

AFA 335

TENNESSEE VALLEY FLYER

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Memorial Day 2021

Chapter Vice President for Aero Education Jay Carlson and Chapter Vice President Guy Broadhurst present the Air Force Association Tennessee Valley Chapter 335 Wreath at the Huntsville – Madison County Veteran’s Memorial on Memorial Day 2021.



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My "Breaking Bad" Moment

A Heritage Article By Eric Silkowski, Col (Ret)

Long before the show "Breaking Bad" aired in 2008, I was in the New Mexico desert standing inside a Recreational Vehicle that had recently been used as a meth lab. No, I wasn't going to cook anything! I was there to help preserve life, rather than take it.

It was November 2000. I was a Major stationed at Kirtland Air Force Base in Albuquerque, New Mexico, and attached to the Defense Threat Reduction Agency (DTRA). Within the DTRA Test Directorate, our mission was to perform high explosive testing for the Department of Defense, other government agencies, and sometimes even foreign governments. I liked to tell people how much I enjoyed my job—"it was a blast!" I have to admit, for an Air Force physicist, the job was really exciting. Blowing things up to reduce the threat to America, what can be more fun than that? But, it was also a deadly serious business.

What we learned in these tests could save lives or make our fighting forces much more effective. Many of our tests were performed to improve the security of US military bases and embassies overseas, test new ways of attacking hard and deeply buried targets like the tunnels in Afghanistan, and to destroy enemy biological weapons. We even had the task to be ready to participate in a nuclear weapon test in the unlikely event the President ordered one.



Our customer of this particular test was the Bureau of Alcohol, Tobacco, and Firearms (ATF). We conducted numerous tests for ATF so that they could obtain critical data for reconstructing crime scenes. The Oklahoma City bombing of the Murrah Federal Building had happened only five years prior in 1995. Numerous overseas terrorist bombings had also recently occurred including Khobar Towers in 1996 and the 1998 US embassy bombings in Tanzania and Kenya. The data from these types of tests would help federal agents be able to understand the type and extent of damage that occurred from a blast of known size. They could then develop better computer models to reconstruct crime scenes and catch the terrorists. These events also provided excellent field training for ATF officers.

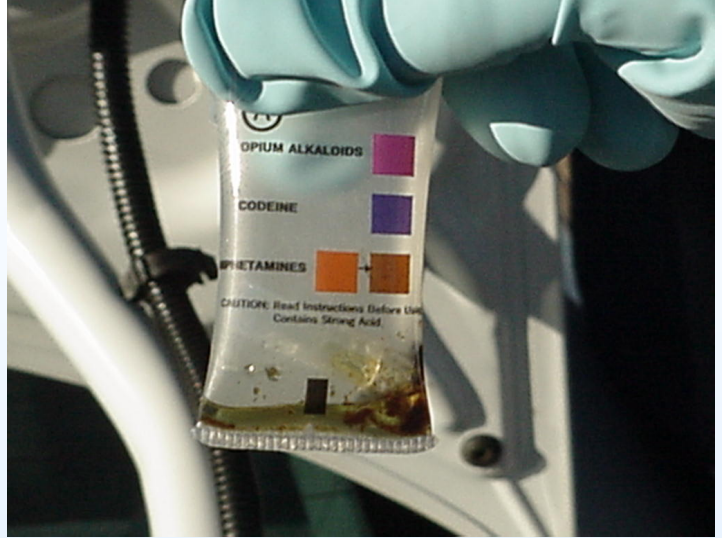
It typically took months of preparation to conduct a test of this magnitude. My role as Test Director gave me overall responsibility for all aspects of the test, from technical design to staying within budget, all the way through safely executing on test day, and even data delivery to the customer. It was a lot of responsibility, but I had a great team consisting of test scientists, construction experts, instrumentation engineers, high-speed camera technicians, and high explosive experts. I was the person who made the final go/no-go call. Since we did this test on Kirtland Air Force Base, very near the active runways of Albuquerque International Airport, we had to be very careful of test timing. We actually deployed spotters to make sure aircraft were not overhead when we detonated the explosives. Nerve wracking, but also exhilarating!

The ATF always used confiscated vehicles for their tests. It's a great way for the government to save money and also dispose of a vehicle that could not be sold. For this particular test, the ATF had decided on a confiscated Winnebago. This particular RV had been used as a meth lab—very much like the RV the character "Walter White" would use in "Breaking Bad." (The RV in "Breaking Bad" was a 1986 Fleetwood Bounder that they named "The Krystal Ship".)

The plan was to detonate 750 lbs of an Ammonium Nitrate and Fuel Oil mixture, better known as ANFO, inside the RV. This is the same explosive the Oklahoma City bombers used, which of course is exactly why the ATF chose to use it—to replicate the type of situation they would find at a terrorist bombing. ANFO is routinely used in mining, cutting roads through mountains, and other everyday applications so it's easier for bad guys to obtain than some other types of explosives.

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My job as the Test Director meant that I had to inspect everything to ensure the team was progressing towards a safe and successful test. So, a few days prior to the test, as the team was getting ready to install the container that would hold the explosives, I decided to have a look around inside the RV. This was an old, pretty nasty RV, but I decided to look inside the old refrigerator anyway. You never know what interesting thing you might find! The only thing inside was a plastic Country Time Lemonade Mix container. This was surprising since you don't have to refrigerate lemonade powder, so I looked a little closer. That's when I noticed the inside of the container was caked with dirty white crystals.



The lemonade mix container with crystals (Right) and the positive drug test (Left)

When I asked the ATF agent why drugs was still inside the RV he said “HOLY S-mokes! That’s evidence.” I didn’t know it at the time, but I was actually inside an RV just like the one “Walter White” and his sidekick “Jesse Pinkman” cooked their notorious blue meth concoction. We quickly called out the Kirtland AFB Security Forces to have a look. They used their crime scene drug test kit to confirm that it was in fact crystal methamphetamine. Thinking back on it today, it was nasty-looking stuff, certainly not of the quality fictional chemical genius “Walter White—a.k.a Heisenberg” produced on the show.

With the excitement of the drug find behind us, we prepared to blow up the RV. All the pressure gauges were installed, the witness boards put up, the high-speed cameras set inside their protective enclosures-- we were ready to go. We retreated to a safe distance of about one mile away on a small observation hill overlooking the scene. Over the radio, security reported the keep-out zone was clear, we saw no aircraft in the sky, and the weather was good. I gave the order and the 10 second count went off smoothly—then the RV disappeared in a flash. A few heart beats later came the ear-splitting crack of the sonic boom as the pressure wave washed over the onlookers. A cheer went up from the crowd.

After the dust settled, the explosive ordinance disposal crew went in to verify the area was safe. Next the Technical Director went in with the official photographer to document the scene before anything was disturbed. Finally, the test team and ATF investigators were allowed on site to collect data. We also had reporters from a local Albuquerque news channel, KOAT TV, who did a story on the event. We marveled at the minuscule pieces of the once intact RV. We marveled at how far the larger pieces had flown. We marveled at the smoking hole in the ground left by the 750 lbs of explosives. We smelled the lingering odor of high explosives in the air.

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For days after the successful test, my friends from ATF collected, photographed, and weighed shredded pieces of RV. They measured the crater and the distance to each piece. They brought in agents who did not know the type of vehicle or size of the blast. These agents used only the post-event data to try and reconstruct the event—excellent training. I envied them as they rode around on confiscated All-Terrain Vehicles which were way beyond my DTRA budget! It was a successful event. We achieved all the test and training objectives and no one was injured.

According to interviews with Vince Gilligan, he created the idea for “Breaking Bad” in 2006, six years after my test. The show had 62 episodes over five seasons. In 2013 Guinness World Records called it the most critically acclaimed show of all time! I like to think Mr. Gilligan saw the news broadcast of our test and was inspired, but I know that’s highly unlikely. I also like to think that if I were just a little more creative, I could have come up with a massive hit show like “Breaking Bad.” Maybe those blast waves rattled my brain one too many times...

I did receive my 15 minutes of fame from the event. Besides the KOAT TV Albuquerque news story, DTRA even decided to make a video about the test and interviewed me. The video aired for weeks on the Kirtland Air Force Base cable TV channel. After watching the video, I resolved never to say “ummm” anymore when speaking in public. It’s funny how something like that can change you. But I’m happy to report that this event did not change me into a “Heisenberg.” I did not follow “Walter White’s” path to the dark side, but instead happily continued my career for another 14 years in the United States Air Force! Hey, maybe Bryan Cranston will play me in the movie!



The RV before the test (Top) and the RV after the test (Bottom)

A Brief Remembrance of Flying the MV-22B Osprey

A Heritage Article By John T. "Coff" Coffindaffer, USAF Lt Col (Ret)

When I first received notification of assignment at USCENTAF/A3-DOOR (9AF) to DCMA-Bell, to become a V-22 Acceptance Test Pilot, at the Bell-Boeing Facility in Amarillo, TX, my boss, Lt Col Tom "Tater" Couch said; "Congratulations Coff, you are going to fly the ugliest airplane in the world." I have to admit, it is a strange yet a cool beast, sort of like a kid's Transformer action figure/toy. Tater also told me; "Don't forget your <Rescue> roots." That was good advice for sure.

The Osprey's overall dimensions were designed around carrier operations, so the fuselage was extremely similar to the USMC's CH-46 Frog. When I first saw it perform the blade fold/wing stow maneuver to fit in a carrier hangar, it made me wonder if everything would index back into position like it was supposed to, AND not do that during flight!

The composite proprotors (combination of a propeller and a rotor system) are 38 foot in diameter. They provide a somewhat choppy hover that is sensitive in the roll axis (due to the nacelle weights/lateral moments), and make it high density altitude (DA) (high/hot) limited for remote landing operations. With 6,500 shaft horse power per engine, these Rolls Royce's are simply amazing, providing some serious get up and boogie on takeoff.

What's unique about the Osprey is unlike a traditional helicopter that has a collective (increase/decrease lift), it has a Thrust Control Lever (TCL) that is pretty much a throttle, where the nacelle position rocker switch is also located (with an assortment of ASE (Aircraft Survivability Equipment), lights, etc). I've been told that the TCL was nicknamed the "Blottle" after a USMC Gen Blot (fixed wing driver) that insisted it be a throttle lever and not a collective. The first time you roll the proprotors from vertical (helicopter mode) through 60-45 degrees (transition mode; in between a helicopter and an airplane) to horizontal (airplane mode), the pilots get a really good view of the proprotor tips passing 11 inches from the canopy, just beside the pilots' craniums. During acceptance test (lightly loaded and good environmental conditions), we could accelerate from a hover to 200 kts in less than 45 seconds.

Takeoff, cruise, approach, and landing were usually performed in a level fuselage flight attitude. A V-22 pilot can take off like a helicopter, DA permitting, or perform a running takeoff at 60-70 degrees nacelle. The pilot is to use the nacelles as the direction of thrust for the particular phase of flight desired. Some tactical maneuvers may require a less than level fuselage. The Osprey cruised at approximately 230 KCAS (Knots Calibrated Airspeed), in an approximate five degree nose up attitude. Us helo pilots had to remember that over 200 KCAS, we would bust Class C airspace (controlled airspace around a regional airport)...which was never a problem in a Jolly of Pave Hawk. Once the nacelles are full forward in airplane mode, we actually had to keep the nose up by five degrees on the attitude indicator. It was not all that intuitive in the clouds. As most of you all know, pilots love gadgets, buttons, and displays. Well, the V-22 cockpit had plenty of all that. The pilots could actually change screens with a Chinaman's hat (pilot slang for a cone shaped button) on the cyclic stick. Bad thing is, more eyes were looking inside than outside. So, we decided, whoever is on the controls doesn't mess with the screens, that is the non-flying pilot's duty. It proved to be beneficial in preventing smoking holes.



Major
Coffindaffer

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On final approach, the nacelles are used to decelerate in a level fuselage attitude. This enables good visibility of the landing area. With approximately 87-90 degrees nacelle position being vertical for a hover, the pilot could actually adjust the nacelles to past vertical (~98 degrees if I remember correctly), which makes for a smooth and controlled termination to the approach...UNLESS you forget to roll the nacelles forward to 87-90 degrees upon reaching a hover, where you will find yourself rapidly accelerating backwards down the runway. Thank God I never did that...HA! Briefly on emergencies, it doesn't auto rotate like a traditional helicopter. In a hover, expect a pretty hard impact. In flight, think space shuttle approach...170 KCAS in airplane mode, ~20-30 degrees nose low, then flare out at the bottom. I'm glad I never had to do either for real!



MV-22B Osprey Vs2

Well, that's the down and dirty on the MV-22B Osprey. You now know everything you need to take it around the patch. The Osprey had some difficult and dark times, which I was a part of as the GFR (Gov't Flight Representative), where I wish I could write a book, but all in all, it is truly an amazing marvel of flight that provides the major elements of maneuver, speed, and surprise that are just not capable in a traditional helicopter.



**Coff at the Controls of
an MV-22B**



Bob Jones High School AFJROTC Cadet Scholarship Award

April 2021

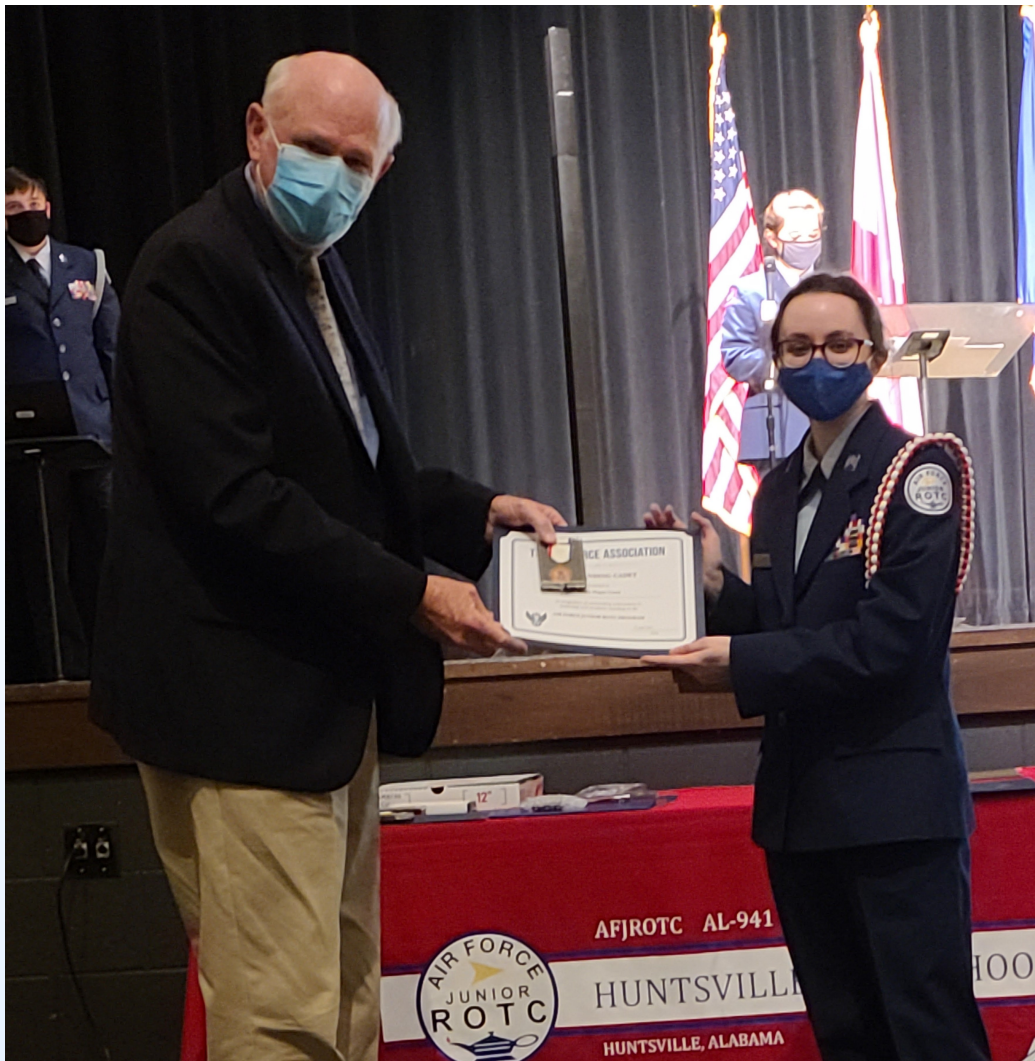
Air Force Junior Reserve Officer Training Cadet First Lieutenant Briyana Clark won Chapter 335's \$1,500 scholarship for her impressive scholarship, outstanding leadership, and exceptional support to AFJROTC at Bob Jones High School. Ms. Clark will attend the University of South Alabama in the fall. Congratulations Cadet Clark!



Huntsville High School AFJROTC Cadet Medal Ceremony

April 2021

Former Chapter President Rick Driesbach presents AFA Medal to Huntsville High School Air Force JROTC Cadet Captain Megan Green at 28 April Awards Ceremony. Cadet Green was the Cadet Corps IG this Semester and will be the Vice Commander next Semester. Congratulations!



Major Howard Christiansen Memorial Scholarship

By: Rick Driesbach

Cadet Colonel Meredith Camacho was honored at the Huntsville High School Air Force Junior Reserve Officer training Corps (AFJROTC) Awards Ceremony on May 28, 2021 as the Best-of-the-Best AFJROTC cadet in North Alabama. She received the Major Howard Christiansen Memorial Scholarship recognizing the top cadet among the three AFJROTC units in the Huntsville/Madison County area.

The instructors at the other AFJROTC schools chose their top cadet based on leadership, scholarship, and exceptional support to the school, fellow cadets, and the AFJROTC program. A team of AFA Chapter 335 members evaluated the submissions and selected Cadet Colonel Camacho as the 2021 recipient of the scholarship. A summary of Cadet Camacho's considerable achievements are below.

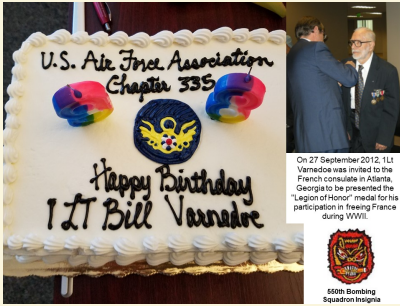
- **Corps Commander for summer and fall of 2020. Her leadership kept Cadet Corps moving forward... summertime zoom staff meetings and 1st year orientation**
- **Academic Honor Roll 2017-18, 2018-19, 2019-20, will complete 9 AP classes by graduation**
- **2021- CSM(R) Gary Littrell Medal of Honor Leadership Award**
- **2020- Air Force Association Award**
- **2019- Military Order of the Purple Heart Award**
- **2018- selected to attend Military Order of World Wars Youth Leadership Camp**
- **Recognized as #1 cadet in Huntsville HS AFJROTC Sophomore, Junior & Senior classes**
- **Member of Drill Team as a freshman and all 4 years**
- **Military Ball president during pandemic, re imagined event into the virtual world**
- **Dedicated 128 hours for AFJROTC service activities supporting community and HHS: Manna House, Moontown Fly-In, Santa's Village, Wreaths for Veterans, and Color / Honor Guards**
- **Member National Honor Society, Kitty Hawk Air Honor Society (2018-2020), Young Philosophers Society (2017-2019), Future Business Leaders of America 2020 and HHS Choir**



Once again, Dick Christiansen, a son of Howard Christiansen, supported the memorial scholarship presentation. Dick has attended the previous six memorial scholarship presentations. He willingly gave a very credible and personal testimony of the sacrifice and patriotism of his father. He created a professional video for the memorial scholarship presentation on the life of his father. The video makes an excellent portrayal of Howard's World War II valiant service as a B-17 bombardier. The audience at Huntsville High School was visibly moved by the video and gave Howard Christiansen and his son Dick a very long and heartfelt ovation. Additionally, Chapter 335 also wishes to gratefully acknowledge that Dick made another generous donation this year, raising the amount of the chapter's memorial scholarship in honor of his late father.

AFA Chapter 335 wishes Cadet Camacho much success in her studies at Montevallo University in the fall of 2021.



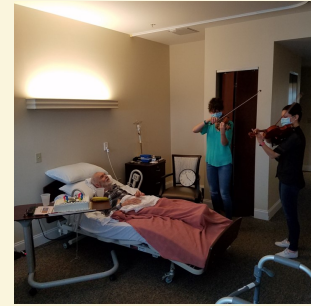


On 27 September 2012, 1LT Varnadoe was invited to the French consulate in Atlanta, Georgia to be presented the "Legion of Honor" medal for his participation in freeing France during WWII.



COL (ret) John Pennell, US Air Force Association, wishing Happy Birthday to Bill Varnadoe on behalf of the association.

LTCol (ret) Randy Withrow is the Director of the US Veterans Memorial Museum where Varnadoe volunteered and built the WWII 8th USAAF briefing room.



Professional concert musicians Rebecca and Nikki Marino playing Happy Birthday to Bill Varnadoe during visit to the Magnolia Trace assisted living home in Huntsville, Alabama on 10 June 2021.



1LT Bill Varnadoe USAAF B-17 Navigator in 8th Air Force at Magnolia Trace Assisted Living facility.



1LT Bill Varnadoe in WWII

Happy 98th Birthday 1Lt Bill Varnadoe!

Celebration of 1Lt Varnado's 98th Birthday

They are the “Greatest Generation”. Veterans of World War II, heroes all, fought and sacrificed to a degree that we can barely imagine. As the end of the war is now more than 75 years in our past, the brave men and women who stemmed and turned the tide of our adversaries are approaching their 100th birthdays. Every day, more of these warriors leave us. On June 11th, 2021, Lt Bill Varnadoe celebrated his 98th birthday. Members of the community were able to visit with him and share some birthday cheer with him and to wish him well. 1Lt Varnadoe was a United States Army Air Force B-17 Navigator during World War II. He flew numerous, incredibly dangerous missions over Nazi Germany to help the Allies win the war. After the war, Bill volunteered and built the World War II 8th USAAF briefing room replica at Huntsville’s US Veterans Museum. An avid cave explorer, Bill has a major cave in Huntsville named in his honor. Additionally, the Land Trust of North Alabama’s Varnadoe Trail at the Blevins Gap Preserve in Huntsville is named in honor of Bill and Louise Varnadoe. Happy Birthday Bill! We invite you to read a story of his heroism from all those many years ago (found on pages 11-16 of this Newsletter).

Leadership Dilemma at 23 Thousand Feet

A Historical Article from a Previews Newsletter Written by Lt. Col (Ret) Edwin L. Kennedy, Jr.

Mr. Bill Varnedoe, (98) and a WWII USAAF navigator veteran of the 8th Air Force, gives an officer professional development presentation to the faculty and students of the Command and General Staff College Officer Course campus located at Redstone Arsenal, Alabama. Mr. Varnedoe's presentations center on a mission his unit flew near the end of WWII in Europe. Mr. Varnedoe presents an interesting leadership dilemma that occurred during the mission to bomb the oil refineries at Ruhland, Germany.



**Navigator First Lieutenant Bill Varnedoe,
550th Bomb Squadron, 385th Bomb
Group, 1945**

The war in Europe was wending its way down in the late winter of 1945. Allied soldiers knew that the end was nearing -- they just didn't know exactly when it would occur. Allied armies on the ground were on the banks of the Rhein River while Soviet forces were in eastern Germany focusing their efforts on the capture of Berlin. The war was culminating -- but it wasn't over as the German military was fighting to the last and obviously not just giving up. The war was still harvesting large numbers of casualties on both sides. While the Allies dominated the air, losses were still high to flak and German fighters. "Air supremacy" didn't guarantee that there would be no further losses.

By March 1945, 8th Army Air Force was marshaling bombers to strike war industries and try to stifle the ability of the German military to resist. One of the decisive points to defeating German military power was the German petroleum industry. The manufacture of synthetic oils and fuels kept the Luftwaffe flying and the armor formations rolling. By cutting the fuel resources, the German's ability to fly and maneuver on the ground would be crippled. Hence, 8th Army Air Force was directing its efforts against this vital war industry.

In the iconic WWII movie based on fact, "12 O'Clock High", the fictitious 918th Bombardment Group is lectured by its new commander, BG Frank Savage. Savage replaced an ineffective leader ---- just as happened in 'real life'. This movie is a classic. It was produced shortly after WWII and is still used by military schools and corporations for leadership instruction. Savage counsels his subordinates that "tight" bomber formations -- "group integrity" -- were absolutely essential to reduction of losses by German fighters. Flying together in close formations, the bombers collectively provided themselves interlocking and supporting defensive fires. When the bomber group separated or was dispersed, German fighters could concentrate on those bombers that did not have the benefit of mutually supporting fires from the other bombers. Fighters could approach the bombers without having to worry about being shot at by supporting fire from other aircraft. Tight formations meant greater defensive firepower and, theoretically, less losses due to German fighters.

As the Allied armies advanced and more and more territory fell under the control of the ground forces, the number of targets that could be bombed decreased. The air forces could concentrate their campaign and mass more aircraft against fewer targets. Hence, by 1945, bomber groups (24 bombers/group) and wings (4 groups/wing) that were formerly dispersed against a number of targets were consolidated into bomber division missions with hundreds of bombers concentrating on a single target. Despite the fact that the Norden bombsight purportedly provided "pinpoint" accuracy, mass has a quality of its own and hundreds of bombers dropping bombs together would ensure massing effects by saturating the target areas.

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Finally, because the Germans were also concentrating their antiaircraft gun batteries with the loss of their territories, it meant that ground fire would be as intense, or greater as it ever was before since there were less fixed installations to protect. Allied bomber formations used deception to attempt to catch German defenses unawares, thereby providing an element of surprise and preventing the massing of fires by the antiaircraft batteries. German radar would provide speed, altitude and direction of the attack all necessary components of firing data required by the German gunners for determining lead and setting fuses. Formations therefore, tried to never fly directly to their targets. Instead they attempted to get German fighters to prematurely scramble, use valuable fuel, and for flak defenses to alert at the wrong locations. Flak defenses at the actual target sites would not have the correct firing solutions computed until the bombers were actually on their final approaches to the targets as the formations would turn abruptly port or starboard at a checkpoint and then try and approach the target from a less expected direction.

**USAAF Station 155, Great Ashbury
located near Bury St Edmonds,
Suffolk, England**

This artistic work created by the United Kingdom Government is in the public domain



A number of factors impinged on the direction of attack to include cloud cover, wind speeds, and timings within the bomber formations. Once the final runs had begun, bombers were committed and could not change their approaches due to the computations provided by the Norden sight- equipped bombers. The idea was to release the bombs in the same altitude, in the same direction, at the same speed in order that the bombs follow the same general trajectory to the target area. This meant that the lead bombardier controlled the entire formation once he was given the controls by the lead pilot. The Norden bombsight literally steered the lead aircraft and every other bomber guided on the lead bombers during the final approach to the target area.

At 0300 hrs 2 March, members of the 385th Bombardment Group (Heavy) air crews were being awoken at Station 155, Great Ashfield, England. After dressing and eating an early breakfast, crews attended a pre-mission briefing. This same routine was being followed by fifty other bomber groups around England and France that same morning. Lt Bill Varnedoe, a former Georgia Tech engineering student, finished his briefing and began working on his routes and timings as the navigator of B-17 "Possible Straight" of the 550th Bomb Squadron. The bomber's name referred to the last three digits of its tail number 1 -2 -3.

Crews manned their aircraft in the dark and were lined-up before dawn. In the early morning light the bombers took off and then circled until the other bombers from their groups joined them before heading into the sun towards Germany. Varnedoe marvels that more aircraft did not collide in the dark as they lifted into the airspace saturated with bombers 'rendevous-ing' with their fighter escorts over southeast England.

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The primary target for the 385th Bomb Group was the Ruhland oil refineries located in south, central Germany (now in southeastern Germany since the partition of Silesia to Poland). Bad weather and heavy clouds caused the 385th Bomb Group to divert to its secondary target - the rail yards located at Dresden to the south of Ruhland. The Dresden rail facilities were a key transportation hub and choke point used for transiting German reinforcements both to the Eastern and Western Fronts. Bombing the Dresden rail yards would cause considerable problems for the German rail movement of troops and materiel.

As the 385th Bomb Group lead navigator approached one of his turns towards the final IP, he misidentified the geographic location at which the group was to turn south - towards Dresden. The checkpoint that he identified looked very similar to the correct turn point. He directed that the 385th Bomb Group turn almost 90o south thinking that the target approach initial point - IP - was there. This, in fact, would miss Dresden by passing "short", to the west of the city - and the rail yards. The 550th Bomber Squadron lead navigator picked-up the route error however and informed the squadron commander.



550th Bomber Squadron Insignia

Because the low squadron, the 550th, was also the trail squadron in the group and had time to react to the navigation error, the squadron commander faced a real dilemma. Should the 550th follow the group lead even though they would miss their assigned alternate target, or, should the squadron continue to the correct turn and IP, then on to the rail yards and follow the "field order"? The dilemma required a quick decision before the 550th Bomb Group was completely separated from the rest of the 385th Bomb Group. By separating from the bomber group, the squadron would break "group integrity" and would be more susceptible to enemy fighter attacks. As General Savage pointed-out in the movie "12 O'Clock High", the number of caliber .50 machineguns able to bear on German fighters would be severely reduced by the absence of the combat power of a missing bomber squadron.

Because the Americans had decided to conduct daylight "precision" bombing, it was mid- morning over Germany as they flew towards their targets. German day-time fighters had plenty of time to take-off and concentrate before the U.S. bombers appeared. Not having to fly far from their home bases, the Germans had the advantage of not having to expend their fuel as quickly. At this stage of the war however, American fighters based in France did not have the difficulty they had faced flying from Britain to escort the bombers. U.S. fighters were able to ward-off sustained German attacks because they could escort the bombers all the way to the target.

As the "low squadron" of the 385th Bomb Group, the 550th Bomber Squadron flew in a staggered position to the left rear of the group. The "lead squadron" flew in the center but slightly forward of the other squadrons. The "high squadron" flew to the upper right in the formation. The most vulnerable aircraft were those in the trail of the "low squadron". They had the least mutual support from the other bombers in the formation due to their positions. Their rears were especially vulnerable to tail attacks where only a handful of the B-17s' machine guns could orient their fires.

With a maximum effective range of over 1,800 m (2,000 yards), the combined firepower of multiple caliber .50 machine guns was a formidable deterrent to German fighters that had to close with the bombers in order to fire effectively. While the several of the models of German fighters had 20mm cannon, they also used 7.92mm machine guns that had an effective range of about half of what the B-17's guns had. In order to hit the bombers with machine gun fire, fighters had to close to ranges inside of the bombers' defensive fires and expose themselves to the devastating cal .50 rounds. Fighters developed a number of different tactics to optimize their engagement of bombers while reducing their exposure to the defensive fires. It took a brave and skilled pilot to fly into a bomber formation and come out the other side.

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A leadership dilemma now presented itself to Varnedoe's squadron commander. He could continue following the group in the wrong direction and away from the designated target. Staying with the 385th Bomb Group was the safest choice. The Group Commander would be responsible for the mission "failure" but mutually supporting fires in the 385th Bomb Group would not be lost. If the 550th Bomb Squadron decided to go the wrong direction, it might not drop its bombs at all causing them to be jettisoned over the English Channel. This would be the responsibility of the colonel commanding the group, Colonel George Y. Jumper, not the squadron commander's. If the squadron separated from the bomber group to bomb the assigned targets, the squadron's bombers would be more susceptible to combined attacks by German fighters without the benefit of the additional defensive fires provided by the massing of the group's bombers. Group integrity would be lost. The 385th Bomb Group would also be more susceptible to attack and losses if the squadron left a gap in the formation. The risk of sanction for failing to maintain group formation (integrity) likely weighed heavily on the squadron commander's mind. If, however, the 550th maintained the original alternate target flight plan, they could fly to the correct checkpoint, turn to the target, but risk the loss of squadron bombers to German fighters. They would however, successfully complete their assigned mission of striking the Dresden rail yards. There were only seconds to decide.

The 385th Bomb Group began a turn to the south at the wrong checkpoint at about 10:45 a.m. The 550th's commander had to make a decision quickly. What should the squadron commander do? The previously planned checkpoints and IP were planned to account for weather, wind and drift conditions over the target. Approaches from other than planned directions might cause the bombs to disperse outside the planned target impact area. The 550th's commander decided to keep flying to the assigned checkpoint but the consequences were immediate and real. The squadron was now committed - and all alone. The German fighters immediately noticed the unsupported squadron flying off by itself. The first wave of German fighters hit the separated 550th Bomb Squadron rather than the more heavily protected 385th Bomb Group. Six ME 109s and three FW 190s flew into the B-17s with their guns blazing. The fighters initially attacked from the flanks and rear of the bomber formation using their 20mm cannons to "stand-off" from the cal .50 machine guns on the bombers thus negating the squadron's firepower. The attacking Messerschmitts and Folke Wulf fighters went after the unsupported rear of the 550th's formation. Escorting P-51s countered by initially shooting down several German fighters. They then left to rejoin the larger 385th Bomb Group formation, leaving the 550th to itself and unescorted.

As this issue was transpiring, the German fighters continued their attacks. Bombers were being hit and Lt Bill Varnedoe saw a group of Messerschmitts heading directly towards the nose of his bomber. Grasping the cal .50 machine gun he "charged" the gun (loaded and cocked it) by pulling swiftly back on the cocking handle, releasing it, pointing and squeezing the butterfly trigger. What happened next was the fear of every gunner. The gun jammed. German fighters closed head-on at a combined speed of over 570 mph. Varnedoe quickly ripped-off his large, heavily insulated mitten and opened the feed tray with his hand inside of an internal glove. With ambient temperatures minus 30o Fahrenheit at 23,000 feet, Varnedoe dared not touch the metal with his bare hands. He saw the problem was a bent link that he quickly cleared before slamming the feed tray cover back into place. Varnedoe mechanically charged the gun again and searched for his targets. Instead, he noticed the Germans were long-gone - and so were three bombers - thirty souls - that were flying next to his bomber just moments before.

The squadron commander's decision was now irrevocable since it was too late to catch-up to the 385th Group even if the squadron turned to follow it. Even worse was the fact that the fighter escort oriented on the main body of the 385th leaving the 550th Bomber Squadron unprotected. The 550th watched the American fighters leave to escort the 385th Bomb Group to the south. Group integrity was now "broken" and they were moving further away from their comrades every minute they flew on towards Dresden. The squadron was only minutes from its correct checkpoint turn and IP - and towards the assigned alternate target - the rail yards at Dresden.

AFA 335

Fighter opposition waned as flak began to pummel the squadron. A bomber with a new crew and on its second combat mission was hit and fell out of the formation as the other bombers flew on. Turning south at the correct checkpoint, the 550th Bomb Squadron lined-up on its correct IP and the rail yards. The 385th was nowhere to be seen. It was totally out-of-sight and mutual support. The group had subsequently discovered its mistake and "cut the angle", flying directly to the target instead approaching indirectly from designated checkpoints as planned. This was a total fluke and the 385th Bomb Group dropped their bombs from the wrong heading, negating the carefully computed wind and weather data necessary for the trajectory of the bombs. Additionally, by attacking from an unsuspected heading as originally planned, surprise was created rather than by attacking from a direct heading from England as the 385th Bomber Group did. However, the 385th dropped its bombs and cleared the target area just before the arrival of the 550th. The time-on-target for the 550th Bomber Squadron was such that by the time the 550th Bomber Squadron reached Dresden, the smoke from the previous bombs had cleared enough with heavy prevailing ground winds to actually allow target area visibility.



This is an example of a grainy and poor quality black and white post-strike photo of Hof, Germany bombing target showing that 90% of bombs hit within 500 ft of the main point of impact (MPI). 100% of the bombs fell within 1,000 ft of the MPI - some of the best bombing results of the entire 8th USAAF according to Mr. Bill Varnedoe

Several bombers of the 550th were heavily damaged by the fighter attacks but able to maintain formation. The lead bomber began dropping its bombs on the rail yards and the following aircraft "toggled" their bombs following the lead bomber's release point. They continued flying almost due south to their next checkpoint. Turning back to the west, the bombers had to traverse Germany again to get back to their base in England. By this time in the war U.S. forces had crossed into Germany and were approaching the Rhein River so the bombers would be over Allied controlled areas in western Germany and France very shortly. As the bombers crossed the border into France, several of the bombers peeled-off and made emergency landings at forward airfields, unable to continue to England due to the heavy damage sustained by the fighter attacks.

Post-strike analysis showed that the bombs of Varnedoe's bomber group hit their targets at Dresden and caused significant damage to the rail yards as was intended. The squadron suffered relatively heavy losses in damaged and shot-down aircraft in an air-superiority environment however. The end of the war was palpable and the losses could be absorbed.

The squadron commander's decision to continue on the original alternate flight plan was never challenged by the group commander - despite the fact that the 550th fell out of the group formation without authorization. The squadron commander's decision was vindicated by the effects of the bomb-run and post-strike battle damage assessments. The decision caused by the dilemma faced by the 550th Bomber Squadron commander likely would have had very different consequences two years earlier. Apparently the cost in losses was worth the risk for Colonel Jumper. The war in Europe ended just seventy-five days later.

The commander of the 550th continued in his squadron command and successfully finished the war to take the unit home for demobilization. First Lieutenant Bill Varnedoe returned home after twenty-six missions over Germany. He completed his degree at Georgia Tech and eventually retired from NASA at Redstone Arsenal in Alabama. During his spare time he has recreated a facsimile of his unit's WWII briefing room at Great Ashbury at the local Alabama Veterans Memorial Museum in Huntsville.

AFA 335

Mr. Varnedoe is still active educating the public about the 8th Army Air Force war in Europe and speaks to educational groups. In 2007, Varnedoe was able to fly in a WWII B-17 bomber - one of the few remaining flyable Flying Fortresses. It had been sixty-two years since he had been in one and he said it was just as he remembered it. Until a few years ago the members of Varnedoe's wartime crew met annually for reunions. With only two members left, they have decided not to get together any more.

About the Author: LtCol (ret) Ed Kennedy is a retired Army infantry officer.



Standing next to ball turret and right waist gunner's station of restored B-17G, "Nine O Nine" during a visit to Pryor Field, Decatur, Alabama on 26 October 2016
1LT Bill Varnedoe (L), USAAF with author (R)



B-17G "Nine O Nine" navigator's position occupied by 1LT Varnedoe
Photo by Author (Above)

On 27 September 2012, Mr. Varnedoe was invited to the French consulate in Atlanta, Georgia to be presented the "Legion of Honor" medal for his participation in freeing France during WWII. (Right)



Community Partners



Willbrook Solutions

Previous Chapter President, Rick Driesbach, presented a Community Partner ACE Renewal Medallion to Willbrook Solutions engineer Grant Roth who was representing CEO Ms. Bonita Phillips. Many thanks to Willbrook Solutions for supporting Aerospace Education in Northern Alabama at the highest level!



Hildegard's German Cuisine

Former Chapter President, Rick Driesbach, presents the annual Community Partner renewal medallion to Ms. Amy Miller, owner of Hildegards German Cuisine Restaurant. Ms. Miller reminded Rick that Hildegard's provides a 20% discount on the Veteran's meal all the time. Thanks for being a strong, and tasteful, community partner!



Redstone Federal Credit Union

Redstone Federal Credit Union received their second plaque and 11th medallion from Chapter President John Pennell. A huge thanks for 11 years of continuous Community Partner support to Chapter 335's Aerospace Education programs! Photo shows Kelley Middlebrooks, Event Coordinator, Community Relations (L); John Pennell, Chapter President (C); Mary Grace Evans, Assistant Vice President of Community Relations (R).



Southeastern Skin

Rick Driesbach presents a Renewal Medallion to Amanda Hampel, Office Coordinator of Southeastern Skin Cancer & Dermatology, recognizing 4 years of support to the Chapter's Aerospace Education Program. Many thanks!!.

Community Partners



Bevilacqua Research Corporation

Bevilacqua Research Corporation CEO, Andy Bevilacqua, proudly accepts Annual Community Partner Renewal Medallion for his company's 11th year of support to the chapter's aerospace education program. Prior to founding his own company, Andy was an F-4 aircraft maintainer during the Vietnam War. Continued thanks to Bevilacqua Research for their steadfast support of aerospace education!

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*Annual Giving Levels: Ace: \$500, Wingman: \$250, Basic: \$90
Want to become a Community Partner at the Ace, Wingman, or
Basic level? Contact George Krym at george.krym@yahoo.com.*

UPCOMING EVENTS

04 Jul: Independence Day

15 Jul: Executive Council Meeting

19 August: Executive Council Meeting

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John Pennell

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• **Treasurer**

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