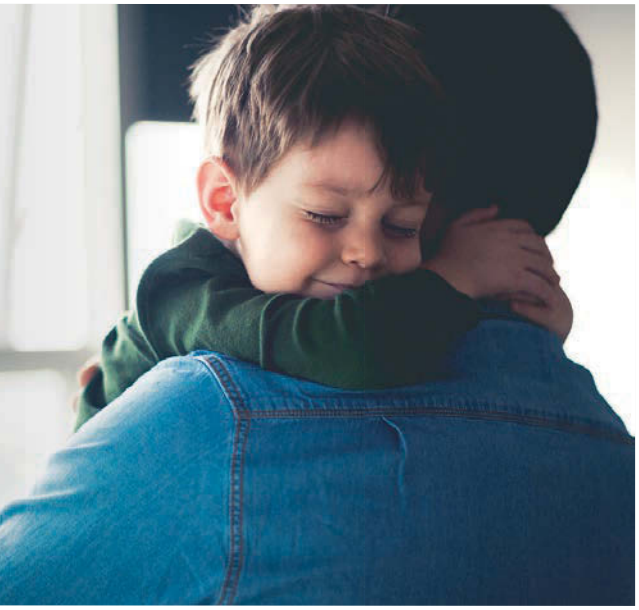

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A GOLDEN AGE AT YOKOTA

The small base near Tokyo is quickly evolving into a one-of-a-kind hub for the Pacific region.

A C-130J on the flight line at Yokota AB, Japan, as fireworks light the sky during Celebrate America festivities on the base.

By Brian W. Everstine

Yokota Air Base has become a critical hub for US Air Force operations in Japan; the critical waypoint for VIPs conducting top-level regional business as well as aircraft, missions, and cargo that cement the US-Pacific relationship.

Located within metropolitan Tokyo and integrated with that city's air traffic control system, since mid-2017 Yokota has played host to all levels of the Air Force chain of command, from the president on down, as well as Secretary of State Mike Pompeo, who transits there frequently. President Donald J. Trump stopped at Yokota on his first visit to Asia in 2017 and again this year before the Singapore meeting with North Korean leader Kim Jong Un.

"I don't know of too many other bases who can say that," observed Col. Kenneth E. Moss, then-commander of the 374th Airlift Wing at Yokota. "I don't know of a base in history, over that short period of time, that has seen that lineup of visitors."

The flow of VIPs in 2017-2018 also included Defense Secretary Jim Mattis, who came through on an E-4B Advanced Airborne Command Post.

The US attention to Japan "shows the importance of this area and the emphasis the highest level of our leadership is putting here," Col. Jean Eisenhut, 5th Air Force chief of staff, told *Air Force Magazine* during a recent visit.

The new National Defense and National Security strategies in place since early this year focus on "great power competition" with China, the threat from North Korea, and Russia's ongoing influence, coupled with the continuous need for humanitarian aid in the region. Yokota's importance can only rise along with the US emphasis on the Pacific.

The National Security Strategy asserts that "US allies are critical to responding to mutual threats, such as North Korea, and preserving our mutual interests in the Indo-Pacific region. ... We welcome and support the strong leadership role of our critical ally, Japan."

Yokota is headquarters of 5th Air Force and US Forces, Japan. It's relatively small for an overseas Air Force air base. Yokota has only a medium runway and small population, but it has been upping its game with more modern equipment, a quicker operating tempo, and regular drills to surge everything from fuel to personnel and materiel in the event of a large contingency operation.

It's in a "unique geographical location, in a unique time in history, where our impact might be slightly outsized," Moss said.

MODERNIZING TO MEET CHINA

Airmen in Pacific Air Forces have been focused "squarely" on regional challenges such as North Korea's belligerence and China's buildup of artificial islands in the South China and East China Sea, not far from Japan, said Maj. Gen. Russell L. Mack, deputy commander of PACAF, in an interview at the PACAF headquarters in Hawaii.

"Those are challenges for us, but I would argue the biggest asymmetric advantage we have ... is with our partnerships," he said, including that with Japan.

Fifth Air Force and US Forces, Japan have placed a renewed emphasis on "synchronization and coordination" with Japan, especially as the two militaries begin to operate some of the same new weapons systems. The Marine Corps, for example, has based F-35Bs at MCAS Iwakuni, Japan, while the Air Force had deployed F-35As from

Hill AFB, Utah, to Kadena Air Base on Okinawa. These steps came as the Japan Air Self-Defense Force began fielding its own F-35s; seven of which now operate from Misawa Air Base in northern Japan.

US officials have been "providing advice and assistance on how to get things bedded down," along with "doing exercises together so we can develop interoperable tactics, techniques, and procedures," or TTPs, Eisenhut said.

"That relationship helps us work through harder things," such as "planning exercises or ... a joint capability down the road."

MICROCOSM OF THE FORCE

The increased presence of fifth generation aircraft also highlights the importance of the alliance with Japan and its strategic location in the broader Pacific, Eisenhut said. In addition to the F-35 presence at both Misawa and Iwakuni, the US in July had F-22s deployed to Kadena, which is situated roughly equidistant from Taiwan, Shanghai, China, and the southernmost tip of Japan's main islands. Both the US and Japan are acquiring the "latest, most advanced technology ... as far as airpower goes" and flying them together regularly, she noted.

America's deployment of those systems to Japan is "a big statement, and the fact that the Japanese are procuring" the F-35 "supports that interoperability," she said. "Having that capability here" is a demonstration of the alliance and "an anchor for security and peace here in the Indo-Pacific and Northeast Asia region."

USAF's presence in Japan is a microcosm of the force writ large, featuring strike aircraft at Misawa, tactical mobility and command and control at Yokota, and detachments of both high-altitude intelligence, surveillance, and reconnaissance aircraft as well as special operations forces. Air Force Special Operations Command is increasing its presence in the country with the deployment of CV-22 Ospreys at Yokota, a spot "ideal for their mission," Eisenhut said.

"It's hard to think of a mission area that is not here," she said.

Yokota is ramping up C-130J operations after receiving its last brand-new Super Hercules in April, when the last old C-130H departed. Since then, the unit has showcased the increased range, payload, and speed available with the new, stretched airlifter for "increased flexibility" in USAF operations across the Pacific, Moss said.

A C-12J (center) and a C-130J at Yokota. The metropolitan Tokyo base frequently hosts VIP visitors such as the president and secretary of state.

J-model missions really started in the February to March time frame as more aircrew became qualified on the aircraft, said Maj. Cerre Dolby, a C-130J pilot who flew the 12th J-model from Lockheed Martin's facility in Marietta, Ga., to Yokota in April. These missions have included exercises such as Vigilant Ace, Cope North, and Red Flag-Alaska, along with "some trash hauling"—moving cargo between bases.

Locally, the aircraft fly regular airdrop training flights to a range near Mount Fuji. They also practice defense—such as releasing flares—at a range over the Sea of Japan. One of the biggest changes from the H to the J model has been the uprated power plants, she said, noting the four new Rolls-Royce AE 2100 engines, which produce 25 percent more power, have the effect of "adding another engine."

The C-130's "bread-and-butter" has always been taking off and landing on short fields, but on such missions, the cargo load has been limited. The more powerful engines allow the aircraft to carry more and still "make the climb out of the airfields," she said.

The aircraft is 15 feet longer than the older H model, increasing its payload. The cockpit is modern and digital, which helps pilots and other aircrew focus more on flying and accomplishing their mission.

One capability the J model didn't inherit from the H model was the ability to carry external fuel tanks. This was a worry at first in the Pacific area of responsibility, where aircrews must battle the "tyranny of distance" and make long flights, such as direct from Japan to Alaska. However, the J model's increased efficiency has so far shown the C-130J can fly about the same range without tanks that the C-130H could with them. Adding the tanks would increase drag to the point where they wouldn't be effective, and an internal tank to increase distance would just take away cargo space, Dolby said.

The improvements were on display during Exercise Vigilant Ace 18. The exercise originally called for 14 C-130Js, but Yokota only had seven available. Air Mobility Command provided two more. The nine aircraft flew 105 sorties in about four days, moving two fighter wings, with only one sortie lost to maintenance.

"You could not do that with the H model," Moss said, especially "with that number of aircraft" and on "that time line."

While the aircrews train often to keep their skills sharp, they are tapped for a lot of real-world missions, too.

"We know that the most important things we do are those tasked missions," Dolby said. "You get a little more job satisfaction when you can participate in a humanitarian disaster relief mission or last minute support" for distinguished visitors (DVs). "Those things are a little more rewarding."

MEDEVAC HURONS

While Yokota's Hercules unit is among the newest and largest in the Pacific, a smaller, older aircraft operating from the base is still making an impact. In the last few years, C-12J Hurons based here with the 459th Airlift Squadron have become the primary response aircraft for small-scale aeromedical evacuation. The three turboprops represent 75 percent of USAF's total fleet of four C-12J Hurons. They fly the majority of aeromedical evacuation requests from PACAF, Moss said.

"It is the most rewarding mission," said Capt. Matthew Gabreski, a C-12 aircraft commander with the 459th AS. "You really feel like you are putting patients in a better position to make it back to the States safely. It makes you feel like you are doing a good thing."

Previously, PACAF relied on KC-135s to be the primary quick-response aircraft for aeromedical evacuations. However, that took the large, four-engine tankers away from their primary

Photos: SrA. Donald Hudson; Brian Everstine/staff

air refueling mission. They also typically transported only one or two patients at a time, which involves "burning a whole lot of gas," Gabreski said.

"Most aerovac requests are simply one patient," he explained, so the C-12s bring the patients to a location where they get "onward movement back to the States or to higher levels of care if required," Moss said.

The C-12Js, military versions of Raytheon 1900C regional airlifters, are based at Yokota primarily for VIP transport. Specifically, this has meant Gabreski and the other airmen focus mostly on moving colonels, generals, congressional delegations, and other VIPs. In 2013, the Air Force began evaluating new equipment on the C-12s to carry ambulatory patients. This testing included a C-12 flying from Yokota to Texas and back.

Since taking over the role, C-12s have flown out of Yokota about once per week. An aeromedical evacuation nursing team deploys to the base on a two- to three-week temporary duty assignment to support the mission, Gabreski said.

"Using the C-12 has freed up our traditional air evac platform, which is the KC-135, to do its primary mission," Moss said. "And you know how short on tankers we are." The 459th AS, while small, has a "huge impact on combat capability because of their flexibility."

SrA. Stephen Clark and A1C Matthew Pfeffer, loadmasters, on the open ramp of a C-130J flying near Yokota AB, Japan.

PORT OF THE FUTURE

Yokota's aerial port function is the most advanced in the service, and one the Air Force expects will serve as a model for other mobility locations globally. As cargo arrives, the Inventory Control System automatically stores and prioritizes pallets, aided by one airman at a computer terminal. At 11 p.m. every night, the system automatically turns on and organizes pallets—arranging them in order of their importance and by location—so aircraft can be loaded quickly the next morning.

While other USAF bases also have an ICS system—Dover AFB, Del., and Travis AFB, Calif., are two—the Yokota system is the most advanced and is outfitted with more sensors than any other system.

For example, the Yokota system automatically weighs pallets as they are processed, and if that weight differs from what was coded into the system, it will kick the entry out automatically for review, said MSgt. Harvey Freeman, an air freight specialist with the 515th Air Mobility Operations Group.

The 515th AMOG's systems automatically position and prioritize pallets for airlift missions across the theater, cutting the time and manpower needed to load an aircraft and get materiel on its way.

"It's vitally important that we have this capability, particularly in this location, because this is where our war planners are saying is going to be the hub of cargo," said Freeman.

The Yokota port's automated system, located in a cavernous warehouse right off the flight line, can hold up to 265 pallets. Coupled with the docks, that rises to 400 pallets. The port system has one huge and one small refrigerator, —along with a large freezer—which are used for items such as perishable food for humanitarian aid or for human remains.

The system has an enormous robotic lift that can, on its own, go to required cargo, fetch it down from massive shelves as high as four stories up, and build a cargo load for an airlifter in about 90 minutes, with little to no hands-on work. At a facility without the system, it would take four people about four hours to do the same job, said A1C Alexandria Ahern, an air freight technician with the 515th AMOG.

As the logistics hub for the region—and with more thirsty aircraft transiting with greater frequency—Yokota is upgrading its fuels infrastructure.

The Air Force and the Defense Logistics Agency are building more bulk storage facilities, nearly doubling the base's fuel capacity from 19 million pounds to 35 million. Yokota is also building up its capability to be able to add fuel additives on-site, instead of depending on another facility to do so, in an effort to streamline the overall process, said MSgt. William Stapp, the fuels operation section chief with the 374th Logistics Readiness Squadron Petroleum, Oils, and Lubricants.

The fuels flight was recently named the best in PACAF; and squadron members say they have to be, because of the high number of aircraft that come through. When Mattis and the E-4B stopped by in late June, the airmen trucked over 230,000 pounds of fuel for the 747-derived jet. The E-4B flight crew gave them 15 patches as thanks. When the base hosted Air Force One on its way to President Trump's summit in Singapore, the crews told them Yokota was one of their favorite places to refuel, along with Ramstein AB, Germany.

"This region has been a major bridge to a lot of stuff that has happened in North Korea. Bringing a lot of these DVs and having that support capability here to get them to where they need to be on time, we take it very seriously," Stapp said, adding, "we take our service very seriously here. In what we provide, we don't mess around." ✪

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ARSENAL OF

This month, as part of our centenary review, *Air Force Magazine* looks back at a small sample of the many, many ads we've carried. Though a few were for personal products, most offered technology solutions for military problems; some very familiar, and persistent. History may not repeat, but it rhymes; especially in a sales pitch.

Chevron claimed its aviation fuel would head off mechanical problems with your airplane.

The Beech Bonanza was touted as an executive's secret weapon.

AFA's Madison Square Garden conventions featured Hollywood stars, limousines, and glitz.

American Airlines pointed out its help to the Air Force in the Berlin Airlift.

Rough field landing? Forget tires: Firestone offered tank-like landing gear.

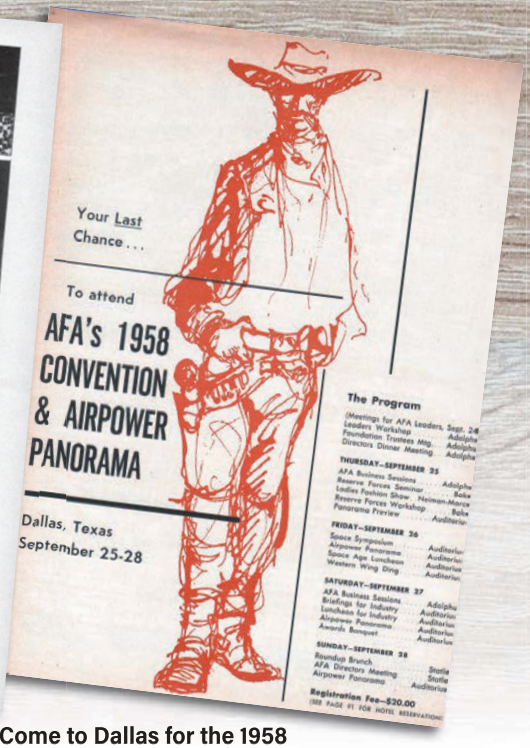
Switlik parachute towers found non-military use at amusement parks.

DEMOCRACY

By John A. Tirpak, Editorial Director

Goodyear's nice anti-ice device.

Great ads? The Air Force was so sold on Boeing's KC-135 that it's still flying 50 years later.



Come to Dallas for the 1958 AFA convention and expo, pardner.

The Treasury Department knew a good market, selling bonds to service members and vets.

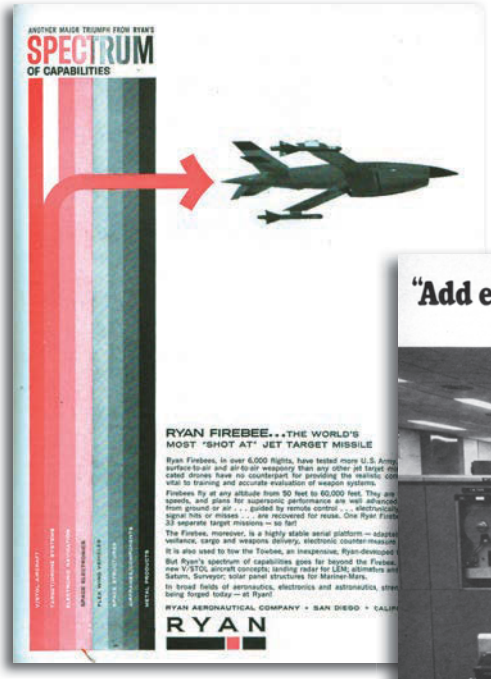
Sikorsky wanted you to know these newfangled helicopters were pretty versatile.

The "Tweet" of its day, Cessna's T-37 trained thousands of USAF pilots over four decades.

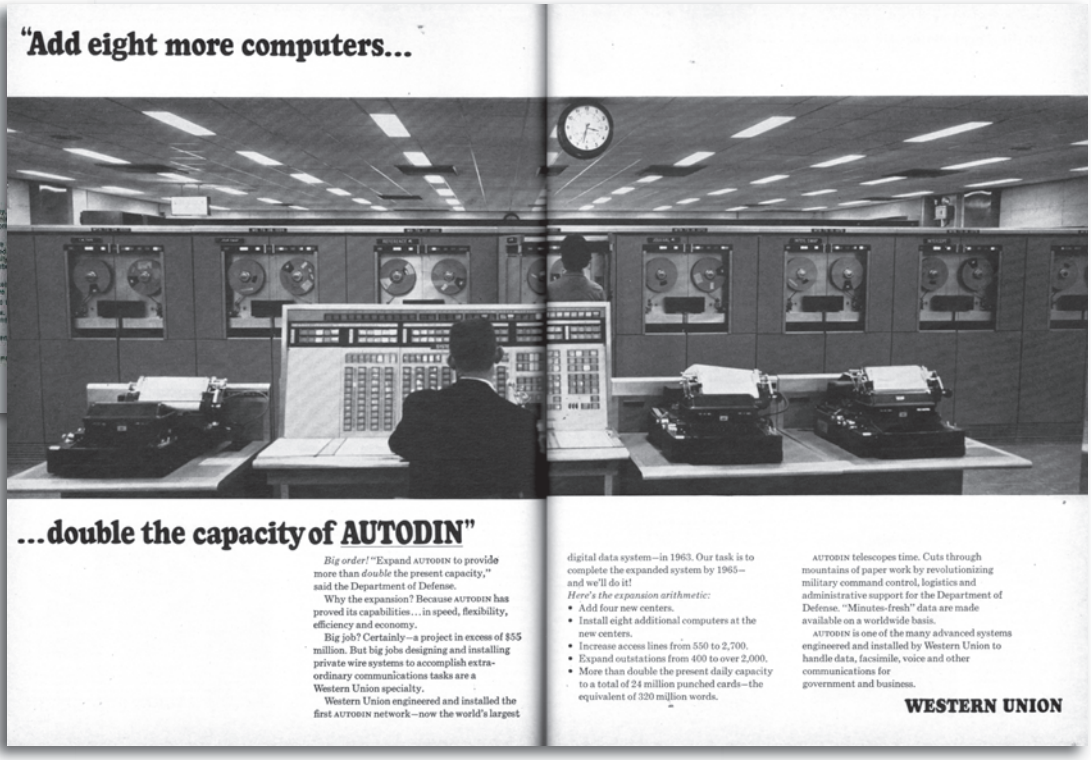
Hughes planned to be with the Air Force in the quest for the high ground; in this case, the moon.

The well-dressed astronaut was wearing Litton-developed suits.

Stabilizing the highly unstable X-24 lifting body were Sperry-Rand flight controls.



The Ryan Firebee made a great target, and later a great reconnaissance drone, as well.



Computers and connectivity, '60s-style. Western Union offered more bandwidth.

Martin pushed precision-guided, standoff weapons in this Vietnam-era ad.

Before "multirole" came in vogue, McDonnell's Phantom jet could swing between attack and intercept missions.

The OV-10 Bronco did it all in this North American ad promoting it for counter-insurgency work.

Marquardt saw the future push for hypersonics in its ad for engines. Usable hypersonic technology is now five years away.

Wire sculptures like this cat were a staple of Honeywell computer ads.

Although Northrop lost the lightweight fighter competition, it wound up developing the YF-17 into the highly successful F/A-18.

Pan Am promoted its role in the Civil Reserve Air Fleet, supplementing military cargo aircraft in the Vietnam War with its freighters.

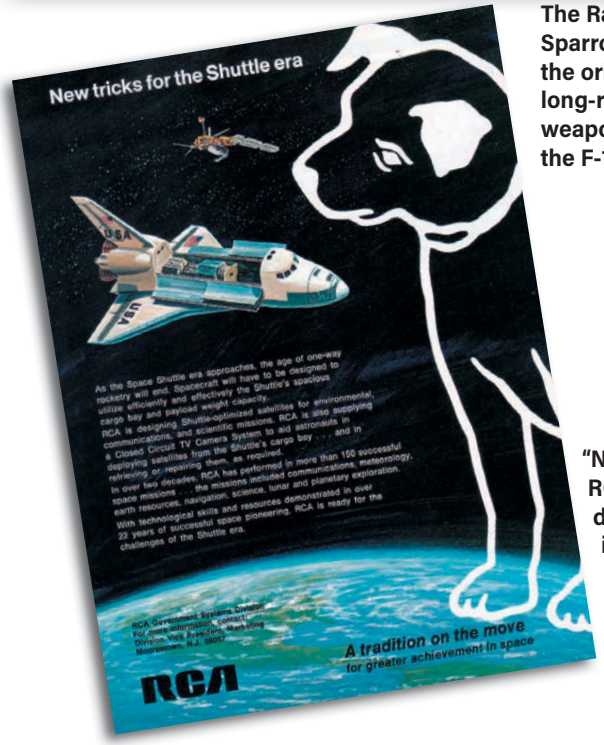
Boeing's YC-14 demonstrated short-field cargo jet operations, but didn't get a production contract.

A double-page ad emphasized the size, range, and payload of Lockheed's C-5 Galaxy.

Grumman thought its F-14 carrier-based fighter would make a fine Air Force interceptor.

The Raytheon Sparrow was the original long-reach weapon of the F-15.

Like the KC-135 and B-52, CFM International's CFM56 engine is still in service.



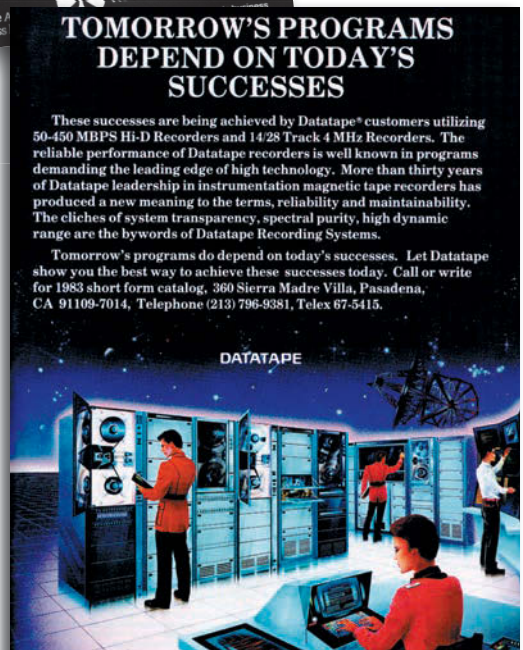
"Nipper," the RCA mascot dog, went into orbit with this ad.

Satellites got explained by TRW.

ICBM replacement was big in the '80s. This AVCO ad touts progress on reentry vehicles.

General Electric thoughtfully offered a handy crib sheet to its many engine products.

Rockwell promoted its combat aircraft heritage in assuring readers that the B-1B was sound.



Space Force? Datatape computer scientists looked like they were already in Starfleet.

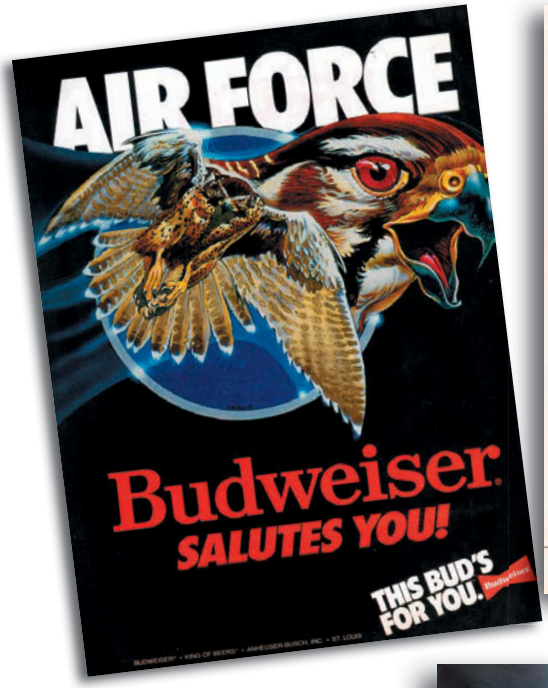
Although painted in woodland camouflage, the C-17s in McDonnell Douglas ads always seemed to be delivering forces to a desert.

Colorful infrared and wiring diagram illustrations like this one from Syscon promoted systems, not platforms.

Big warning radars were featured in these Raytheon ads.

LTV offered a souped-up A-7 with an F100 engine for close air support.

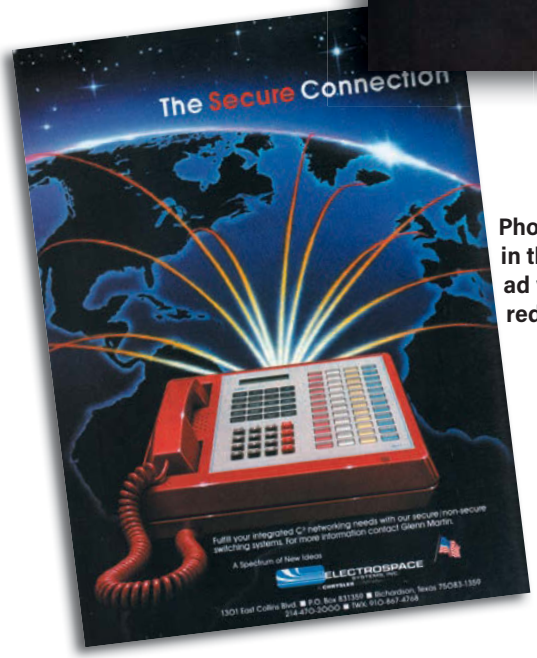
Cyanamid light sticks for various applications were a colorful break from ads for gray airplanes.



If you liked Bud, these Falcons were for you.

The sleek Boeing National AeroSpace Plane promised New York to Tokyo in two hours.

This notional canard fighter stood in for the Lockheed-led Advanced Tactical Fighter team's classified YF-22 for years.



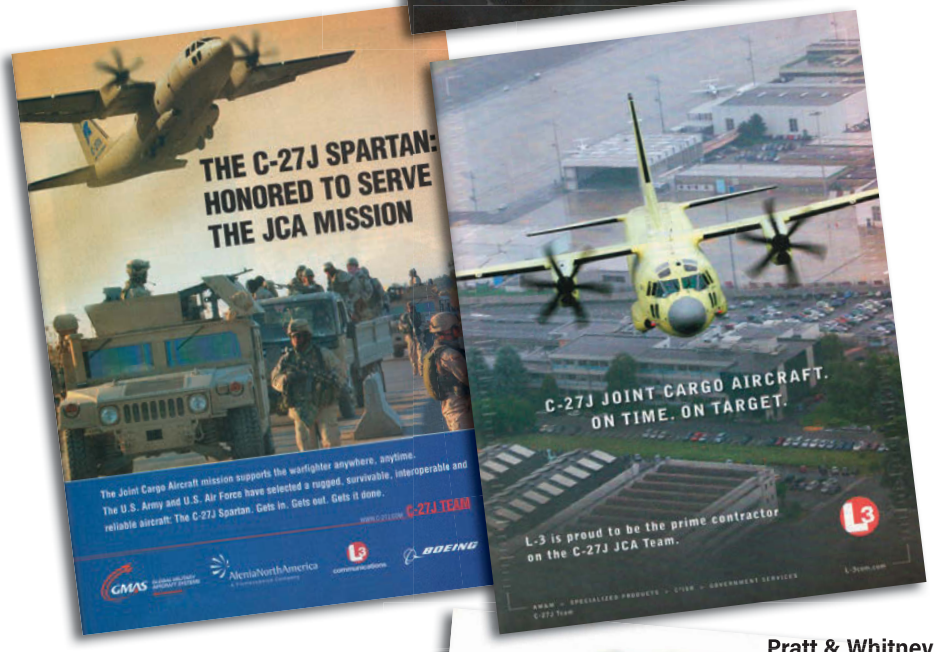
Phones like the one in this Electrospace ad were invariably red.

Nothing new under the sun: If *Air Force Magazine* didn't do it for you, *New Dimensions* offered more aggressive reading.

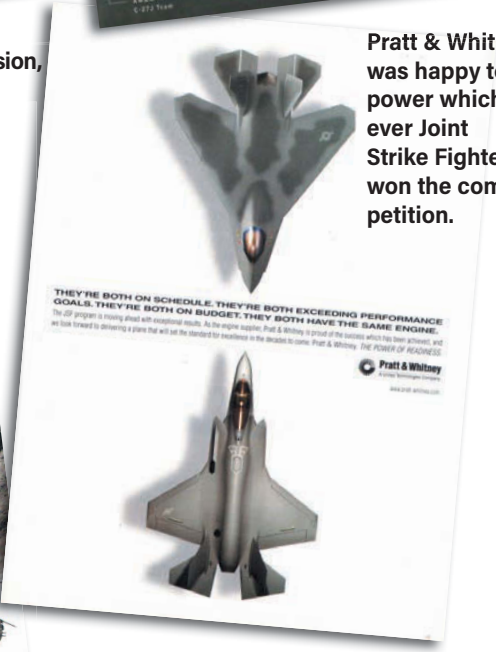
The once-secret YF-23 showed everyone Northrop was doing cutting-edge airplane design.

Forty years later, Lockheed wanted you to know the C-130 was still going strong.

General Atomics became a household name for drones like the Predator B.



C-27J ads for the light cargo mission, backed by various companies.



Pratt & Whitney was happy to power whichever Joint Strike Fighter won the competition.

Sikorsky and AgustaWestland/Lockheed Martin vied to provide CSAR helos. ✪

The Chappie James Way

Excellence, determination, and grit drove his historic rise to the top of the US military.

By Peter Grier

Air Force Col. Daniel "Chappie" James Jr. was not going to let Muammar Qaddafi push him around. Facing the mercurial Libyan leader across a dusty patch of desert outside US-controlled Wheelus Air Base in Libya, James told him to move his hand away from the fancy sidearm holstered on his hip.

Or else.

The threat was far from empty. As James told the story, he carried his own .45 in his belt.

Tall and imposing, James entered Tuskegee Institute on a football scholarship. A Tuskegee Airman, he'd served in World War II and flown almost 200 combat missions in Korea and Vietnam. His drive and skill would eventually help make him the first four-star African-American general in the US military and the commander of NORAD.

"I fought in three wars and three more wouldn't be too many to defend my country," he later scribbled on a portrait that would hang in the Pentagon.

But in early 1970, that was in the future. As commander of the 7272nd Fighter Training Wing, then-Col. James was responsible for managing the US withdrawal from Wheelus, a hot and dry installation whose value as a strategic bomber base had declined with the rise of nuclear missiles.

Qaddafi and other radical Libyan officers had seized power in a coup in late 1969, after the US had already agreed to turn the base over. Almost immediately Qaddafi began pushing to see what more he could get. James was determined to not be bullied out early, or to unnecessarily turn over vehicles and other valuable equipment.

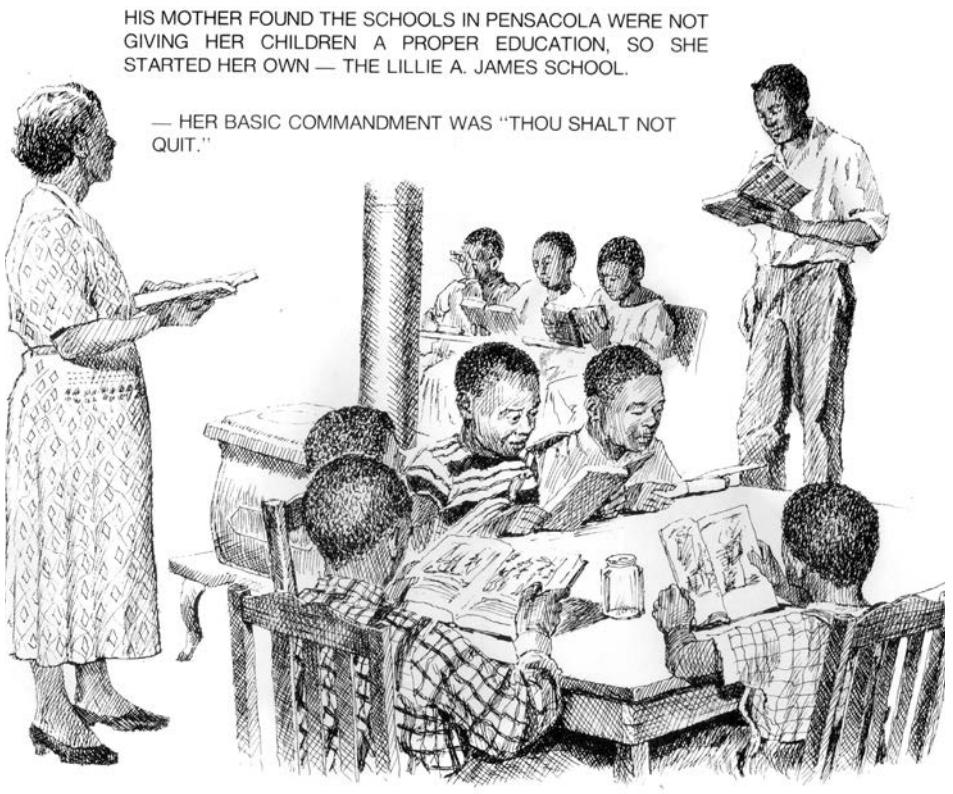
A signed portrait of Gen. Daniel "Chappie" James hangs in the Pentagon. It pictures James in front of his F-4 at Ubon AB, Thailand, during Vietnam.

Their face-to-face standoff became an Air Force legend. As the final days for Wheelus approached, Qaddafi ran a column of half-tracks through the base housing area at full speed. James shut the gate to prevent further passage and met Qaddafi a few yards outside the barrier. The US commander noted that the Libyan had a fancy gun in a holster strapped to his leg. As the pair talked Qaddafi moved his hand onto the grip of the weapon.

"I told him to move his hand away. If he had pulled that gun, he never would have cleared his holster," James recalled.

The moment passed without escalation, and a short time later James successfully completed the removal of 4,000 people and $21 million in assets from a base the US had hosted warplanes at since 1943.

Superiors and associates were not surprised by James' skillful handling of the Wheelus situation. After all, this was an officer used to pressure, who had grown up in segregation and faced prejudice and resistance as the US mil-



Civil Air Patrol and the National Aerospace Education Association published a series of "aerospace personality" workbooks for children. Number 4 featured James' life.

itary fully integrated following World War II. He was a steady combat leader and fighter pilot who played a key role in Operation Bolo, the innovative 1967 operation that struck a heavy blow against the North Vietnamese Air Force.

James saw almost every aspect of the Air Force while serving during three "hot" wars (fighting in two of them), and holding key Cold War leadership positions.

Persistence in the execution of tasks was an ingrained part of his personality. It was a credo he passed along to his son, Daniel James III, who himself rose to the rank of Air Force lieutenant general and commanded the Air National Guard from 2002 to early 2006.

"In my home, the 11th Commandment was 'I shall not quit,'" said the younger James in a 2009 speech. "We were not allowed to give up. After you proved that you have given 110 percent, [my father] would say, 'Good, let's start over.'"

Daniel James Jr. was born in 1920 in Pensacola, Fla., the last of his parents' 17 children. His father worked hard at a good job for the local gas company. His mother was unimpressed with the quality of the segregated public school he would have attended as a youngster, so she started her own. It gradually attracted other neighborhood children. She ran the Lillie A. James School for 52 years, until she died at age 82.

Throughout his life James credited his teacher mom with drilling into his head the importance of effort, preparation, and character. He once told a reporter, "My mother used to say, 'Don't stand there banging on the door of opportunity then when someone opens it, you say, wait a minute, I got to get my bags. You be prepared with your bags of knowledge, your patriotism, your honor, and when somebody opens the door, you charge in.'"

As a youth, James inherited a lifelong nickname, "Chappie", from his older brother Charles, a star Florida A&M halfback. At the time "Chappie" was a common "Charles" diminutive. The younger Chappie was also a gridiron standout. Big enough to play tackle, he earned a football scholarship to Tuskegee Institute in Alabama.

James thought that to overcome the racial barriers of the era he might have to become an undertaker to earn a stable living. But in Pensacola, the sight of military aircraft roaring away from a big Navy aviation training base had fired his imagination. He wanted to fly.

At Tuskegee he got the chance. In addition to his academic studies, he enrolled in a government flight-training program offered through the school. In his spare time he took up stunt flying, taught by Percy Sutton, a future Freedom Rider, attorney for Malcolm X, entrepeneur, and first black Manhattan borough president.

In 1942, with the US already at war, he graduated from Tuskegee with a Bachelor of Science degree in physical education and a civilian pilot certification. He stayed on at Tuskegee as a flight instructor, entering the Army Air Corps Aviation Cadet program in January 1943.

James was commissioned a second lieutenant in the Army Air Corps the following July. He completed fighter pilot combat training at Selfridge Field, Mich., but was not sent overseas. Though many of the famed Tuskegee Airmen served with distinction overseas, James remained in the US as an instructor during World War II. He would not see combat until Korea.

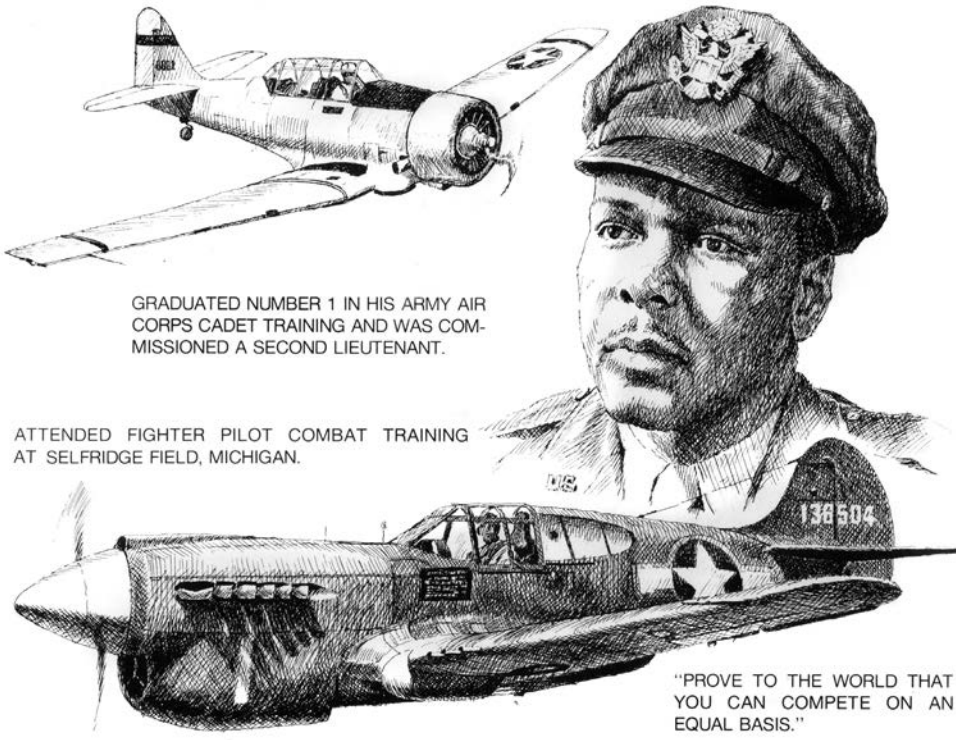
After World War II, James experienced a pause in his career. The force was drawing down and opportunities were limited for young lieutenants who wanted to fly. He also faced the obstacle of segregation. Blocked from whites-only officers' clubs, some Tuskegee Airmen had resisted with protests during wartime training.

(It has been widely reported that at least one biographer of James said he was the leader of one of the most well-known of these protests, the "Freeman Field Mutiny" of April 1945, and that he was arrested for refusing to sign a document acknowledging segregated clubs at Freeman Field, Ind. In 2016, Air Force Historical Research Agency historian Daniel L. Haulman investigated and found no US military documentation supporting this claim. James was a courier pilot at the time.)

On July 26, 1948, President Harry S. Truman signed Executive Order 9981, officially integrating US armed forces. But signing a paper was one thing; actually producing integrated units in the force was another. Not many whites would talk to James when he came in the door of his first overseas assignment, at Clark Air Base in the Philippines in September 1949. That is what he later told his son, Daniel James III, in any case.

There was one exception: a friendly Texan named "Spud" Taylor who introduced himself to the new arrival. It turned out the two men had a common interest in music. James played drums and Taylor saxophone. Eventually they recruited a piano player and formed a trio that would play at special events at Clark.

Painting: Maxine McCaffery/USAF; Illustration: CAP/NAE



"Spud," whose real first name was Claude, was a character, James' son remembers. He wore cowboy boots with his flying suit and had a handlebar mustache. Spud and Chappie became fast friends. Sadly, Spud was killed in Korea. In his honor, Chappie James named his next son Claude.

James himself left for Korea in July 1950. He experienced his first real dogfight while flying ground support in a P-51 Mustang, a prop aircraft, and was jumped by jet-powered MiGs. James later said he maneuvered around until US jets arrived for backup and that he thought he'd hit and damaged one MiG as it was leaving.

"I never had time to think about getting killed. There was too much to do," he told an interviewer in 1977.

Eventually James flew 101 Korea combat missions in P-51s and F-80s. He transferred back to the US in July 1951, where he trained as an all-weather jet pilot with the 58th Fighter-Interceptor Squadron at Otis AFB, Mass. At this point, his career began to take off.

Gregarious, prepared, and organized, James was a natural leader. Once he returned from Korea his progression up the ranks of the service was rapid. By early 1953 he was a squadron commander. Then it was Air Command and Staff College, a staff officer stint at USAF headquarters in Washington in the office of the Deputy Chief of Staff for Operations, and European service at RAF Bentwaters, England. In the early '60s he was deputy commander for operations at Davis-Monthan Air Force Base in Arizona with the 4453rd Combat Crew Training Wing.

Then he got the call to go fight in Vietnam.

James flew 78 more combat missions in Southeast Asia, many of them through heavy flak. As deputy commander for operations and later vice wing commander of the 8th Tactical Fighter Wing, he was reunited with ace pilot and wing commander Robin Olds, who James had met during his Pentagon years. The two men formed a strong leadership and combat team, inevitably dubbed "Black Man and Robin."

Operation Bolo was perhaps the high point of their professional relationship. Dreamed up by Olds, it was an aerial trap for enemy MiGs, which had been evading US fighter escorts and attacking heavily laden F-105 fighter-bombers en route to targets.

The January 1967 operation began with a force of F-4 fighters impersonating an F-105 flight. The F-4s used F-105 refueling altitudes, approach routes, airspeeds, radio call signs, and other distinctive indicators. For the first time, the F-4s were also equipped with ECM pods to deceive the enemy's missile and flak acquisition and tracking radars, according to *Aces and Aerial Victories,* an official history of USAF in Southeast Asia.

Each flight of this deception force consisted of four F-4Cs. Olds led the first flight, appearing right on time on target over Phuc Yen, northwest of Hanoi, at 3:00 p.m. local time.

No MiGs.

Unbeknownst to Olds, enemy ground control had delayed MiG takeoffs by 15 minutes due to overcast skies.

Then James led Ford Flight, the second group of F-4s. It popped out of the clouds right on time, five minutes after Olds. At that moment the MiGs appeared. What followed was a melee that might have been the greatest fighter battle of the Vietnam War.

Three MiGs immediately pounced on James' flight. Two came from 10 o'clock high, one from 6 o'clock low. Rolling from a left bank to a steep right break, James was suddenly flying right next to his adversary, in what he later termed a strange encounter.

"For a split second, [he] was canopy-to-canopy with me. I could clearly see the pilot and the bright red star markings," James said in an after-action report.

James barrel-rolled to gain separation for attack and fired one Sidewinder. It missed as the MiG broke hard left. But the North Vietnamese pilot had evaded James only to put himself in the flight path of Ford Flight's No. 2 aircraft, flown by Capt. Everett T. Raspberry Jr. A few more maneuvers, and Raspberry put a Sidewinder up the MiG's tailpipe.

When it was over, 12 F-4s had engaged 14 MiGs and scored seven confirmed victories, against no losses.

"The MiGs reacted as we had hoped," said Olds at a news conference in Saigon a short time later. "To make a wonderfully long story short, they lost."

James returned to the US in December 1967 as a vice wing commander at Eglin Air Force Base in Florida. The position was not a promotion, but part of the job entailed speeches in the community and Washington, D.C. Officials began to notice James' public relations skills. A forceful and convincing speaker, he was defending the Vietnam War at a time the Pentagon and the White House were coming under increasing criticism for the burden the fighting placed on the poor and minorities. Eventually James won over one powerful mentor in particular: Melvin Laird, President Nixon's Secretary of Defense.

Under Laird, James became a wing commander and the base command-

"THIS PROMOTION IS IMPORTANT TO ME BY THE EFFECT IT WILL HAVE ON SOME KID ON A HOT SIDEWALK IN SOME GHETTO. IF MY MAKING AN ADVANCEMENT CAN SERVE AS SOME KIND OF SPARK TO SOME YOUNG BLACK OR OTHER MINORITY, IT WILL BE WORTH ALL THE YEARS, ALL THE BLOOD AND SWEAT IT TOOK IN GETTING HERE."

er at Wheelus. In Libya, he skillfully managed the difficult drawdown, flying assets out at night to clean out the base in time to turn it over.

In March 1970, Laird called and offered him a job as deputy assistant secretary of public affairs. James demurred, saying he was a fighter pilot, not a public affairs specialist. Laird commented that Chappie had been a fighter pilot, implicitly pointing out that the flying part of James' career was over. He took the job and eventually served as Laird's principal public affairs official.

Gen. Daniel "Chappie" James as a four-star.

James was promoted to one-star status when he accepted the public affairs job. "He was something," Laird said in an interview after leaving office.

James' forte as a spokesman was public speaking, not dealing with the press. He mixed humor with anecdotes and patriotism into a potent mix that appealed to many types of audiences.

"He was an excellent speaker, a very powerful motivator, and he's a very imposing figure," remembered his son Lt. Gen. Daniel James III in his Air National Guard oral history.

By Sept. 1, 1974, James was promoted to lieutenant general when he assumed duty as vice commander of Military Airlift Command, based at Scott AFB, Ill.

On Sept. 1, 1975, he was promoted again, to four-star grade, as commander of North American Aerospace Defense Command (NORAD), with operational command of all US and Canadian strategic aerospace defense forces. He was the first African-American to wear four stars in any branch of the US military.

"If my making an advancement can serve as some kind of spark to some young black or other minority, it will be worth all the years, all the blood and sweat it took in getting here," James said upon earning his fourth star.

James knew that some blacks felt he had reached his rank by playing along with the powers of the white establishment. He rejected that assessment and felt that it did not give him enough credit for living through the beginning and end of a tumultuous era.

As a youth he'd been ordered by a Navy officer in Pensacola to move to the back of a bus—and had been ashamed of himself after complying. He later said that afterward he vowed to never let anyone or anything stand in his way again. He'd served in the segregated Army Air Corps and taken advantage of one of the first opportunities offered to minorities, the training program at Tuskegee. He'd suffered in silence in the first years of a truly integrated force, while looking for ways to continue to excel and climb.

"I think you are limiting yourself anytime you decide to be a black leader, anytime you decide to be a white leader, anytime you decide to be a Catholic leader," he said in an interview with television journalist Tony Brown.

"The mantle of leadership comes through preparation," he said on Brown's syndicated television program. "Leaders are made, they are not born. And they make themselves through total dedication and preparation."

James left the NORAD position in late 1977, after a little more than two years in the post. Some news reports at the time speculated that the move was linked to a stiff letter he had sent the Air Force Chief of Staff dealing with a reorganization plan for Aerospace Defense Command.

He then served just two months at the Pentagon before officially retiring on Feb. 1, 1978. Both James and the Air Force said his retirement was for health reasons, and he was already suffering from heart trouble.

James died of a heart attack on Feb. 25, 1978, less than a month after retiring from the service he loved.

In May 1987, then-President Ronald Reagan traveled to Tuskegee Institute and spoke at the dedication of the Gen. Daniel "Chappie" James Jr. Center for Aerospace Science and Health Education.

When he was commander of NORAD, all of America had depended on James' judgment and courage for survival in the face of nuclear threat, Reagan noted.

"He had four stars on his shoulder and 50 stars in his heart," Reagan said. ✪

Peter Grier, a Washington, D.C., editor for *The Christian Science Monitor,* is a longtime contributor to *Air Force Magazine.* His most recent article, "Rare-Earth Uncertainty," appeared in the August 2018 issue.

Illustrations: CAP/NEA

Raiders exit a deliberately crashed helicopter at the Son Tay prison camp in North Vietnam.

Into Son Tay

The rescue operation was almost perfect—but the POWs were gone.

By John T. Correll

Poring over reconnaissance photos in May 1970, US Air Force intelligence analysts noticed a new wall and a new guard tower at an enclosed compound near Son Tay on the Song Con River, 30 miles west of Hanoi.

Closer inspection revealed rocks in a corner of the compound, arranged in the shape of the letter K—search and rescue code for "come and get us." Intelligence first estimated there to be six, then 50, then 70 American prisoners of war at Son Tay.

In 1970, the US knew the names of more than 500 POWs held in North Vietnam. Several of the prisons—including Hoa Lo, the infamous "Hanoi Hilton"—were located in the North Vietnamese capital itself, where the POWs were beyond any hope of rescue.

That was not the case with Son Tay and consideration of a rescue began right away. For various operational and political reasons, though, it would be six months before everything was ready to go.

The concept for the raid was approved by the Joint Chiefs of Staff on July 10. It was the first joint military operation ever conducted under direct JCS control. Extraordinary secrecy was imposed. Even US Pacific Command and Military Assistance Command Vietnam, in whose territory it would occur, were not in the loop. Execution of the plan required approval by the president.

The CIA built a tabletop replica of the Son Tay camp so it could be studied from all angles.

The mission was launched just before midnight Nov. 20 and involved 116 aircraft flying from seven air bases and three aircraft carriers. The ground assault was conducted by 56 US Army Special Forces troops. Only the planners and leaders knew the destination ahead of time. The rest of the raiders were kept in the dark until the mission was underway.

The attack force descended with complete surprise on Son Tay in the early morning hours of Nov. 21. From a military standpoint, the operation was almost perfect. Even the single mistake turned out to be fortunate.

However, the first report flashed back from Son Tay was staggering. The POWs were not there. As it was later deter-

mined, they had been moved while the rescue was still in the planning stages.

EGLIN

May 1970 was not a good time to suggest a raid deep into North Vietnam. The controversial incursion into Cambodia at the beginning of the month was fresh in the news. Public clamor was for winding down the war as rapidly as possible.

The United States no longer had agents in North Vietnam to aid in the insertion. Nine such teams, 45 trained Vietnamese, were abandoned after the bombing halt in 1968.

The proposal for a raid was sponsored mainly by the joint counterinsurgency/special activities staff. Their feasibility study in June led the Joint Chiefs to approve the operation in principle in July. The planning and training phase, which began in August, was designated "Ivory Coast," and was disclosed to as few people as possible.

Air Force Brig. Gen. LeRoy J. Manor was chosen as mission commander and Army Col. Arthur D. "Bull" Simons was named as deputy and ground force commander. Most of the training was in a secluded section of the Florida panhandle at Eglin Air Force Base Auxiliary Field No. 3, near where the Doolittle Raiders trained for their mission against Tokyo 28 years previously.

Air Force aircrews and Army Special Forces troops prepared for a mission that would involve dissimilar aircraft flying close together at low level at night, under radio silence, and landing an HH-3 Jolly Green helicopter inside the walls of the compound.

The CIA built a tabletop replica—code named "Barbara"—of the Son Tay compound. Optical viewing equipment permitted the camp to be studied as it would appear under various lighting conditions and phases of the moon, and from any angle.

There was a full-scale mockup of the camp. The dimensions of the buildings were carefully staked out by two-by-four posts in the ground with yards of cloth stretched between them to simulate the walls.

An abiding myth, still repeated today, is that the mockup was dismantled every morning lest it be discovered by a Soviet Cosmos satellite that passed over Eglin twice a day. The posts were supposedly removed, the cloth rolled up, and the post holes covered with lids. Daylight training was limited to times when the satellite was not in position to observe.

Special Operations troops assigned to the Son Tay raid. Fifty-six troopers were selected for the ground raid.

In fact, USAF reconnaissance photos showed that such labor-intensive disassembly was not necessary. "The cloth walls were not distinctive enough to suggest solid structures," said Maj. John Gargus, lead navigator for the strike force. "The site looked like a stockyard in repair," and it was "highly unlikely that even the sharpest photo interpreter would identify the construction as the Son Tay camp."

Manor traveled from command to command to line up resources, everything from helicopters and fighters to aeromedical transports. He had to deal with senior officers who could not be told about the mission. He was aided in this by a letter from USAF Chief of Staff Gen. John D. Ryan directing commanders to give Manor whatever he needed, no questions asked.

ASSEMBLY

The direct strike would be conducted by 28 aircraft: six helicopters, two MC-130 pathfinders, and 20 fighter-attack escorts.

Five of the helicopters were HH-53C Super Jolly Green Giants. They would fight their way into Son Tay, deliver the Army assault force, and bring the POWs out. The other helicopter, a smaller HH-3E Jolly Green, would land inside the compound.

Neither the helicopters or the five A-1 Skyraiders, going along to prove close air support, had the navigational capability to fly the precise approach to the camp in the dark, so they would be led there by the MC-130s.

The Air Force had only 12 of the highly classified MC-130E Combat Talon special operations aircraft. They were coated with early stealth reflective paint, and because of their terrain-following radar and other electronic features, they were always parked in their own part of the ramp with armed guards to prevent unauthorized persons from getting too close.

The formations would be difficult to maintain since the helicopters, the Skyraiders, and the MC-130s flew at significantly different speeds.

Manor forecast two "windows" for the mission—Oct. 21 to 25 and Nov. 21 to 25—times when moonlight conditions would be ideal. National security adviser Henry Kissinger ruled out the October option as in conflict with "ongoing political discussions" with China. Thus the November window was chosen for Operation Kingpin, as it was designated.

Intelligence reports were mixed. High-altitude imagery from the SR-71 was supplemented by low-level photos by the Ryan 147S Buffalo Hunter drone. None of it was conclusive. A source inside North Vietnam said the POWs were no longer at Son Tay, but SR-71 overflights Nov. 2 and Nov. 6 revealed "a definite influence in activity."

Tight security complicated matters. In early November, the CIA station chief in Saigon insisted on using the HH-53C helicopters for a raid in Laos and was unwilling to take no for an for answer without being told why. USAF broke the impasse with an elaborate

Painting: Mikhail Nikiporenko/USAF Photos: National Archives; USAF

subterfuge in which all of the HH-53s were temporarily grounded, allegedly for safety reasons. An exception was made for Son Tay, but not for the CIA.

The joint force began deployments from Eglin Nov. 10, and by Nov. 14 was in a secure area of Takhli Air Base in Thailand. President Richard M. Nixon's formal approval for the mission arrived Nov. 18.

The strike was supposed to begin on the night of Nov. 21 but that was upset by a typhoon, moving slowly toward the mainland from the Philippines and forecast to bring bad weather to North Vietnam. Manor advanced the timing by 24 hours. The mission would go on Nov. 20.

Manor's command post would be at Monkey Mountain, a USAF tactical air control center near Da Nang in South Vietnam, where he had communications with all elements of the force, including aircraft carriers and the Joint Chiefs of Staff.

Simons would go to Son Tay as on-site commander. At Takhli, he selected the 56-member ground force from the 100 troopers who had deployed—an expected action but nonetheless disappointing to the 44 not chosen.

On the evening of Nov. 20, Simons told the assault team that the mission was to rescue POWs at a place called Son Tay. They boarded transports for a short hop to Udorn Air Base in northern Thailand, where the helicopters were waiting.

INGRESS

First up were the Combat Talon MC-130Es, which took off from Takhli and were joined over Laos by the helicopters from Udorn and the A-1 Skyraiders from Nakhon Phanom. They refueled from HC-130P tankers and took up a low-level course across the mountains for Son Tay.

Shortly after midnight on Nov. 21, three US Navy carriers from Task Force 77 in the Tonkin Gulf began a massive diversion, launching 59 sorties that dropped flares in the vicinity of Haiphong harbor. This completely captured the attention of the North Vietnamese air defense system which did not notice the small raiding party approaching from the other direction.

Over Laos, the air assault force divided into two elements, the six helicopters behind one of the Combat Talon C-130s and the five Skyraiders behind the other.

"The normal cruise speed of a C-130 at low level is about 250 knots," said Benjamin Schemmer in *The Raid,* published in 1976, the first detailed account of the operation. On this night, however, the MC-130s were held back to 105 knots, 10 knots above stalling speed.

"They had to fly that slow because the helicopters couldn't fly any faster," Schemmer noted.

The helicopters were stacked in echelon, three on each side, slightly above and behind the wings of the Combat Talons. "They would have to fly 'in draft,' tucked in close enough behind the C-130's wings to be 'sucked along' in the plane's vacuum," Schemmer said. The other formation, with the A-1s trailing the second MC-130, flew in close proximity.

Also en route to Son Tay were 10 F-4D Phantom fighters from Udorn to provide protection against MiG interceptors and five F-105G Wild Weasels from Korat for SAM suppression. The Red River basin, where the assault force was heading, was a hotbed of SA-2 surface-to-air missiles and anti-aircraft artillery.

All arrived undetected over Son Tay, and at 2:18 a.m. the lead Combat Talon dropped four flares to light up the night sky and the camp. One of the Super Jollys swept low over the prison to demolish the guard towers and strafe the barracks with its Gatling machine guns.

29 MINUTES

At precisely 2:19 a.m., the HH-3 Jolly Green helicopter set down hard in a small space inside the prison walls, the rotor blades chopping limbs from the trees as it went in. One large tree was completely severed and limbs and debris were still falling as the troops dismounted.

Damage to the HH-3 did not matter. Its trip was planned as one-way all along, and the demolition charges were already in place, set to explode on a timer.

The first raider off the HH-3 announced with a broadcasting bullhorn that, "We are Americans! This is a rescue!" The assault team soon disposed of the guards as they emerged and a room-by-room search began.

Two of the HH-53s broke away to wait nearby in a holding area until called to pick up the rescued POWs. The other two Super Jollys were supposed to land adjacent to the prison compound to deliver the ground force.

One of them did so, but the other—specifically the one carrying ground force commander Simons and 22 raiders—mistakenly landed 400 meters south alongside a similar-looking compound labeled "Secondary School" on the intelligence maps.

The mistake turned out to be extremely fortunate. The Secondary School was occupied by a contingent of more than 100 enemy troops, and a firefight ensued. Had Simons and his party not stumbled across them, they would probably have struck the US troopers at the main compound by surprise and with considerable effect.

The Secondary School defenders did not wear North Vietnamese Army dress and were taller than usual for North Vietnamese. The Americans figured them to be Chinese or Russians. One of the raiders whose belt broke during the attack stripped a replacement from one of the fallen defenders. The buckle was later determined to be that of a Chinese officer.

The A-1s attacked and destroyed a small bridge on the Song Con River when activity was detected on the other side. The fighters maintained orbit over the camp but encountered no challenge.

"The raiding element was on the ground for not more than five minutes when the mistake was realized," Manor said. "Simons and his men reboarded the helicopter and moved into the correct position at the Son Tay prison. The entire camp was searched and the devastatingly disappointing discovery was made that there were no Americans at the camp. The coded message—"Negative Items"—was received at my command post." The code word for POW was "item."

The raiding party began pulling out of Son Tay at 2:40 a.m. They had been on the ground for 29 minutes, a minute less than anticipated in the plan.

REACTION

The SAMs, silent until now, opened up as the raiders departed. They were immediately engaged by the F-105 Wild Weasels, one of which was damaged by a rising SA-2 missile. The F-105, leaking fuel, went down before it could reach the tankers over Laos. The crew landed uninjured in the mountains and was subsequently rescued. Otherwise, the total US casualties amounted to a broken ankle and one minor bullet wound.

The assault force was out of North Vietnam by 3:15 a.m. and back to Udorn at 4:28 a.m., roughly five hours after takeoff. "I received a message from Admiral Moorer [the JCS chairman, Adm. Thomas H. Moorer] instructing

Two raiders train at the full-size replica of Son Tay, built by the CIA at Eglin AFB, Fla.

Photo: Col. John Gargus/USAF

me and Simons to return to Washington posthaste," Manor said.

Flanked by Manor and Simons at a press conference in the Pentagon on Nov. 23, Secretary of Defense Melvin Laird announced the basic facts of the mission. "The rescue team discovered that the camp had recently been vacated," Laird said. Manor and Simons declined to answer questions about details.

The headline in the *Washington Post* the next day was "US Raid to Rescue POWs Fails." Reaction from Congress was mostly supportive, but Sen. J. William Fulbright (D-Ark.)—chairman of the Armed Services Committee and a foremost critic of the war—called the raid "a very provocative act" that represented "a very major escalation of the war, that it seems to me, will entail greatly increased conflict between North and South."

Sen. Birch Bayh (D-Ind.) said it was a "John Wayne approach" that might lead to "POWs being executed."

The predictions of dire consequences proved unfounded. "The North Vietnamese, fearing a repeat performance but not knowing when and where, closed down the outlying POW camps and consolidated all POWs into the two remaining prisons in downtown Hanoi," Manor said. "The number of POWs in these prisons now grew to the extent that POWs lived in groups rather than what for many had been solitary confinement. Morale immediately improved, and as a result, general health improved."

A total of 96 decorations were presented to Air Force and Army participants. Every member of the ground assault force received the Silver Star or a higher decoration. Originally, Army bureaucrats had decided that the Army Commendation Medal—a minor award—was sufficient for more than half of the raiders. They backed down when Simons told the Chief of Staff that his team, regarding such "recognition" as insulting, might refuse to accept the Commendation Medal.

PERSPECTIVE

It has been established that the POWs were removed from Son Tay in July. There is conjecture, still repeated today, that this was done because of flooding of the Son Tay River—supposedly related to a CIA cloud-seeding program to generate heavy rain to wash out road surfaces and river crossings. This theory has been largely debunked.

"We moved—pure, plain, predetermined administrative move to quarters that had been in the planning and building for us for a considerable period of time," said Air Force Col. Richard A. Dutton, who was a prisoner at Son Tay. "It was just coincidence."

The mission is regarded as a major event in special operations history. The Son Tay Raider Association was formed in 1990 and for many years held reunions and conducted informational programs.

In a thoughtful essay for *Parameters,* the journal of the US Army War College, USAF Lt. Col. Mark Amidon said the planning and training for the mission "stands arguably as the preeminent model of all special operations missions conducted by the US military." It is in sharp contrast with Desert One, the disastrous effort to rescue US hostages in Iran in 1980, aborted after the loss of aircraft and lives in the middle of a sandstorm.

Lt. Gen. Donald V. Bennett, director of the Defense Intelligence Agency, "appeared before Admiral Moorer on the morning of 20 November with two stacks of 'evidence,' one saying 'they've moved' and an equally large one saying 'they're still there,'" Amidon said.

The unavoidable question is the extent to which decision-makers allowed themselves to be convinced by what they wanted to believe. In his essay, Amidon concludes that it was a case of "collective rationalization" and "group think" at the Pentagon.

John Gargus, the lead navigator for the mission and the author of his own comprehensive account of the operation, agrees with Amidon.

"Military leaders in Washington were so motivated and committed to the rescue of the prisoners that their desire for solidarity and unanimity overrode any realistic appraisal of what was facing them," Gargus said. ✪

John T. Correll was the editor-in-chief of *Air Force Magazine* for 18 years and is now a contributor. His most recent article, "The Making of MAD," appeared in the September issue.

BACK TO SCHWEINFURT

Eighth Air Force's second Schweinfurt raid punctuated the grim period before long-range fighter escorts assisted the bombers.

Eighth Air Force destroyed some 75 percent of Schweinfurt's ball-bearing production and severely damaged industrial, railroad, and urban areas.

By Barrett Tillman

Many know of the initial Eighth Air Force raid on Schweinfurt, Germany's, ball-bearing factories. Fewer are aware of the second strike, on Oct. 14, 1943. To its survivors, the mission came to be known as "Black Thursday."

Even before World War II began, the US Army Air Corps had created a target list for a potential strategic bombing campaign in Europe, should one be needed. Besides obvious objectives such as transport netorks, aircraft factories and petroleum, a prime potential choke point seemed to be Germany's sophisticated ball-bearing production.

The "anti-friction" industry was vital to nearly every wartime product including aircraft, vehicles, and instruments. For example, a typical aircraft engine used more than 1,000 bearings; an 88 mm flak gun had 47; and a 200 cm searchlight needed 90.

In 1941, Britain's Ministry of Economic Warfare identified ball bearings as a vital component of the Reich's manufacturing industry. Schweinfurt, an industrial city in Southeastern Germany, accounted for more than 40 percent of the nation's ball-bearing production; nearly three times the next-biggest producer, Stuttgart.

Schweinfurt was one of only two cities below 100,000 in population among the joint command's top thirty targets; the other being Bitterfeld's chemical plants.

The Casablanca Conference in January 1943 formalized allied bombing strategy, with major goals of destroying or interdicting Germany's military, industrial, and economic systems; undermining enemy morale; and destroying Luftwaffe aircraft production. The ball-bearing industry was specifically designated "a complementary target."

In 1943 the Army Air Forces (renamed from the Air Corps in June 1941) was committed to the prewar doctrine of daylight precision bombardment. "Precision" was a relative term, despite the vaunted "pickle barrel" accuracy of the Norden bombsight. In truth, the AAF was delighted if half the ordnance struck within 1,000 feet of the aimpoint—a goal seldom achieved. When Col. Curtis LeMay took his B-17 group to Britain in 1942, he found that no more than 20 percent of bombs struck within five miles of the target.

The lack of adequate fighter escort didn't help. In the prewar era, Air Corps doctrine focused on bomber self-defense, since there were no fighters with enough range to escort the bombers. This led to the heavily armed B-17 Flying Fortress. A few years earlier, British Prime Minister Stanley Baldwin intoned, "The bomber will always get through."

The Anglo-American Combined Bomber Offensive, formulated in May 1943, put more emphasis on single-point failures like ball bearings. That set the stage for two epic missions against Schweinfurt's four biggest plants.

SCHWEINFURT I AND II

The first Schweinfurt mission had been complex, ambitious, and nearly disastrous. On Aug. 17, 1943—the anniversary of the first US bombing mission over Germany—Eighth Air

Force launched a dual strike against Schweinfurt and Regensburg, with two task forces intending to split defenses 110 miles apart.

Bad weather kept the Schweinfurt-dedicated bombers of the pincer from getting off the ground in time, but the Regensburg groups launched on time. The plan called for a landing in Tunisia.

Of the 376 bombers launched, the "Mighty Eighth" lost 60, and 50 more—though they made it back—were severely damaged; some beyond repair. The 16 percent loss rate was four times what the AAF could sustain, with 564 fliers killed or captured.

The Luftwaffe lost only 51 planes defending both targets, claiming 52 bombers and five Allied fighters—an uncommonly accurate assessment.

Two months later the Mighty Eighth tried again.

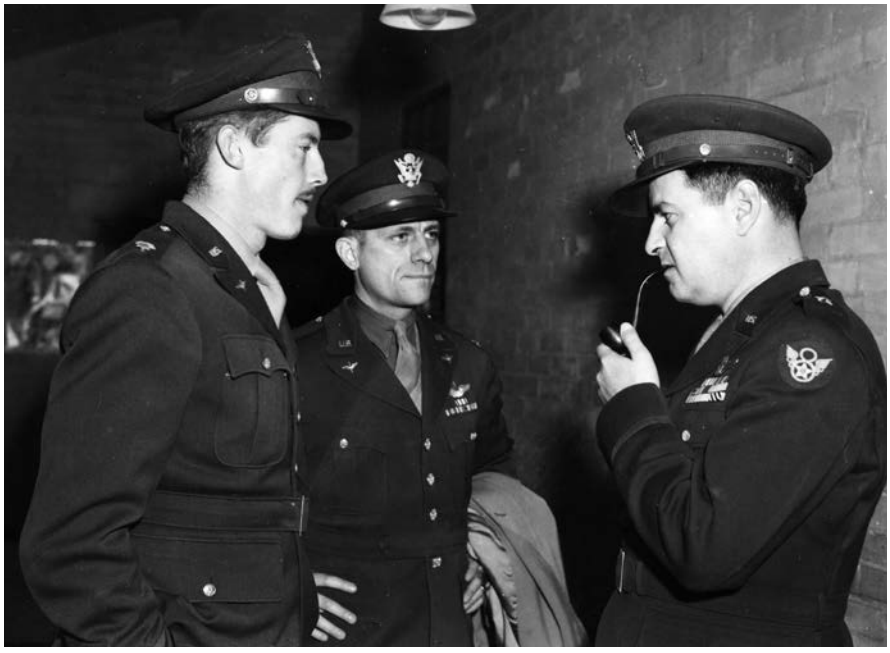
"Schweinfurt II" was a maximum effort but many groups were hard-pressed to make their quota. Some were still recovering from recent strain and attrition. The 95th Bomb Group at Horham near the English Channel had logged a rough one, four days previously over Munster, leaving just 18 aircraft operational. That wasn't unusual: the Eighth had lost nearly 90 bombers in three previous missions. One group's flight surgeon confided, "morale is the lowest that has yet been observed."

Nonetheless, the aerial "second front" against Germany proceeded apace. Eighth Bomber Command at High Wycombe, northwest of London, planned to put 360 B-17s and 60 B-24 Liberators over Schweinfurt for a second go, but that was wildly optimistic.

The command's operations officer, Brig. Gen. Orvil A. Anderson, issued a statement for crew briefings: "This air operation today is the most important ... yet conducted in this war. The target must be destroyed. It is of vital importance to the enemy. Your friends and comrades that have been lost and that will be lost today are depending on you. Their sacrifice must not be in vain. Good luck, good shooting, and good bombing."

Though understrength, Mission 115 launched sixteen bomb groups totaling 291 Flying Fortresses against Schweinfurt, more than 450 miles from the English coast. Approximately 20 B-24s also participated in the primary mission.

At Polebrook, the 351st BG's schedule was typical. Crews boarded their planes at 9:10 a.m. and started engines an hour later. After 10 minutes to warm up the Wright Cyclones, squadrons began taxiing at 10:20 a.m. with the lead element lifting off 15 minutes later.



Brig. Gen. Curtis LeMay (r), commander of Eighth Air Force, speaks with Col. Frederick Castle and Lt. Col. Elliott Vandevanter after the second Schweinfurt raid in 1943.

The survivors returned at 5:07 p.m.—an eight-hour work day characterized by galling fear, lethal danger, numbing cold, and enduring courage.

The 1st and 3rd Air Divisions flew parallel tracks southeast from the English coast with the 1st about 20 miles to the north. Col. Budd J. Peaslee led the 1st Division, flying as a copilot with the 92nd BG.

Meanwhile, the 2nd Division sent 21 Liberators over the North Seas feinting toward Emden; the intended diversion proved unsuccessful.

FEET DRY

Four miles high, typically the B-17s approached German airspace at an airspeed of about 220 mph. P-47 Thunderbolts and British Spitfires escorted them as far as possible, but it was nowhere near far enough.

The Luftwaffe response was massive. Nearly every fighter unit in Western Europe—seven fighter divisions—came up to meet the bombers. There were nine single-engine fighter wings, two twin-engine fighter wings, six night fighter wings, and two bomb wings. Additionally, at least four fighter training wings also launched sorties.

The P-47s hung in until they neared Aachen, when low fuel forced them to turn back. The 56th and 353rd Fighter Groups kept their rendezvous with the "big friends" and claimed 13 kills, but the 4th Group was foiled by weather.

From bases near the Dutch border, Jagdgeschwader 3 intercepted the bombers as they crossed the Belgian coast, giving up seven Bf 109s for a P-47 and two other Thunderbolts wrecked. Top score with a double was the 353rd Group's Capt. Walter Beckham, destined for 18 victories, a POW camp, and a physics doctorate.

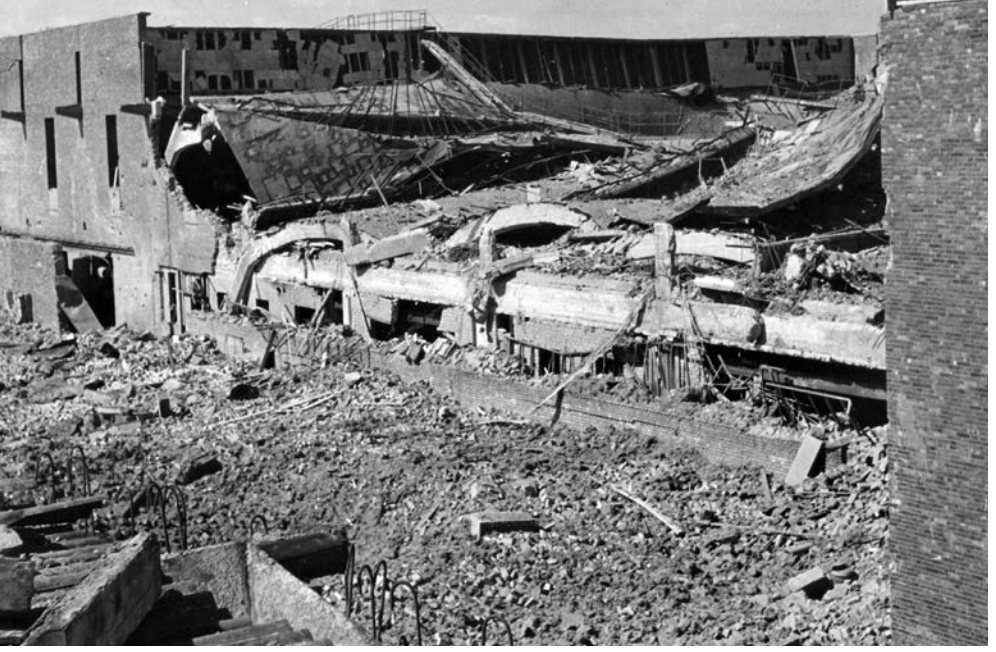
At the time, no P-38 groups were operational, so the P-47 "Jugs" left the big planes on their own still an hour from bombs away.

Over the Netherlands, the battle intensified as elements of two Luftwaffe wings slammed into the task force. The 305th Group was shot out of the sky, as Focke-Wulf Fw 190s of JG.1 and JG.26 hacked down 13 of Chelveston's 15 B-17s.

Bomber crews reported the en route weather as "awful." Of the 351st Group's 18 bombers, 10 took off and bombed, while eight were weather aborts. Six returned to base and three landed elsewhere.

The 3rd Division doglegged straight south just east of the Belgian border for 60 miles, then turned hard left over Luxembourg for a straight 180-mile run to Schewinfurt. The dodge was largely successful, as the 3rd escaped heavy fighter attention until well into German airspace.

Photos: USAF/AFA; American Air Museum



The Kugelfischer plant in Schweinfurt, Germany, after being destroyed by American bombers in the devastating raid.

Flak was "spotty, meager, and inaccurate" during the ingress, becoming "moderate and fairly accurate at the target," one crew reported.

The 303rd Group was typical, launching 20 aircraft from Molesworth, Cambridgeshire, with two aborts. Gunners expended nearly 100,000 rounds of .50 caliber to claim 24 interceptors downed.

Mission 115 turned into a running firefight lasting three hours, fifteen minutes. The defenders lofted 882 fighter sorties with 675 attacking US formations. Germany's practiced radar controllers vectored three-quarters of their airborne interceptors onto the bomber stream.

As LeMay noted, all too frequently the fighter "escorts" bore black crosses on their wings. A 100th BG flier said, "No need to consider aircraft identification of those little spiteful creatures because they all meant us harm." The single-engine fighters were persistent and aggressive. Many attacked the bombers head-on, some slow-rolling in their gunnery passes, stopping inverted for a last burst before departing in a split-S. Though some bomber men considered the tactic merely showboating, it made good sense: the fighters maintained positive G in their breakaway, exiting on the same course as the bombers so they could make another try.

The 41st Wing crews counted some 300 fighter passes in 90 minutes of sustained action. Germans mostly attacked from astern; one report noting "rocket guns were experienced."

ENTER THE B-17G

Until then, the B-17 F model had been dominant. It was produced in greater numbers than all previous versions combined (3,400 from Boeing, Douglas, and Vega, versus 650 previously). That October, the B-17G was brand-new in theater, distinct with its chin-mounted two-gun turret controlled by the bombardier. It was a belated response to the Luftwaffe's head-on tactic that avoided the Flying Forts' heaviest firepower—to the sides and rear. At least one G model from the 305th fell near Cologne.

While 109s and 190s often attacked from ahead, the twin-engine *Zerstorer* ("destroyers") settled astern. Gauging the range carefully, Me 110s lobbed 55 mm rockets into the US formations from 500 to 600 meters, connecting occasionally.

On his fourth mission, a 384th Group navigator, Lt. Carl Abele said, "The fighters were unrelenting; it was simply murder."

Each B-17 carried about 7,500 rounds of machine gun ammunition, and some crews fired nearly every .50-caliber round on board. Nevertheless, the Jagdwaffe pressed through streams of armor-piercing incendiaries to get at the *Viermots*.

Feldwebel (Sergeant) Wolfgang Brunner, an Fw 190 pilot, reported intercepting the Americans near Koblenz, 120 miles west of Schweinfurt:

"One Boeing B-17 shot from formation from 7,200 meters at [1:55 p.m].

"At [1:47 p.m.] we sighted two escorted US heavy bomber *Verbande* (groups) flying southeast at 7,200-7,500 meters. Because of the escort we were compelled to drop our tanks, but that of my *Rottenfuhrer* (flight leader) would not drop away. After a brief delay he ordered me to attack alone. As a result, I closed upon three Fw 190s flying at the same height as the first enemy *pulk* (bunch) and with them attacked the first *pulk* of the *Verbande* flying on the right, which comprised five Boeings flying alone in close formation. The attacks were carried out from the left and right sides. I attacked the last of these from the left side to an angle of 30 degrees from behind. I saw hits in the fuselage and tail and saw the vertical tail break up.

"After I pulled away, I saw the Boeing sheer away from the *pulk* and drop below. I had to depart, owing to low ammunition and fuel. Final destruction was obtained by JG.26."

Of the 291 bombers dispatched, 37 had aborted, leaving 254 crossing the coast into occupied Europe. En route attrition reduced effective sorties to 222 bombers striking their briefed targets.

Visibility improved near the target, allowing navigators to confirm their approaches and bombardiers to spot their aimpoints. The two bomber tracks merged over Schweinfurt for an 18-minute aerial deluge between 2:39 p.m. to 2:57 p.m. In the 303rd BG, bombing from 24,000 feet, each B-17 dropped three half-ton general-purpose bombs and five incendiaries on the V.K.F Ball Bearing Plant.

Then the bombers exited to the south for the return, intending to coast out near Boulogne.

STRUGGLING HOME

However, the Americans got little respite on the egress as some German fighter groups flew far from their bases in the Netherlands and northern Germany. 1st Gruppe of Jagdgeschwader 2 flew 180 miles to the 3rd Division's outbound track.

The B-17 *El Rauncho* crash-landed in England on return from the first Schweinfurt raid on Aug. 17, 1943.

Generalleutnant Adolf Galland, commanding Germany's day fighters, wrote, "We were able to break up several bomber formations and to destroy them almost completely. The approach and return routes were marked by the wreckage of shot-down aircraft."

Some of the fallen Flying Forts had strayed far afield. A 305th BG bomber, *Lazy Baby,* landed wheels up in Switzerland. Far in the opposite direction, another Chelveston aircraft was shot down near Hamburg, apparently trying to make it to Sweden.

Even nearly home, losses continued. Almost out of fuel, the 303rd BG crew of the battle-damaged *Cat-O-Nine Tails* bailed out over England. All fliers landed within four miles of the crash, in a Risley resident's backyard.

Paper Doll of the 96th Group, three months old, returned with a dead pilot and badly wounded copilot. The navigator was Lt. Miles McFann, a prewar private pilot who got her down at an RAF field. He recalled, "We could have bailed out, instead of risking a crash-landing. I suppose a lot of fellows wouldn't want to take a chance on having a navigator act as pilot, but they weren't sticking because of their confidence in me. They all knew that [Lt. Robert] Bolick was dead inside that ship, and none of us was going to bail out and leave him in there. We just wouldn't do it."

Some 2,900 airmen flew the mission, of whom 648 were listed killed, wounded, or missing in action; a staggering 18 percent casualty rate.

The 1st Division took the heaviest losses by far: as noted, the 305th BG wrote off 13 bombers while the 306th lost 12. In contrast, the entire 3rd Division lost 15.

Eighth Bomber Command listed 60 Flying Forts missing, plus five that crashed in England, with seven written off as "Category E," or damaged beyond repair. All told, a horrific total loss of 72 bombers. Of the remainder, about three-quarters bore battle damage.

Aircrew gunnery claims were typically extravagant; understandable with multiple B-17s often engaging the same fighters. The original figure was an unrealistic 288, reduced to 186 "confirmed" fighters downed.

In fact, the Luftwaffe lost 53 aircraft with 29 aircrew killed or missing and 20 wounded.

AFTERMATH

The cold comfort for the severe losses was that the B-17s apparently inflicted severe damage on Schweinfurt. In some of the best bombing yet seen over Europe, 1st Division's 91st Group scored the most hits on the target.

The 351st's lead bombardier, Capt. Harvey D. Wallace, put all his own ordnance inside the desired 1,000-foot circle around the aimpoint. But the Eighth's youngest bomb group, the 390th, showed the veterans how it was done: their aircraft placed 51 percent of their bombs inside the 1,000-foot circle. It was all the more impressive because the lead aircraft's autopilot had gone haywire, forcing the crew to target manually.

The AAF intelligence assessment was favorable, predicting a 25 percent reduction in ball bearings over the next three months. However, subsequent analysis was less optimistic, noting the heaviest concentration of bombs hit between the buildings, though rail lines were impaired.

Albert Speer, Germany's production genius, was quick to react. Despite downed phone lines, he spoke with a plant manager who reported that, beyond blast damage, the oil baths ignited serious fires. Schweinfurt's ball-bearing production plummeted to 23 percent of the previous figure.

But Speer and his minions had options. They increased imports, especially from Sweden and shifted to slide bearings where possible. From 1937 through to 1942, Sweden provided an average 57 percent of Germany's bearings (subsequent years lack full data). Sweden also sold bearings to Britain.

The Germans braced for the seemingly inevitable third blow, but it did not come.

Speer recalled, "The enemy—to our astonishment—once again ceased his attacks on the ball-bearing industry. … The Allies threw away success when it was already in their hands. Had they continued the attacks with the same energy, we would quickly have been at our last gasp."

Both Schweinfurt missions had long-term effects on Eighth Air Force operations and morale. The Fall of 1943 was a grim period, when statistically it seemed impossible to complete a combat tour: four percent attrition over 25 missions was considered acceptable. After Schweinfurt II, the Eighth rolled back its deep-penetration missions for awhile, but help was close at hand: The first long-legged P-51 Mustang groups went operational starting in December.

The Mighty Eighth did return to Schewinfurt, but only five times between February and October 1944. The RAF followed up the February mission with a night strike that caused little lasting damage.

By the time ball-bearing production became a problem for Nazi Germany in late 1944, it was too late to matter: Allied bombing of oil and transport systems proved more effective in crippling the Third Reich's industry. ✪

Barrett Tillman is an award-winning historian who has written 50 books, including *Forgotten Fifteenth: The Daring Airmen Who Crippled Hitler's War Machine.* His most recent article for *Air Force Magazine* was "Hard Targets," in the February 2015 issue.

Photos: AFA/USAAF; American Air Museum

AFA nominees 2018-2019

Candidates for national office and the Board of Directors.

The Air Force Association Nominating Committee met on May 5 and selected candidates to send forward for National Officer positions and National Director positions on the Board of Directors. The Committee consists of three past Chairmen of the Board, one person selected by each of the two Vice Chairmen of the Board, two persons representing each geographic area, and one person each representing the Total Air Force, Air Force veterans, and aerospace industry constituencies. The slate of candidates will be presented to the delegates at the AFA National Convention in National Harbor, Md., in September.

CHAIRMAN OF THE BOARD

F. Whitten Peters, Washington, D.C., nominated for Chairman of the Board for a third one-year term. A Life Member, Peters joined AFA after becoming Undersecretary of the Air Force, a position he held from 1997 until 1999. He was subsequently confirmed as the 19th Secretary of the Air Force in 1999 and served in that position until 2001. Before then, he was DOD Principal Deputy General Counsel. Peters was appointed as an AFA National Director five times beginning in October 2008. He served on AFA's national-level Executive Committee and Development Committee and received the AFA Chairman's Citation in 2016. Peters received the W. Stuart Symington Award in 1999 and the DOD Distinguished Public Service medal three times. He is the first Secretary of the Air Force to hold the Order of the Sword. Peters earned a bachelor's degree from Harvard University in government, a master's degree in economics from the London School of Economics, and a juris doctor degree from Harvard Law School. He served in the Navy Reserve as a Computer Systems Division Officer and Company Commander. Peters has been a member of several advisory organizations, including the National Commission on the Structure of the Air Force, the Defense Science Board, and the presidential advisory Commission on the Future of the United States Aerospace Industry. He has been on the Board of Trustees for the Air Force Aid Society, the Air Force Academy's Falcon Foundation, and the Air Force Enlisted Village. Peters is a Lawyer.

VICE CHAIRMAN OF THE BOARD, FIELD OPERATIONS

F. Gavin MacAloon, Tyndall AFB, Fla., nominated for Vice Chairman of the Board for Field Operations for a third one-year term. A Life Member, MacAloon joined AFA in 1984. He has been the Central East Region President and served on the Field Council as Chairman of the e-Business and the Emerging Leader Program Subcommittees. He is a founding member of AFA's Wounded Airman Program. He served on the national-level Nominating Committee as Supervisor of Elections and in several State and Chapter offices, including Vice President for Fund-raising for the Virginia state AFA and President of the Donald W. Steele Sr. Memorial Chapter. He has received an AFA

VICE CHAIRMAN OF THE BOARD, AEROSPACE EDUCATION

James T. Hannam, Burke, Va., nominated for a first one-year term as Vice Chairman, Aerospace Education. Hannam earned a bachelor's degree in engineering science from the United States Air Force Academy, a master's degree in applied mechanics from Stanford University, and a master of business administration from Auburn University. He was a fighter pilot with 100 combat missions over North Vietnam in F-105 Thunderchiefs. He also flew F-4 Phantoms in Southeast Asia and Europe and F-16 Falcons in Europe. He served as an Assistant Professor in Engineering Mechanics

Chairman's Citation, an Exceptional Service Award, a Medal of Merit, and numerous awards from the region, state, and chapter, most notably the 2012 Virginia Member of the Year. MacAloon earned a bachelor's degree in psychology from Southeast Missouri State University and a master's degree in administration from Central Michigan University. He served in the Air Force for 22 years primarily as a Master Air Battle Manager on AWACS and Airborne Battlefield Command and Control Center aircraft. MacAloon also served on the Air Staff, gaining leadership, management, and acquisition experience. Along with extensive AFA involvement, he is a member of the Association of Old Crows, Military Officers Association of America, and Veterans of Foreign Wars. MacAloon retired after a second career with an aerospace defense company and is now a business development consultant and a Senior Acquisition Analyst at the Air Force Civil Engineering Center (AFCEC) at Tyndall AFB, Fla.

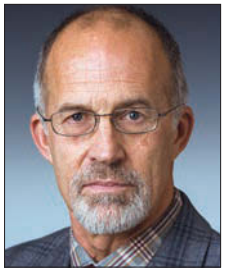
and as a Flying/Soaring Instructor at US Air Force Academy, in Europe as Wing Director of Operations, IG Director of Inspection, and Aviano Group Commander, and on the TAC and Air Staffs in Fighter Requirements, retiring as a Colonel. After Air Force retirement he worked in business development. He is a member of the Red River Valley Fighter Pilots Association, MOAA, and Daedalians. An AFA Member since 1976, Hannam serves on the Executive Committee of the D.W. Steele Chapter, and previously as Steele Chapter President, Virginia State Secretary, Central East Region President, Director AFA Board of Directors, Long-Range Planning Committee, Chairman Strategic Planning Committee, and for the many years, Vice Chairman, Aerospace Education Council. AFA Awards include Medal of Merit, Exceptional Service Award, President's and Chairman's Awards, and AFA Member of the Year.

NATIONAL SECRETARY

Richard W. "Rick" Hartle, Layton, Utah, current appointed incumbent, nominated for a full one-year term as National Secretary. An AFA member since 1998, Hartle has served AFA on the national level as a National Director at Large from 2011 to 2014 and 2017 to 2018. He currently chairs the Audit Committee, has chaired the Development Committee, and served on the Strategic Planning and Transition Constitution Committees. Life Member Hartle has been the Utah State President, Utah Aerospace Education Foundation President and Board Chair, AFA Utah Industrial Associates VP, and Ute-Rocky Mountain Chapter President. He has received a national-level Medal of Merit, the AFA Utah State Presidential Citation, and the Utah AEF Exceptional Service Award. He and his wife, Amy, are AFA Thunderbird Society members. His community involvement includes board positions with the Utah Defense Alliance, Strategic Deterrent Coalition, and the Top of Utah Military Affairs Committee. Hartle earned a bachelor's degree in electrical engineering from New Mexico State University and completed National Defense University and Boeing Leadership Center courses in management, business development, finance, and leadership. Hartle is retired from a 35-year career with an aerospace contractor.

NATIONAL TREASURER

Steven R. Lundgren, Fairbanks, Alaska, nominated for a third one-year term as National Treasurer. An AFA member for more than 30 years, Lundgren was AFA National Treasurer from 2005 to 2010. He serves as AFA Alaska State Treasurer. Lundgren has been a Northwest Region President and served on the national-level Finance, Audit, and Executive Committees. He received AFA's Member of the Year Award in 2011 and was awarded a Presidential Citation in 2003. His volunteer and civic organization work includes the Alaskan Command Civilian Advisory Board, the American Bankers Association (ABA) Community Bankers Council, the Fairbanks Economic Development Corporation Board, and the Greater Fairbanks Chamber of Commerce Board. He is Vice Chairman of the Alaska Committee for the Employer Support of the Guard and Reserve program. Lundgren, who was President of the Alaska Bankers Association 2015-16, earned a bachelor's degree in business administration from Oregon State University and has attended ABA professional-school courses. Lundgren began his career in banking in 1978 and is President and CEO of a community bank in Fairbanks.



NATIONAL DIRECTOR AT LARGE

The Nominating Committee submits three names for National Director at Large. Two will be elected for a three-year term.

Michael J. "Mike" Liquori, Springfield, Mass., an AFA Life Member since 2000. He received his bachelor's degree in mathematics from Boston University and a master's degree in managerial economics from University of Oklahoma. He served on Active Duty for 12 years and was assigned to AFROTC Det. 159, University of Central Florida. He was the detachment's single point of contact for the local chapter's scholarship program as well as the AFA Gala and Air Warfare Symposium. He also served the Martin H. Harris Chapter as Executive Vice President and President for two years each and as AFA Gala chairman for three years. Liquori was selected as an AFA Emerging Leader and has been a member of the Field Council for three years, serving on the Advocacy Subcommitte for two of them. Liquori received an AFA Medal of Merit, Exceptional Service Award, and a Chairman's Citation. He has continued to serve as an Individual Mobilization Augmentee in the Air Force Reserve for 12-plus years and also works for a land development company in Orlando, Fla.

Gerald R. Murray, South Ogden, Utah, joined AFA in 1996, becoming a Life Member in 2002. Murray served 29 years in the Air Force, culminating as the highest ranking noncommissioned officer in USAF, the 14th Chief Master Sergeant of the Air Force. Prior, he performed various duties in aircraft maintenance and logistics with the F-4, F-16, and A-10 aircraft, and as a command chief master sergeant at wing, numbered air force, and major command levels. Murray's previous AFA involvement has been as National Director, Membership Committee, Chapter 331 President, Force Capabilities Advisory Group, and as the Georgia and Utah State Delegate.

He earned a bachelor's degree in business administration from Saint Leo University and an associate's of applied science in aircraft systems maintenance technology from the Community College of the Air Force. Murray has received the Air Force Distinguished Service Medal, a Bronze Star Medal, Defense Meritorious Sevice Medal, four AF Meritorious Service Medals, and three AF Commendation Medals. Additionally, he was the 1991 recipient of the Air Force Gen. Lew Allen Trophy. He has volunteered as an AFA Emerging Leader Mentor, with the AFA Focus on Defense Forum, and with the Top of Utah Military Affairs Committee. Murray currently serves on the USAA Board of Directors, the Air Force Association National Board of Directors, the Air Force Museum Foundation Board of Trustees, and the Air Force Enlisted Village Development Council.

Steven A. Roser, Keller, Texas, an AFA member since 1986, is the President and CEO of a consulting company. Prior to assuming this position, he was the Vice President of Marketing for a leading provider of innovative products and systems solutions for the defense, homeland security, commercial aviation, and medical instrumentation markets. He has also served as the Vice President of Business Development for a Defense and Aerospace Systems technology Division in Huntsville, Ala. Prior to this position, Roser was Regional Manager supporting Air Mobility Command. His education includes a bachelor's degree in political science and two masters degrees: one in international relations from Webster University and one from Washington University in St Louis. He graduated from advanced programs at Carnegie Mellon University and Harvard. He is also a graduate of the Air Command and Staff College and the National War College. Steve Roser is a retired United States Air Force Brigadier General. He served 29 years in the Air Force and held numerous command and staff positions. He retired from USAF in October 1999.

NATIONAL DIRECTOR, WEST AREA

The Nominating Committee submits one name for National Director, West Area, for a three-year term.

Robert E. "Bob" George, Ogden, Utah, an AFA member since 1972 and a Life Member since 1978. George has served on the Strategic Planning Committee and the Nominating Committee. He served as Rocky Mountain Region President, State (Utah) President, and served the Northern Utah Chapter as Secretary, Vice President, and President. He currently serves as the Utah AFA Secretary. He was awarded the AFA's Chairman's Citation, Exceptional Service Award, Medal of Merit and several State awards. In addition to his AFA duties, George volunteered for nine years as finance chair for his church, six years as a member of the Top of Utah Military Affairs Committee, and has helped several retiring/former military members though the e-mentor program. During the winter months he also volunteers as a ski guide/host at Powder Mountain Resort. George earned a bachelor's degree in political science from the University of Nebraska in Lincoln and a master's degree in business finance from Webster University in St. Louis. He served 28 years in the Air Force, retiring in 2000. Since then he has worked for three defense contractors and in 2012 became a founding owner of an engineering services company where he serves as the Vice President for Operations. ✪

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E61011

verbatim@afa.org
By Robert S. Dudney

AI Race, Take 1

"If you are not first in developing artificial intelligence and the means to employ it, ... you're going to be last, because catch-up in this arena, with disruptive technologies, is too hard and it's [moving] too fast."**—Lt. Gen. VeraLinn Jamieson, Air Force deputy chief of staff for ISR, c4isrnet.com, Aug. 1.**

AI Race, Take 2

"Research institutes, universities, private companies, and the government—all working together in a broad area. ... I have not seen anything like it. China is committed to becoming leader in AI, and the US will lose because they don't have the resources."**—Associate Prof. Steven White, Tsinghua University School of Economics and Management, in Asia.nikkei.com, July 25.**

Chapman, Medal of Honor

"His inspiring story is one of selfless service, courage, perseverance, and honor as he fought side by side with his fellow soldiers and sailors against a determined and dug-in enemy. TSgt. Chapman represents all that is good, all that is right, and all that is best in our American airmen."**—Gen. David L. Goldfein, USAF Chief of Staff, July 27 statement on award of Medal of Honor to John Chapman, a combat controller killed in battle against an overwhelming number of Taliban on Takur Gar Mountain in Afghanistan in 2002. Chapman died trying to rescue a stranded teammate.**

We'll Shoot Back

"Satellites are really pretty fragile things. We have to think now about how we defend the constellation, and it's not always just direct defense. It may be that we distribute a network; if you have multiple nodes, it's inherently more resilient. ... Some of it may be maneuverability. Some of it may be deception. So there's a variety of ways to make sure that the United States can take a punch and keep on operating. ... The United States is determined to protect our capability on orbit. We're going to defend ourselves and we're developing the capability to do that. ... Our adversaries listen to what I say, and I want them to have no doubt that, if they seek to contest the United States in space, we will defend ourselves."**—Secretary of the Air Force Heather Wilson, *Washington Post* event, July 25.**

Operation Frostbite

"The warning lights are blinking red. Think about New England in January, and the [electric] grid going down for three days. A lot of people are going to suffer and die."**—Dan Coats, director of National Intelligence, warning of the growing foreign cyber threat to the US power grid, quoted in fifthdomain.com, July 24.**

Focus on the Fight

"No, I do not believe that we should have a separate Space Force. ... What exactly is the problem that we are trying to solve? ... If warfighting focus is your issue, Space Force is not your answer. A military service trains, organizes, and equips, it doesn't war-fight. The combatant commands do the war-fight. I would support a full-up, unified command, so it would be the equivalent of a Stratcom. I would certainly support that going forward to focus solely on space. ... That would really be the ticket for solving the problem that everyone is mostly focused on."**—Deborah Lee James, former Secretary of the Air Force (2013-17), Brookings Institution seminar, July 30.**

Warning Shot

"Never, ever threaten the United States again or you will suffer consequences the likes of which few throughout history have ever suffered before."**—President Donald J. Trump, public message to Iranian President Hassan Rouhani, posted on Twitter, July 22.**

By Suicide, You Mean?

"You will start this war, but we will be the ones to impose its end. Therefore, you have to be careful about insulting the Iranian people and the president of our republic. You know our power in the region and our capabilities in asymmetric war. We will act and we will work."**—Maj. Gen. Qassem Suleimani, head of Iran's Quds Force, reply to President Trump, July 26.**

Running Amok

"The US 'Freedom of Navigation' program should not be confused with freedom of navigation that is universally recognized under international law. The former is an excuse to throw America's weight about wherever it wants. It is a distortion and a downright abuse of international law into the 'freedom to run amok.' ... Peace, like air and sunshine, is hardly noticed when people are benefiting from it, but no one can live without it. China respects and supports freedom of navigation in the South China Sea according to international law, but freedom of navigation is not the freedom to run amok."**—Ambassador Liu Xiaoming, Chinese ambassador to Britain, op-ed in *The Guardian,* June 27.**

ISIS at the Little Bighorn

"What we ... expect to encounter is a hard core of ISIS fighters ... who have been digging in and preparing their battle space, holding civilians as human shields, and we fully expect to see a high proportion of foreign terrorist fighters who represent some of the biggest threats to our nations. ... This is going to be a challenging fight. ... It's a densely populated area. ... It's a hard core of fighters. ... It is one of the last areas that they hold. ... We think the fight to dislodge them from that area is going to be difficult."**—British Army Maj. Gen. Felix Gedney, deputy commander of strategy and support, Combined Joint Task Force-Operation Inherent Resolve, on final battle with ISIS in Syria, Pentagon press briefing, July 31.**

Back to Squadrons

"Over the past 17 years we, like all the services, made changes and trades ... to ensure we can support the fight against violent extremism. ... Across every wing in the United States Air Force, some percentage of that wing is gone all the time. Airmen continue rotating into a very mature fight, that has mature infrastructure, basing, command and control. All that has been in place for a number of years. I'm able to take ... individual airmen, train them up, and send them in. ... I don't believe that is going to work in the next conflict. I may need to take whole units, led by a squadron commander, send them forward into a contested environment, ... cut off from ... higher headquarters, ... in a different kind of fight. ... We fight like we train, and I need them ready to go forward tomorrow."**—Gen. David L. Goldfein, USAF Chief of Staff, commenting on the need to strenghthen USAF combat squadrons, airforcetimes.com, July 31.**

Wounded Airman Program — Airmen Taking Care of Airmen

Photos by MSgt David Long

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1/ 1st Lt. John L. Goodfellow Jr. 2/ Airmen march past a static display at Goodfellow AFB, Texas. 3/ Goodfellow flew in the Salmson 2A2 observation aircraft.

GOODFELLOW

An Army Airman Forsees His Death

By Sept. 8, 1918, 1st Lt. John J. Goodfellow Jr. had overflown No Man's Land many times. He wrote to his sister on that day, noting a premonition of death, that he was "a marked man."

His prediction came true in six days. On Sept. 14, the Army Air Service aviator mounted a reconnaissance mission deep into German-held territory, was shot down, and perished.

Goodfellow had just turned 23. He was the first Texas-born Army pilot to die in the Great War. His was the sad story of youth sacrificed on the Western Front, but his story was not ordinary.

Goodfellow, the son of an engineer, was born and raised in Fort Worth at a time when memories of Comanche raids were fresh. In 1909, he and his family moved to the West Texas town of San Angelo. He was a talented football player and a musician of some note.

After graduating from San Angelo High School in 1913, he worked briefly but then headed for the University of Texas. He enrolled in August 1914. The Great War in Europe erupted at the same time.

Goodfellow seemed born to succeed. He was elected president of his freshman class. As a student, he made top grades and was on his way to an engineering degree. He was treasurer of his fraternity and a member of the university's Longhorn Band.

Then Congress on April 6, 1917, declared war on the Central Powers, and everything changed. Goodfellow, though still a junior, decided to leave UT and join the war effort. He was one of 200 Texas students who enlisted in the Army *en masse* on May 5, 1917.

Goodfellow's first stop was infantry officer training camp near Austin (also there: Lt. Dwight D. Eisenhower and Lt. Walton H. Walker). Goodfellow was granted a transfer into Army aviation.

The young Texan aced pilot training and was commissioned a second lieutenant in February 1918, after which he immediately left for England as an observation pilot with the US 24th Aero Squadron.

On Aug. 22, Goodfellow's squadron joined First Army Observation Group at Gondreville, France, in preparation for the St. Mihiel offensive. He made almost daily trips over and behind German lines. Afterward, he produced valuable maps based on his observations.

The offensive commenced on Sept. 12, 1918. US pilots in lumbering Salmson 2A2s flew constant reconnaissance missions. Goodfellow and an observer, 1st Lt. Elliot M. Durant Jr., flew deep behind the lines to Metz to map German movements.

Goodfellow's aircraft was jumped by five Fokker fighters. After a furious dogfight, his aircraft—minus one wing—slammed to Earth. US troops who swept into the area three days later located the remains of Goodfellow and Durant in the wreckage.

JOHN JAMES GOODFELLOW JR.

Born: May 17, 1895, Fort Worth, Texas
Died: Sept. 14, 1918 (KIA), Thiaucourt, France
College: Univerity of Texas
Occupation: US military officer
Services: US Army (Air Service)
Main Era: World War I
Years Active: 1917-1918
Combat: Western Front, Europe
Final Grade: First Lieutenant
Honors: Purple Heart, World War I Victory Medal (both awarded posthumously)
Buried: St. Mihiel American Cemetery and Memorial, France

GOODFELLOW AIR FORCE BASE

State: Texas
Nearest City: San Angelo
Area of Main Base: 1.9 Sq mi./1,235 acres
Status: Open, operational
Opened as San Angelo Field: Aug. 17, 1940
Renamed Goodfellow Field: June 11, 1941
Inactivated (by Army): May 1, 1947
Re-activated (by USAF): Dec. 1, 1947
Renamed Goodfellow Air Force Base: Jan. 13, 1948
Current Owner: Air Education and Training Command
Former Owners: US Army 1940-47 (Training Command); USAF 1947-92 (Air Training Command, Air Force Security Service, Electronic Security Command)

The Army Air Forces in 1941 named a new Texas base in honor of the San Angelo hero. In the early years, thousands of pilots trained there. Today, the base is home of the 17th Training Wing. Goodfellow's chief mission is to train USAF cryptologic and general intelligence experts. In addition, the base provides fire protection training for personnel of all services. ✪

Photos: USAF; A1C Caelynn Ferguson; US Army Air Service

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