FORWARD in FLIGHT

Volume 18, Issue 1 *Quarterly Magazine of the Wisconsin Aviation Hall of Fame* Spring 2020

Duane Esse's Farewell to Flying

John Dodds on the Caterpillar Club

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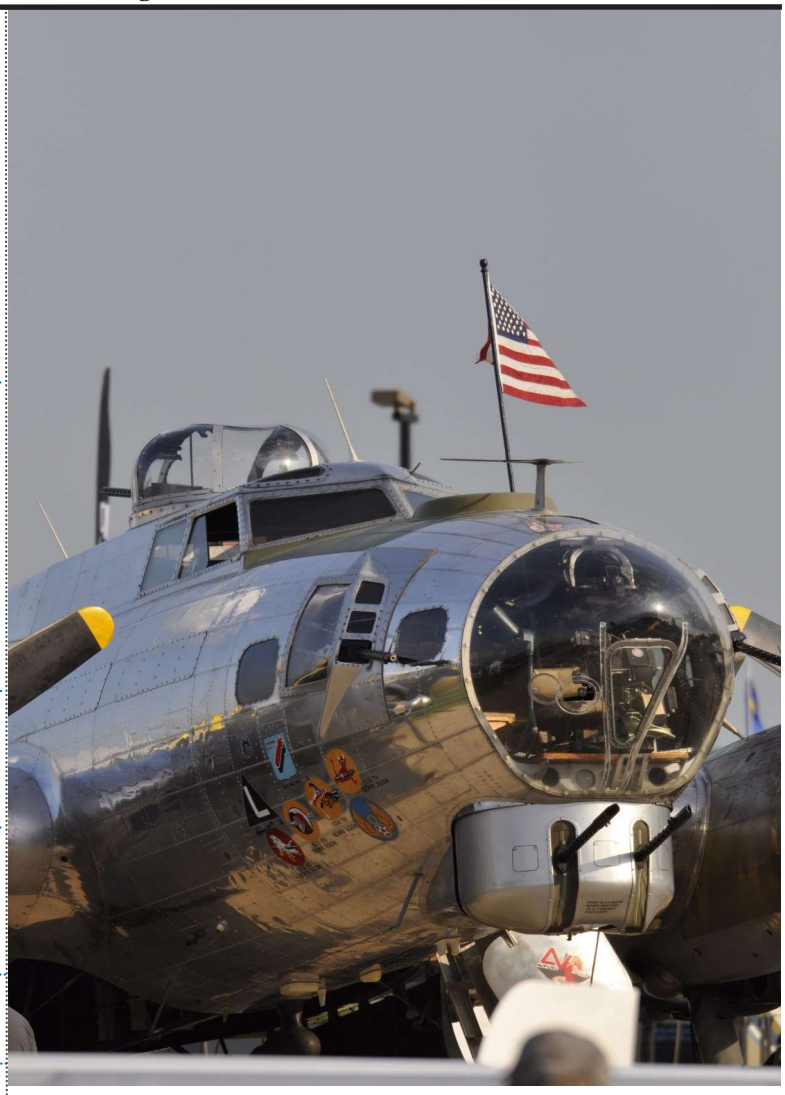
Vol. 18 Issue 1/Spring 2020 A publication of the Wisconsin Aviation Hall of Fame



Yet another fine photo from the 2019 EAA AirVenture in July. Davis Kramer captured this glimpse of a B-17 Flying Fortress, up-close and personal. (© 2020 Davis Kramer)

President's Message

By Tom Thomas

Thanks to all of you who have renewed your WAHF membership. And a special thanks for all those who added a tax-deductible contribution!

Over the years we have encouraged WAHF members to get involved with local committee groups and to offer to give aviation related talks within your respective communities. That's an opportunity to highlight your local airports and hospital heliports and to share how they all benefit your respective communities.

WAHF has been asked to address airport commissions and city councils about their individual airports in the past. A few years back, John and Rose Dorcey and I spoke to the Stevens Point City Council about renaming their airport after their own Conrad (Connie) Mattson, who is Wisconsin's First Jet Ace.

Another opportunity was presented when past inductee Laverne Griffin and I were asked to address the Portage City Council on the beneficial impact that their municipal airport had upon the City.

These types of opportunities have been helpful, especially to our Wisconsin aviation community. If you are not already involved in your local airport, now is a good time to start.

In our daily lives, we sometimes have opportunities to include a positive aviation twist in our ongoing activities and schedules. I have become a DoD volunteer serving as a member of the Wisconsin Employer Support of the Guard and Reserve (ESGR). In this capacity we visit National Guard and Reserve Units and brief them on their individual benefits for themselves and their families.

In that process, we are given an ESGR Power Point that covers the program. It was mostly words; without changing its message, I would add aircraft photos of the units that have an aviation spin. We have five military Wisconsin flying units: two Army Guard (West Bend and Madison) and three Air Guard (Madison, Milwaukee, and Volk Field). The Joint Use Field at Ft. McCoy is also Sparta's Municipal Airport and the field serves both locales well. Neither Volk Field or Ft. McCoy has full-time assigned flying units, but their facilities are used for military exercises and training throughout the year.

We also have Naval and Coast Guard Reserve Units. The Coast Guard Reserve Units at Sturgeon Bay and Milwaukee have assigned boats based at their facilities and serve on Lake Michigan and Green Bay.

When tasked to brief these units, I would incorporate all of their assigned aircraft in their Power Point presentation.

The first primary aircraft assigned to Wisconsin's Air Guard units was the P-51 Mustang. The photo above was taken with the Milwaukee Air Guard Unit accepting their first Mustang in 1947. Madison received its first Mustang in 1948, followed by the F-80, then F-89.

Many of the younger service members today have no clue as to what an F-89 Scorpion looks like. The second photo is of an F-89 Scorpion in Milwaukee, as an important element in the mission of the Wisconsin Air National Guard.

Including all of the assigned aircraft for a particular unit is a win-win opportunity for the service members; it increases their knowledge and the individual pride of their units.

P-51 photo: courtesy of Tom Thomas
F-89 photo: courtesy of Ron Wojnar

Forward in Flight
the only magazine dedicated exclusively to Wisconsin aviation history and today's aviation events.

Tom Eisele, editor
W8863 U.S. Highway 12
Fort Atkinson, WI 53538-9762
513-484-0394
<t.d.eisele@att.net>

The Wisconsin Aviation Hall of Fame is a non-profit membership organization with a mission to collect and preserve the history of aviation in Wisconsin, recognize those who made that history, inform others of it, and promote aviation education for future generations.

On the cover:

A Tower of Power — old and new warbirds: two P-51s from WWII, a new F-35A Lightning II, and a F-22 Raptor

Photo courtesy of Davis Kramer (taken at EAA AirVenture 2019)

The Gathering Place

What it Takes to Get in the Air

By Patrick Weeden

On a weekday afternoon this past January, I was sitting in my office at Brodhead Airport (C37) when I saw a flurry of activity in one of the hangars visible from my window.

Brodhead Airport is home to a large number of antique and sport airplanes, which tend to hibernate over the winter, while some of the regular GA pilots will relocate their Cessnas and Beechcrafts to nearby airports with plowed runways. Our little airport can be a pretty busy place during the fair-weather months, but when the temperature dips below open-cockpit threshold and there's snow on the ground, it is awfully quiet.

So, the commotion this day drew my attention.

My office at the Brodhead Airport serves as a gathering spot for nearly everyone on the field, by simple virtue of the lights being on and the door unlocked. Since the Kelch Aviation Museum is still under construction, my real office in the new facility hasn't been finished yet and I am currently working out of boxes in my father's old maintenance shop at the airport.

For forty years before the Kelch filing cabinets moved in, folks have been gathering in Dad's shop, and tradition prevails. Rare is the day when I am not interrupted by the regulars, and this day was no exception.

Waldo (not his real name), the pilot responsible for the hangar hubbub, soon strolled into my office with a hearty hello and declared proudly, "I've flown every day this year so far."

January was unseasonably warm with little precipitation, and the grass runways at Brodhead Airport had been clear and dry, so I wasn't too impressed with Waldo's statement.

Besides, Waldo is an airline pilot in his day job and gets paid to fly most days — we private pilots can't compete in a contest like that. But still, Waldo and I got to chatting about his weeks-long accomplishment. What exactly does it mean, for the purposes of establishing this record, "to go flying?" Do you have to fly to another airport? Three take-offs and landings? What are the rules?

We needed to establish a baseline of what flying is.

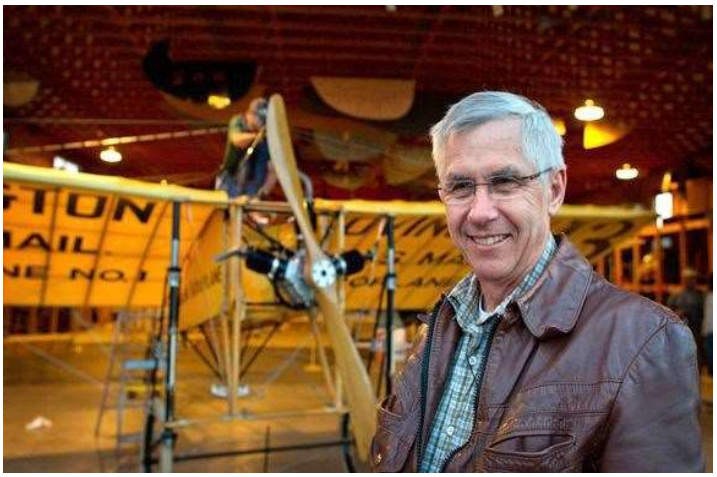
I asked him, "What's your definition of flying? Once around the patch?"

He responded rather eloquently, "… anything out of ground effect."

I laughed, but his face stayed serious. He continued, "You have to remember, it's not always the act of flying itself, but the preparation and effort that go in to getting that airplane off the ground. The daily mindset to be safe and proficient ... ."

It is true that the act of opening the throttle and rotating an airplane into the sky is sometimes the easiest part of a flight. Making the time in our modern lives to "go flying" is seemingly the true challenge.

It turns out that Waldo wasn't even counting his airline flying as part of his record, only local flights in small, private aircraft.



Tom Hegy, experienced pilot, and WAHF inductee (2012)

Waldo has several planes at his disposal, but none is the type that you climb into and simply turn the key. Like many pilots at Brodhead Airport, he flies antique airplanes from the 1920s and 30s, which can sometimes require unusual preflight and starting routines. All are open cockpit, a chilly challenge in Wisconsin winters. Factoring in the inevitabilities of cantankerous old machinery, not to mention sub-freezing temperatures, flying every day for weeks on end takes a bit of obsession.

Waldo, a skilled pilot since he was in his teens, embodies the spirit of the barnstorming era, and he is always willing to fly just about any airplane available, simply for the pure joy of being in the air.

Back in the golden age of aviation, though, toughing it out in an open cockpit wasn't just something to brag about — it was a necessity. The very same airplane that Waldo flies now most likely hauled Air Mail back in the 1920s.

Pilots of that era did not have the luxury of a heated cabin, an autopilot, or sitting out bad weather at a remote landing strip. Flying every day for weeks on end was a very dangerous but very important occupation, and many pilots didn't survive very long.

When I asked him how many flying hours he has logged, Waldo said he wasn't really sure.

I hear this a lot from airline pilots lately. "The company tracks that for me," is a common response; some of these guys don't count flying the line as "real flying" and don't bother to track the time in their personal logbooks.

This is not true for all professional pilots, obviously, but it seems more so for those who also fly small planes in their spare time.

We can't all be like Waldo, though. Personally, I have logged 230 hours of flying time in the 35 years since I took my first lesson, but I have logged nearly 1,100 landings in ten different types. The arithmetic says that I average an hour every

Where is Waldo? He is out there flying. How about you? What does it take to get into the sky?

60 days or so, and statistically speaking, I am the next guy who is going to wreck an airplane.

It also says that I average five landings per flight hour, and that reflects what I enjoy the most: The challenge of a good approach and a smooth landing. I stick to fair weather flying -- no frigid January records for me, thank you.

By contrast, a friend of mine takes great pleasure in sending me a selfie every time he goes flying, which is several times a week.

For him, the joy of flying is on display all the time, even if his way of rubbing it in gets a tad annoying after a while! He makes flying a priority in his life and he has worked hard to make it happen as often as possible.

The extreme example of what it means to make a lifestyle out of flying is 2012 Wisconsin Aviation Hall of Fame inductee, Tom Hegy.

For those who don't know Tom, he recently retired from a career as a crop duster, racking up an incredible 44,000+ hours in the process.

Most pilots who have even half that amount of logged flying time, do so with the help of an autopilot and a mid-flight lunch service served by a flight attendant.

Tom did it all at five feet above the ground, hand-flying in one of the most dangerous professions in aviation.

He also has built and restored several aircraft in his spare time, and has flown over 300 different types. His is a true lifetime in aviation, and he is a guy who does it for the love of being in the air.

We all know that Wisconsin weather covers a broad spectrum of conditions, and that there is no way possible that VFR weather can exist every single day of a year.

This is where Waldo's "anything out of ground effect" rule is important. It would certainly be difficult to set a world record of consecutive days flying in Wisconsin. Most records of this kind are set in the south, where dodging afternoon thunderstorms is the only real hindrance to getting in the air.

So, on that day in my office, I watched out the window as Waldo performed several taxi tests on a recent tail wheel repair. Sure enough, he takes the ship airborne for a few seconds -- marking another consecutive day in the air, after an hour's work to simply get to the runway in an open cockpit on a cold January day.

See you tomorrow, Waldo. There's snow in the forecast, so get those skis ready.

Patrick Weeden is the Executive Director of the Kelch Aviation Museum at Brodhead Airport (C37), and a new member of the Board of Directors of the Wisconsin Aviation Hall of Fame. He is a private pilot and has been involved with vintage aircraft operation and restoration since childhood.

Both photos courtesy of Patrick Weeden

Coronary Heart Disease
"Don't Go Breaking My Heart"

By Dr. Reid Sousek, AME

Quiz time: you feel a burning in your chest, and the discomfort radiates to your jaw and left arm. You may feel some nausea and begin to feel short of breath. Or, over the past few months, you used to be able to mow the lawn all at once. Now you need to stop every 5 minutes and take a break. You need to sit down after walking up the basement stairs. While these symptoms may present with different time frames, what condition may we be dealing with?

You got it, Coronary Heart Disease.

We all have a rough idea what the heart does. It pumps blood throughout our body to other organs and cells. But, the heart itself needs blood flow, too. This blood flow is provided by the coronary arteries. These are vessels on the outside of the heart which originate near the beginning of the aorta. These are initially a few major arteries, which then progressively branch and split down to the capillary vessel size, which will provide blood access to every single heart cell.

For these heart cells to survive, this blood flow needs to be continuous.

During heavy exercise, this blood flow needs to increase 5 to 6 times the normal amount, to supply the increased demands of the exercising heart muscle. If this demand is not met, these cells will not perform correctly; and, if the deficit is severe enough and of long enough duration, heart muscle may be damaged or even die.

Definitions, Studies, and Data

Before we get too far down the runway, let's clear up a few definitions.

Cardiovascular Disease (CVD) refers to disease of any portion of any artery in the body. So, this would include Strokes and TIAs (cerebrovascular disease), claudication and limb ischemia (peripheral vascular disease), aortic atherosclerosis and aneurysms, and coronary artery disease.

We will focus on the Coronary Artery/Coronary Heart disease for this article. This would include diagnoses of angina pectoris, myocardial infarction, acute coronary syndrome, and the more global term, "Coronary Heart Disease."

A study by the American Heart Association in 2018 found over 16 million Americans over age 20 with Coronary Heart Disease. Coronary Heart Disease is the leading cause of death for adults in the United States, causing ⅓ of all deaths of individuals over age 35.

CDC data shows roughly 800,000 Americans have a heart attack each year, with over ¾ of these being a first heart attack. Fortunately, the mortality rate of a heart attack (myocardial infarction) decreased by 50% from 1990 to 2000.

Heart Disease and Risk Factors

Atherosclerosis (deposition of plaques of fatty material in the arterial walls) is the source for almost all coronary heart disease. The first step is development of microscopic fatty streaks, which can be identified even in teenagers. Over time as these streaks increase in size, they can calcify leading to development of atherosclerotic plaques.

These calcifications are what are identified in Coronary Calcium Scoring.

Multiple factors can affect the development of atherosclerotic disease.

- Cholesterol levels can affect the rate of development of atherosclerosis.
- High blood pressure leads to increased strain on the vessel lining.
- High blood pressure can also impair the body's natural vascular repair mechanisms.
- There aren't enough pages in this issue to cover all the different areas that are adversely impacted by smoking, which impacts blood vessel health and makes a smoker more susceptible to the development of atherosclerotic plaques.
- Similarly, diabetes has numerous adverse effects on atherosclerotic disease progression.

Another set of risk factors for Coronary Heart Disease are not modifiable: age and genetics.

The Aviation Medical Examiner guide put out by the FAA has a section entitled "Decision Considerations." Here a specific disease protocol can be found for Coronary Heart Disease. The FAA breaks this protocol down further into four main categories:

1. Open revascularization of any coronary artery and left main coronary artery stenting
2. Percutaneous intervention
3. Myocardial Infarction without any open or percutaneous intervention
4. Myocardial Infarction from non-coronary artery disease causes

The reason for the breakdown into four main categories is the differing requirements. The class of certification (1st, 2nd, and, 3rd), along with the category above, will lead to differing recovery/wait times and differing monitoring requirements.

For example, a 1st class medical certificate in a pilot who had an open revascularization or Coronary Artery Bypass Grafting

Working with your AME to obtain correct documentation can speed up the certification process

(CABG) will have a 6-month recovery time before even being re-considered for certification.

On the other hand, a 3rd class applicant who had a cardiac catheterization with stenting of the right coronary artery will generally only have a 3-month recovery time.

Just because the appropriate recovery time has been met, does not mean that the next day the airman is automatically certified. As with every other condition, the FAA wants medical records and documentation of stability. In addition to a current status report from the treating cardiologist, the records from any inpatient hospitalizations or emergency department visits or lab tests or procedures are required. In some cases, the FAA will even request the actual images from certain tests or procedures.

In most cases, an exercise stress test is required. This is often a challenge from an insurance standpoint, as the FAA will often require the stress test at a more frequent interval than the insurance company deems "medically necessary." It is best to make certain the performing physician understands the specific requirements for the FAA, or else the stress test may not be acceptable and would then need to be repeated. For example, a 1st and 2nd class applicant may need additional components added to the stress test (radionuclide), whereas the 3rd class applicant may only need a plain stress test.

At regular intervals, a complete Cardiovascular Evaluation (CVE) is submitted. In addition to past medical history and family history, this will include a current status report, functional capacity assessment, and prognosis of risk for incapacitation. Labs including blood sugars and cholesterol values are also regularly checked, as these are considered to be modifiable risk factors.

Case scenario

Let's walk through a case scenario. A 55-year-old private pilot (3rd class applicant) presents to the Emergency Room with chest pain. An EKG and blood work are performed. His blood work shows an elevated troponin (heart enzyme indicative of cellular injury) and his EKG shows abnormalities (ST segment elevation). He is rushed to the cath lab and undergoes heart catheterization with two stents placed. (Let's say it was a vessel other than his Left Main Coronary).

In addition to being thankful for being alive, he makes some lifestyle changes. He quits smoking and makes changes to his diet. His cardiologist starts him on blood pressure medication and cholesterol medication. He has a minimum wait time before even being considered for certification and wisely uses this time to obtain his hospitalization records and other cardiology reports. He contacts his AME and finds out a stress test will be required. His AME works with his cardiologist to make sure the correct protocol is followed.

After 3 months, the pilot visits his AME for an exam, hoping to be certified that day. Unfortunately, the AME is required to defer this exam and submit the records to the FAA for review. The AME is required to submit the exam and available documentation within 14 days of the exam. The process is smoother if all records can be submitted at once, rather than multiple mailings. This is where it is helpful to do the work ahead of time and have the records ready to go. Some health systems can take weeks or more to process a record request.

Fast-forward six weeks to opening the mailbox and finding a letter from the FAA. If you only read the first few sentences of the letter, you would feel defeated. Most of these letters state something to the effect: "*The medical evidence reveals a history of Coronary Artery Disease. You are ineligible for medical certification under Title 14 of the Code of Federal Regulations, specifically 67.111, 67.211, 67.311… .*"

Don't stop after this sentence, however, because the winds will hopefully change in your favor, and you will read: "*...however, you may be granted Authorization for Special Issuance of airman medical certificate under Title 14 of the CFRs, Section 67.401. This certificate expires MM/DD/YYYY and supersedes any previously issued certificates.*"

For a 3rd class pilot, this letter may even authorize an AME Assisted Special Issuance (AASI). This allows further flexibility for your AME to make future determinations of eligibility. (Records will still need to be submitted at future medical certification evaluations. The records that are required will be clearly listed in the Authorization letter.)

In the case of a 1st or 2nd class pilot, the authorization will be for Special Issuance (not AME assisted). These are often of shorter duration and the FAA will need to review the records prior to issuance, unless the Authorization window has not yet expired. For these authorizations, the best approach is to work with your AME to get proper documentation submitted 60-90 days before your exam date.
In all classes the issued certificate will state: "Not valid for any class after MM/DD/YYYY".

Safety is the crucial factor in all aeromedical certification decisions. With heart disease, there is potential increased risk for sudden or subtle incapacitation.

The history of a coronary heart event does not mean you have completed your last logbook entry. With proof of a stable condition, the FAA will likely medically certify (there are even a handful of heart transplant recipients certified). The Special Issuance process is daunting. But, working with your AME to obtain the correct documentation, can "speed up" the process to a few months.

Hopefully, this information will make your heart beat a little easier.

The Story of "Triple Four"

By Ron Wojnar (with a letter excerpt from Paul Poberezny)

What is the story of the B-25 aircraft that has been on display at Milwaukee Mitchell International Airport since 1964?

It is a memorial to Major General William L. "Billy" Mitchell, a native of Milwaukee. General Mitchell's contributions to aviation history are significant. He was regarded as a visionary when he predicted that future wars would be wars of air power. He advocated a single Air Force. He argued for unification of America's sea, air, and land forces. He proved the supremacy of air power over battleships by rapidly sinking two old post-World War I German warships by aerial bombardment.

In his lifetime his progressive ideas brought him only chastisement, ridicule, and, finally, court martial for insubordination. Mitchell received many honors following his death, including a commission by President Franklin D. Roosevelt as a Major General, and a special medal from the U.S. Congress. He is also the first person for whom an American military aircraft design, the North American B-25 Mitchell, is named.

This B-25, U. S. Air Force serial number 44-30444 (affectionately known as "Triple Four"), was manufactured in 1945 as a B-25J by North American Aviation in Kansas City, Kansas. It was eventually modified by Hughes Tool Company, Aircraft Division, to the TB-25M configuration.

This modification then served as an airborne radar observer and pilot trainer, with the Hughes E-6 fire control system, as in the Northrup F-89 Scorpion jet interceptor aircraft. "Triple Four" served with the 3565th Observer Training Wing at James Connally Air Force Base in Texas until April 1958, when it was placed in storage in Arizona.

In June 1958, it came to the Wisconsin Air National Guard 126th Fighter Interceptor Squadron in Milwaukee.

During the 1950s, F-89 Scorpions were based around the United States to counter the Cold War threat of attack by manned bombers. The 126th Fighter Interceptor Squadron operated "Triple Four" to train radar observers for the unit's Northrup F-89J Scorpion jets, which could be armed with two MB-1 Genie missiles with nuclear warheads. Scorpion crews consisted of a pilot and a radar operator.

Experimental Aircraft Association President (and former Air National Guard pilot and Chief of Maintenance) Paul Poberezny tells the story of "Triple Four" in his letter dated May 28, 1987, to friend and aviation historian, George Hardie, Jr. (Both men are Wisconsin Aviation Hall of Fame Inductees.)

Here is an extended excerpt from Paul's 1987 letter to George Hardie:

> I thought I'd better get a letter off to you regarding the B-25, Triple Four (the last three numbers on it are 444) before it got too late.
>
> The Air Guard operated two B-25s.The first was a K model; the one on the pedestal, an M. The only difference basically was in the radar fire control system that designated the K and M model. We used the airplanes for radar operator training, as we were operating F-89 Scorpions which utilized radar operators in the firing of either missiles or twenty millimeter cannon that the various models of the F-89 came with.
>
> Our first B-25K came from Davis-Monthan Air Force Base. I went out there and ferried the airplane from Davis-Monthan to Milwaukee and flew the airplane for about two hundred hours. I flew it with the radar operator trainers and the instructors who were located in the forward cabin and aft cabin, depending on the number of people on board and the instructor.
>
> When we changed F-89s, we needed an M model and I was directed to go to Davis-Monthan and out of the many, many B-25s sitting in storage, select the best one. I took along several radar maintenance technicians, my Quality Control Inspector, Sergeant Szymanowski, and Tony Wojnar, who had been a crew chief on Marine B-25s and the crew chief on our B-25K 133. I also took along a 2nd Lt. copilot, fresh out of flying school. We arrived by air line at Tucson, and all I had was a telegram from the Pentagon to our Air National Guard Base, stating that I could select any of the B-25s, of which there were about twelve, prepare it for flight and take it to General Mitchell Field. At that time the weather was running about 100 to 118 degrees.

A side view of "Triple Four" flying over the Wisconsin countryside

Photo courtesy of Ron Wojnar

"Triple Four" as it appears today at the Milwaukee airport. (Photo by Tom Thomas)

Upon arriving at the disposal area, I met with an Air Force Colonel and showed him my telegram. He was very obnoxious (and I wondered if I was in Russia or America!), even to the point that he would not let me use a government telephone to call my base back in here in Milwaukee. I had to make the call collect. He made such statements as "Where are you going to get the fuel? Where will you get the batteries? It's going to take six weeks to get the airplane out of storage, prepare it, and ferry it home." I said, "No, I can do it in much less time. In fact, if I can start and select the airplane in the next two or three hours, I'll be leaving tomorrow evening before sunset." You should have seen the look on that man's face!

After a call to the base and a call from the Pentagon to him, I was permitted to take my people and the Avis car into the area. I selected the B-25 that is on the pedestal, and organized some help . . . got a little bit of help from civilian Civil Service people, without the Colonel knowing it . . . and took the wheels out of the bomb bay, got the airplane jacked up and put the wheels (both main and nose gear) on, got a tow bar and towed it to a blacktop area. We got the airplane "uncocooned" in those areas where it had silver, cloth-like covering . . . and with a lot of hard pressuring of my troops ... had the engines running, and by the next afternoon at five o'clock I went down the runway on a test flight, which was successful, landed, refueled the airplane and headed for El Paso, Texas, which was our first fuel stop and inspection of the engines for any oil leaks.

I had all my folks on board, and while refueling in El Paso, called the EAA Chapter President, a dentist, who came out to meet us (one of our maintenance men had a toothache, so he repaired his tooth at the same time), and invited us to stay for supper. Being as some of the fellas were a little itchy to get home, and it being hot, we decid ed to press on to Oklahoma City, refuel, and then head for Milwaukee. However, upon cranking the engines up, some of the fellas said, "We really ought to take him up on this offer to take us to Juarez (Mexico, just across the border from El Paso) for supper." I pulled the mixtures on the airplane, the engines quit, and we all got out. He took us to his home and got us all bedded down, and then we went across to Juarez for a fine dinner that he treated us to. The next day was an uneventful flight home.

I flew the airplane for another 200 to 225 hours. This was at the time that we were thinking about our EAA museum in Hales Corners. One evening, as I was flying to St. Louis to pick up one of our radar operators for a weekend training period (he was flying for McDonnell Douglas as a radar test operator on the 101 Voodoos) I experienced engine trouble with the left engine along near DeKalb, Illinois. The engine started to run progressively worse and I started to climb from the 500 ft. altitude that I was flying at and finally got to 1500 feet when I had to shut the engine down. I feathered it and headed back toward Milwaukee, carrying higher power on the remaining good right engine. There were three of us on board and I flew back to Mitchell Field. I had approximately 840 gallons

Photo by Tom Thomas, courtesy of Ron Wojnar

RIGHT:

This photo shows the original mounting of "Triple Four" in 1964, near the entrance to Mitchell Field on Howell Avenue

(Photo from Wisconsin Air National Guard, in the collection of Ron Wojnar.)

of fuel still on board, which was quite a lot of extra weight to be operating on one engine. I landed on runway 1 at Mitchell Field, rolled to the end and off onto the taxiway, and from there we had to tow the airplane in as we could not taxi on one engine with a non-steerable nose wheel.

The next day I talked to Col. Levenson and he said, "Hang a new engine on it. We're through with the use of the airplane. Take it back to Davis-Monthan." I said that I'd like to apply to Wright Field for the airplane for the EAA museum. He thought it was a good idea, and this I did. The airplane was transferred to the EAA museum, which we were just starting with our military airplanes.

About seven or eight months later, I thought it would be a good idea to mount the airplane, or have it displayed at General Mitchell Field in honor of Billy Mitchell. When I mentioned the idea to Col. Levenson, he thought it was a good one, too. I approached the Air Force Association in Milwaukee and tried to create some interest. They were not interested in giving any support. I also started looking around for some financial help to get the machine mounted. Then I talked to Col. Levenson again and I suggested the General Mitchell Rotary Club. He said he would bring it to their attention and see what support we might get from them. They agreed with the idea. However, nothing really happened for over a year. I was getting very disappointed, and finally I attended one of the Rotary Club meetings and told them I was going to take the airplane to Hales Corners, that they were not men of action and not a credit to using the name "General Mitchell" for the airport where they held their Rotary Club meeting in the airline terminal dining room. This seemed to motivate them and bring them to action, and as a result, they came forth with sufficient funds and some assistance from the engineering standpoint. Tony Wojnar, myself, and several of my maintenance people designed the angle and built the metal portions and frame and attached it to the airplane. The Rotary Club got the engineering for the depth of the hole in the concrete that needed to be poured so that the B-25 could be mounted. I have pictures in my collection of the crew that flew with me on its last flight, the mounting of the airplane originally, etc.

The airplane that I am flying right now has the pilot seat from the airplane in it that I flew over two hundred hours in, as well as the co-pilot's seat and I have both control wheels at home, one mounted alongside the C-47 control wheel that I flew in the Guard for some 6700 hours. During the time I flew it, my name was painted just below the cockpit along with Sgt. Wojnar's as crew chief.

[This ends the excerpt from Paul Poberezny's letter.]

This last flight of "Triple Four" was on March 20, 1959. Since the plane was mounted in 1964, it has been moved twice for Milwaukee freeway and airport construction. It was placed in its current position at the southwest corner of the parking structure and rededicated on November 20, 1991.

It is interesting to note that at least two current members of Wisconsin Aviation Hall of Fame, Life Member Bill Kerschner and 2019 Inductee Dick Schmidt, flew "Triple Four" and the F-89 Scorpions as pilots in the Wisconsin Air National Guard — so there are more stories to be told!

Photo courtesy of Ron Wojnar

Flying Off into the Sunset
Thoughts on Ending my Flying Days

By Duane Esse

Duane Esse, ready to teach, and apt to inspire others

When will it end? What will the last flight as pilot in command (PIC) or certified flight instructor (CFI) be like? Why will it be your last flight?

Those are some questions I had not thought about in 54 years as a PIC and 52 years as a CFI.

Recently, landings have not been up to my standards, and each progressive landing did not improve to my satisfaction. As a CFI, I spent time analyzing my performance and realized my eyesight was the cause. Time to hang the headset up and stop flying.

I have always wanted to go out on my terms.

I have sat and thought about those 54 years of flight and realized I have had a tremendous career as a PIC and CFI. I do not have as many flight hours as an airline captain friend (who has 30,000 hours); or as many as another crop duster friend (who has 42,000 hours); or as many as some who are highly experienced military pilots.

And I have been in awe when giving a flight review to one of the original Flying Tigers; to those who are highly qualified Navy carrier pilots; to WWII bomber pilots; to one who flew a Huey helicopter in combat; to a crew chief of a Hercules helicopter in Viet Nam; and to many others who were highly qualified.

Still and all, what I *have* had were a lot of memorable flights, tons of them:

- with teachers who used the experience to enhance their classroom instruction
- giving Young Eagle flights to 8- thru 16-year-old's
- flying through clouds, or at night with non-pilots
- flying over a forest at fall peak colors
- and, of course, seeing all the beautiful sunrises and sunsets
- I am especially proud to have given my parents their only flight in a small aircraft
- And, to my wife, children, and grandkids, numerous flights.

From an early age my granddaughter has wanted to fly, but her mother said *No.* After months of begging, her mother gave in. I have been giving her dual flight lessons since age 14; and, as she has turned 16, she wants to get the private pilot certificate before graduating from high school. I want to help her reach that goal. So I am exploring programs to work toward this.

People ask, "Why do you like to fly?" It is sometimes hard to explain. But, just think about flying toward an awesome sunrise or sunset, or over snow covered ground with a full moon, or weaving among thunderstorms at night. How about stopping at the airport after a long stressful day at work and feel the stress leaving as you level off at 2,000?! Or, feeling the pleasure of seeing a passenger experience what you do on each flight.

Will I miss flying? Oh yes I will! But I can live through the pleasure others feel as they experience flight for the first time, or as they experience those indescribable sights that can only be seen from altitude.

I will miss flying to my favorite airport in Wisconsin – the Richard W. Knutson Field.

Some cold winter evening, as I sit by the fire and review the entries in my logbook, I will remember each flight, which will then provide memories of why I like to fly.

As pilots, you are living the reasons why you like to fly.

Cherish each one now, because you are creating the memories you will enjoy later.

Enjoy each flight!

Photo from WAHF website

Hitting the Silk
Early Years of the Caterpillar Club

By John Dodds

In his 1991 autobiography (*I Could Never Be So Lucky Again*), General James H. "Jimmy" Doolittle wrote about his 1931 parachute jump:

> For the second time, I had joined the Caterpillar Club, that group of pilots who had saved their lives thanks to a group of silkworms who had spun the silk for their parachutes. I know how lucky I was because it was said to be one of the lowest unplanned parachute jumps in history.

Doolittle was a 3-time member of the Caterpillar Club—September 1929, June 1931, and April 1942; the last jump was over China following his bombing raid on Tokyo.

In this article we will explore the marvelous silkworm, development of the military parachute, the beginnings of the Caterpillar Club, and a number of the club's members. The Information Division of the Army Air Service and then the Army Air Corps (created in 1926) was located in the old Munitions Building on the Mall in Washington, D.C. The division issued monthly newsletters, and references in this article to these newsletters before July 26, 1926 refer to Air Service newsletters and from that date forward refer to Air Corps newsletters.

Silk

A silkworm, despite its name, is not a worm; rather, it is a caterpillar. Caterpillars transform into butterflies and moths, and our caterpillar of interest transforms into a particular moth: *Bombyx mori*.

The raising of this silkworm is highly domesticated, and the Chinese have been producing this silk for over five thousand years. There are four stages in the life of a moth: egg, larva (also known as a caterpillar), pupa (or chrysalis), and adult. The larvae are voracious eaters, and they eat only mulberry leaves. In a little over a month's time, they will increase their weight by eight to ten thousand times!

At the time the caterpillar stops eating, it spins a cocoon around itself comprised of a single stand of silk of incredible length: about a kilometer (3,280 feet) or more. For comparison purposes, that is about the length of the runway (3,300 feet) at the Beloit Airport. If you own a silk tie, that is about 110-130 cocoons; if you own a silk blouse, that is about 1,000 cocoons. A single strand of silk is stronger than a similarly-sized strand of steel.

A larva transforms into a pupa and then the adult moth "escapes" from the cocoon. It does so by secreting a liquid that makes a hole in the cocoon. However, by making this hole, the moth has destroyed the long, single strand of silk. To prevent this result, the pupa is killed by heating the cocoon either through steam, boiling, or leaving it in the sun. If not already boiled, the cocoon is then boiled, which softens the cocoon, which then allows it to be unraveled into one strand. Of course, some moths are allowed to live, so as to reproduce, so that their caterpillars can make more silk. The adult moths, although they have four wings, cannot fly—and they have no mouth to eat. They live for only several days, and their only purpose is to reproduce.

Silk from China was a main trading commodity along what is now known as the "Silk Road." The term "Silk Road" was coined in 1877 by Baron Ferdinand Freiherr von Richthofen, a German geographer and scientist. His term was "Seidenstrasse": "seiden" means silk, and "strasse" means road. If the last name sounds familiar to you, he is the uncle of Manfred von Richthofen, the "Red Baron." To the right is a picture I took last spring of a simple replica of the Red Baron's plane that is in a park across the street from his boyhood home. The home is now in Świdnica, Poland; before World War II, it was Schweidnitz, Germany. [I had traveled to Poland to attend the 75th Anniversary of "The Great Escape" from Stalag Luft III, now in Żagań, Poland.] Over time, silk production spread to other countries, and the silk used for military parachutes came from Japan.

The Military Parachute

History credits the first successful *frameless* parachute, which was attached to a gondola under a balloon, to André-Jacque Garnerin, a French balloonist, in 1797. The word "parachute" is attributed to another French balloonist, Louis-Sébastien Lenormand: "para" meaning "against" and "chute" meaning "fall." Similar phrasing is found in the French words "parasol" (against sun) and "parapluie" (against rain: the umbrella).

Parachutes were used in World War I to descend from observation balloons but generally not from airplanes (although very late in the war German pilots used parachutes). In the summer of 1918, the Army Air Service began a meager effort (only two people, one being Floyd Smith) at McCook Field in Dayton, Ohio to develop a parachute to escape from an airplane. Within several months, additional funds were obtained, and more people and equipment were devoted to the effort under the leadership of newly-assigned Major Edward L. Hoffman.

The team at Dayton, Ohio tested many parachutes, including those from Floyd Smith and Leslie Irvin. At the time, Smith was a recent Army civilian (starting in 1918), and Irvin was working for

Caterpillar Pin from Airborne Systems; Fokker photo by John Dodds

the Curtiss Airplane and Motor Company in Buffalo, New York. Smith's parachute was contained in a back pack and was a free-fall design (manual) which required the pilot to pull a ripcord after leaving the plane. Irvin initially submitted a static-line design (automatic, where the ripcord would be automatically pulled once the pilot left the plane) but later submitted a manual design.

Smith favored a manual design because there would be no chance that the parachute would be entangled on the plane (unless the ripcord were pulled prematurely). People who favored the automatic parachute believed that the pilot would not have the presence of mind to pull a ripcord during an emergency jump.

Nevertheless, the Army settled on Smith's manual design (later named "Model Type-A") and was ready for a live test.

On April 28, 1919, with Smith as the pilot, Irvin made the historic first free-fall jump from an airplane. Smith made the second jump several weeks later in May. Realizing that the Army would soon procure this parachute, Irvin formed a company—the Irving Parachute Company—and in June won an Army order for 300 parachutes. [In the haste to form the company, it was not noticed that the letter "g" was added to Irvin's name.] In subsequent years, there were many developments to the parachute, along with different types. For example, a seat pack was soon developed.

Major Hoffman (pictured in column at right), who led the effort, received the prestigious Collier Trophy in 1926 for the development of a practical parachute. The Collier Trophy is awarded annually for the "greatest achievement in aviation in America, the value of which has been thoroughly demonstrated by actual use during the preceding year." The criterion has been revised since then, including the addition of space activities.

The Caterpillar Club

It would be several years later—October 20, 1922—that the Irving parachute first saved the life of a pilot bailing out of a disabled aircraft.

Lieutenant Harold Harris was testing a Loening monoplane with experimental ailerons in a mock dogfight at McCook Field with Lieutenant Muir Fairchild. With Harris on his tail, Fairchild began a shallow climbing turn. When Harris cut inside Fairchild's turn, Harris later said "all hell broke loose." The ailerons were unbalanced and flapped uncontrollably. Unable to control the airplane, Harris bailed out, landing in a grape arbor. [Fairchild became a four-star general, after whom Fairchild A.F.B in Spokane, Washington and Fairchild Hall, the largest academic building at the Air Force Academy, are named.]

Harold R. Harris — first flyer saved by parachuting from plane

RIGHT: Possible inspiration for "wavy" caterpillar club design—from advertisement

LEFT: "Ski-Hi" Irvin, according to the scrawl

BELOW: Major Hoffman, 1926 Collier Trophy

Milton H. St. Clair and another employee at McCook Field collected photographs of Harris at the scene of the crash and of the parachute hanging over the grape arbor as well as part of the destroyed plane and displayed them on a wall at McCook Field.

As St. Clair explained, this display caught the attention of Maurice Hutton, aviation editor of the *Dayton Daily Herald*, and Verne Timmerman, a photographer for the paper. In discussing aviation safety, they realized that there would be more emergency jumps, and Timmerman suggested that a club be formed for those who made the jumps.

Names like "Sky Hookers" and "Crawlers" were rejected. Shortly thereafter, St. Clair received literature from a relative about the Caterpillar Tractor Company. It included an advertisement showing a design of "a wavy streak with 'Caterpillar' written across its face." "Caterpillar" was registered in 1911 as a trademark of the Holt Manufacturing Company that made crawler-type (caterpillar) tractors.

A web search uncovered the 1922 advertisement [above] in the *Saturday Evening Post* that is very close to what St. Clair described.

St. Clair (pictured on page 12, in a later staged photo) further explained:

> I immediately got in touch with Timmerman and Hutton, and suggested to them that the organization be called "Caterpillar Club" for several reasons, namely: The parachute main sail and lines were woven from the finest silk. The lowly worm spins a cocoon, crawls out and flies away from certain death if it remains in sight [probably meant "inside"] of the cocoon. A better example of what a pilot or passenger should do in the case of an uncontrollable plane could not have better figurative description.

Hutton and Timmerman gave "enthusiastic support to this name." Sadly, they both died in a plane crash on October 16, 1925.

An aside is in order: It is true that the parachute was made out of the finest silk, and it is true that the lowly worm spins a cocoon. As explained above, however, to make the silk, the pupa is killed in the cocoon. Even if it were not, the emerging moth could not fly and died within days. *Bombyx mori* is definitely not a good example of a pilot seeking to escape from a disabled plane.

Although the team at McCook Field wanted to administer the club and provide membership cards to the parachutists, the

Photo credits: L. Irvin, from Peter Hearn, *Sky High Irvin* (1983); H. R. Harris, Smithsonian National Air & Space Museum; 1922 Caterpillar advt., from *Saturday Evening Post*; and Major Edward L. Hoffman, from Don Glassman, *JUMP!* (1930).

team's superiors told them that funds were not available for that purpose. The club might not have been formed, except that sometime later a pilot happened to meet Irvin in New York and told him of the stalled effort to form the club. Irvin then agreed to provide a membership card as well as a gold caterpillar pin to members of the club. Who was this pilot? Walter Lees, a Wisconsin Aviation Hall of Fame (WAHF) inductee (2004) and a member of the Caterpillar Club, as we shall see later.

It is not clear when this meeting took place between Irvin and Lees. The first mention in the *News Letters* of the Caterpillar Club was the December 23, 1925 issue (three years after Harris's October 20, 1922 jump), and the first mention of a pilot receiving a caterpillar pin was in the September 22, 1926 issue. It is possible that the Lees-Irvin meeting took place sometime in 1925.

It should be noted that the January 31, 1927 *News Letter* stated: "*Recently,* however, the Irving Parachute Company of Buffalo, New York, sent gold pins of a caterpillar design to individuals whose lives have been saved with the use of the Irving parachute." [Emphasis added.] Moreover, the Irving Company would provide pins to those persons making emergency jumps even if they used parachutes made by other companies. Later, other parachute companies would follow Irving's lead and provide certificates and caterpillar pins as well.

In addition, the team at McCook Field had considered a uniform item that would be a caterpillar mounted on a mulberry leaf that in turn would be mounted on a ring. That idea did not come to fruition.

The *News Letters*

There was criticism during World War I and soon thereafter about the lack of efforts to develop a parachute for aviators. However, there was also a small segment of the aviation world which believed that wearing a parachute would lead a pilot to unnecessarily abandon a plane.

An article in the *Chicago Tribune* in 1921 asserted that 30% of aviators who had died in plane crashes would have lived if they had had parachutes. The May 7, 1921 *News Letter* printed the text of a letter from a pilot at Ft. Sill to Major Hickam (for whom Hickam A.F.B. in Hawaii is named), Chief of the Air Services Information Group, offering the pilot's personal opinion that he said was shared by most, if not all, of the older pilots.

> It is our opinion that a pilot who leaves his ship by means of a parachute except under the following circumstances [fire, collapse of an essential part of the plane, and collision] is guilty of gross misconduct. By so doing he does not endeavor to save an extremely valuable piece of government property. We think that if pilots are required to wear parachutes, and are encouraged to use them, it will lead to many crashes that could have been perfectly safe landings, and will encourage faint heartedness.

ABOVE: Model Type-A parachute (photo by John Dodds)

LEFT SIDE: Milton H. St. Clair, in staged photo, with Caterpillar sign

(both items, from Smithsonian National Air & Space Museum)

Soon thereafter, the June 10, 1921 *News Letter* printed a response from the editor of *Popular Science Monthly* who said that if economics were the issue, then the cost to train a pilot ($15,000) was slightly greater than the cost of a plane. Pointing out that sailors do not rush for a lifeboat at the first signs of a ship's sinking, he thought a pilot would likewise so act in the air and would not be faint-hearted.

It was not until January 1923 that the Air Service required that all pilots and passengers in Army aircraft be equipped with parachutes on all flights. Note that the directive said "equipped" and not "worn." Apparently, there was still some reluctance toward wearing a parachute, even though a parachute had saved the life not only of Lieutenant Harris in October 1922, but also of Lieutenant Frank Tyndall in November 1922. (Tyndall A.F.B. in Florida is named after him.)

The *News Letters* did their part in trying to convince pilots to accept the parachute. In the June 30, 1924 *News Letter*, there was an article titled "PARACHUTE SAVES PILOT'S LIFE":

> Many flyers were converted to the use of the parachute recently at Kelly Field, Texas when Lieut. W.W. White's life was saved following a collision in midair at about 1300 feet from which he alighted safely by use of his parachute.

And consider the entry from the August 13, 1924 *News Letter* titled "PARACHUTE ONCE MORE SAVES LIFE OF PILOT":

> This is the second time within a month that a life has been saved at Kelly Field by the use of the parachute and persons who a short time ago scoffed at their use and complained about the orders requiring them to be worn are now thoroughly converted and are seen carrying a little pack around with them wherever they go.

A noticeable shift occurred in the *News Letters* once the Caterpillar Club was formed and Irving Company's caterpillar pins were being given out (probably sometime in late 1925, as indicated above). Whereas articles before would typically be entitled, "PARACHUTE SAVES PILOT'S LIFE," later articles would now mention the saving of a pilot with specific reference to membership in the Caterpillar Club.

Examples include:

- TWO MORE NEW MEMBERS OF THE CATERPILLAR CLUB (March 10, 1927)
- MORE ADDITIONS TO THE CATERPILLAR CLUB (August 30, 1927)
- ANOTHER MEMBER INITIATED INTO CATERPILLAR CLUB (January 7, 1928)

In many newsletters, the club would be mentioned as a "mythical organization" because there were "no officers, constitution or by-laws." What seems to be somewhat incongruous is the manner and extent to which the newsletters touted membership in this "mythical organization."

Here are some examples:

- CATERPILLAR CLUB MOUNTING IN MEMBERSHIP (June 8, 1927)
- CATERPILLAR CLUB CONTINUES TO GROW (December 8, 1927)
- CATERPILLAR CLUB A GROWING ORGANIZATION (July 27, 1928)
- CATERPILLAR CLUB MEMBERSHIP PASSES CENTURY MARK (November 24, 1928)

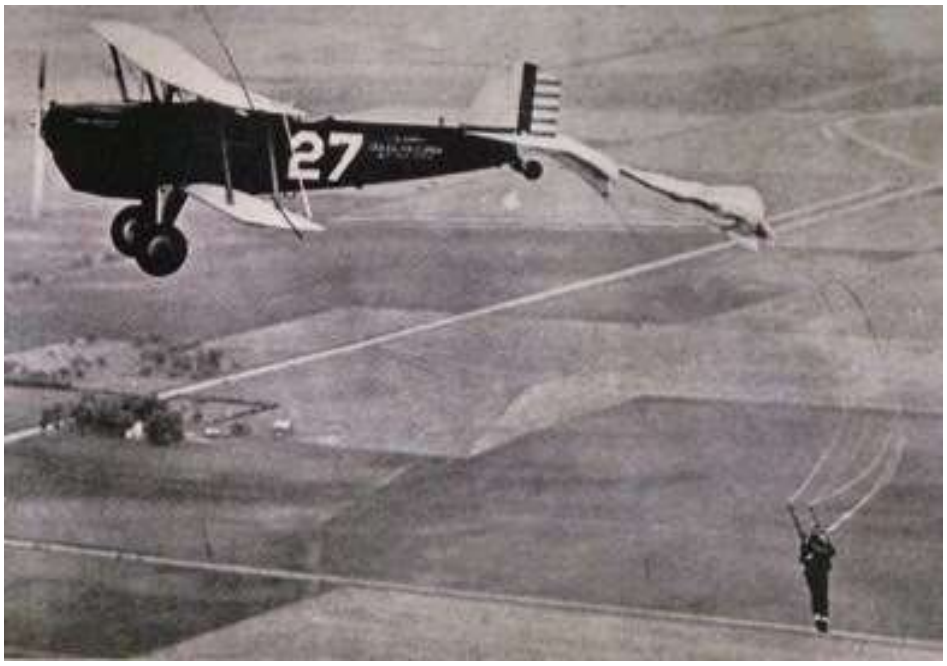
One would initially think that publicizing this "growing" club did not put Army aviation in a particularly favorable light. But this approach to publicity did convey the belief (if not the fact) that parachutes were efficient and practical in saving lives.

Straubel to the Rescue

In the 1920s, the Army had established a parachute riggers course at Chanute Field, Illinois. Students could choose to make a voluntary jump.

On June 5, 1931, Private Harold R. Osborne was one who did so. He pulled the ripcord immediately as he jumped (as he later said he was instructed to do), and the parachute snagged on the plane, leaving him hanging below the plane. The pilot flew for about an hour until a rescue was attempted.

The June 30, 1931 *News Letter* stated: "Private Osborne, in excellent physical condition, kept his head and preserved his strength for what appeared to be his only chance to eat again at Chanute Field's General Mess." That only "chance" was to take a second plane up and lower a knife to Osborne.



The Osborne Incident in 1931 — How *Not* to Parachute from a Plane
(from Hap Arnold & Ira Eaker, *This Flying Game* [1936])

"Among the numerous volunteers, one armed with a sickle, another with a butcher knife and others with all sorts of cutlery, 1st Lieut. Howard E. Engler, pilot, and 2nd Lieut. Austin A. Straubel, passenger, were chosen."

This second plane had "Follow Me" written in chalk on the side. The plane flew above Osborne, and Straubel lowered the knife to Osborne on a rope. Osborne then cut the shroud lines and used his emergency parachute.

The *News Letter* praised both pilots and Straubel, stating in part: "Lieut. Straubel for accomplishing the almost impossible feat of placing a knife from one airplane in the hands of a man suspended from another at the end of a torn parachute."

In 1936, Brigadier General Hap Arnold and Lieutenant Colonel Ira Eaker wrote a book titled *This Flying Game*. Arnold was so enamored with the photograph of Osborne hanging below the plane that he had the frontispiece photograph for the book replaced just before publication with the famous photograph (see above).

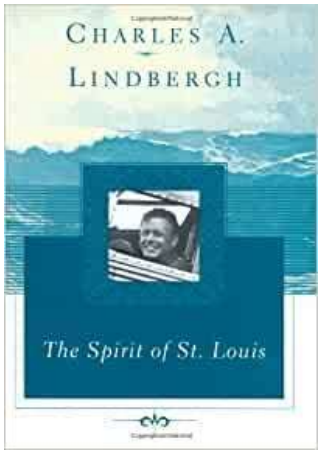
In the picture of Osborne (right), you can see to his right some of the letters of "Follow Me" that were written in chalk on the side of the plane. What is not clear in the photograph is the vertical letters "IRVIN" written on the right side of the harness (on the left in the photograph).

article continued, p. 22

Pvt. Harold Osborne, inadvertent daredevil chutist
(Smithsonian National Air & Space Museum)

The Spirit of St. Louis — Excerpts and Episodes

Some Events in Lindbergh's Flight Across the Atlantic



By Tom Eisele

On May 20-21, 1927, Charles Lindbergh set the aviation world afire when he flew from New York to Paris.

Years later, in 1953, Lindbergh published a book on his historic flight, and that book won the Pulitzer Prize for 1954.

I am no aviator, but I am an avid reader. Lindbergh's book sets afire its reader's imagination time and again. His flight took 33 hours, during the course of which time, several episodes or events took place, and certain insights or realizations were made by Lindbergh. In this issue of *Forward in Flight*, appearing around the time of May in 2020, I would like to share with you, purely for their pleasure and excitement, some of the episodes and events and insights that continue to echo in my mind.

I skip over the drudgery of events that led up to his flight, not because they are uninteresting, but because I have only so much space allotted to this matter, and I want to get to its core as soon as possible.

Let me set the scene.

Lindbergh had not slept the night before his takeoff, partly due to over-work and exhaustion, partly due to worry about the impending flight, and partly due to the incessant noise and commotion coming from the news-reporters camped outside his room in his hotel.

When Lindbergh finally gave up trying to sleep and got out of bed on May 20th, he ascertained the weather conditions at his field, he listened to the weather reports for the likely Atlantic route for his flight, he filled his plane to over-capacity with aviation fuel, and then he barely nursed the *Spirit of St. Louis* off the ground and over the low-lying telephone wires at the end of the runway at Roosevelt Field on Long Island.

He was airborne.

Entering the Void

Having flown over Long Island, then crossing near Plymouth Rock off Massachusetts, then on to Nova Scotia, and then passing over Newfoundland, each step of the way, Lindbergh was entering his twelfth hour of sustained flight. His biggest hurdle, his greatest adversary, remained the north Atlantic Ocean.

Then he was suddenly there, on its doorstep:

> I've covered 1100 miles in 11 hours. That's an average of exactly 100 miles an hour in spite of the detours I had to make around storms in Nova Scotia. I must be making a mile every 30 seconds now, with this wind on my tail. That would put St. John's just over a quarter hour's flight ahead. How surprised people there will be when they see the *Spirit of St. Louis* swoop down from the western sky, and head straight out into the Atlantic and the night. [p. 293]

Lindbergh traverses Newfoundland, and then finds himself on the brink.

> I come upon it suddenly – the little city of St. John's, after skimming over the top of a creviced granite summit – flat-roofed houses and stores, nestled at the edge of a deep harbor. It's almost completely surrounded by mountains. Farther ahead, the entrance to the harbor is a narrow gap with sides running up steeply to the crest of a low coastal range which holds back the ocean. Fishing boats are riding at buoys and moored at wharves.
>
> Twilight deepens as I plunge down into the valley. Mountains behind screen off the colors of the western sky. For me, this northern city is the last point on the last island of America – the end of land; the end of day.
>
> There's no time to circle, no fuel to waste. It takes only a moment, stick forward, engine throttled, to dive down over the wharves (men stop their after-supper chores to look upward), over the ships in the harbor (a rowboat's oars lose their rhythm as I pass), and out through the gap, that doorway to the Atlantic. Mountain sides slip by on either wing. Great rollers break in spray against their base. The hulk of a wrecked ship lies high upon the boulders. North America and its islands are behind. Ireland is two thousand miles ahead. [pp. 295-96]

Reading these passages, we can feel the tension mount. Here he is, about to enter the void, and countless miles stretch ahead.

How does a flyer prepare himself or herself for such a step into the vast unknown? In those days, what did a pilot have on which to rely? A radio? Lindbergh didn't carry one – he felt the weight would cost him lost miles over the long-haul. A GPS system? Don't be absurd. Lindbergh had some charts and maps, on which he had marked his probable route; he had a compass; he had his flight instruments; and (when the weather permitted him a glimpse at the heavens), he had the stars.

Lindbergh made his flight by dead-reckoning. People knew little or nothing of the jet stream in those days, so Lindbergh wasn't even sure of the prevailing winds aloft. He had plotted his course on his map, and he would do his best, in hourly corrections, to calculate his speed and drift, and to make corrections to his course accordingly.

> I've reached the point where real navigation must begin. Now that the fun of diving down on St. John's is over, I wish I were back on route. Now, I'll have to pay for that

luxury. And I'm a little ashamed of having left my course so far. I'm 90 miles south of the great circle. All the way to Ireland, I'll have this extra factor to consider in setting my compass heading. The figures on my chart are no longer exact. In addition to wind drift and magnetic variation, I'll have to compensate for starting so far south. [p. 297]

On the basis of these few facts and factors, Lindbergh bet his life.

Icebergs

Lindbergh is out over the cold Atlantic, and night has fallen. Soon, what seem to be white pyramids appear on the sea.

Suddenly I become aware of a white pyramid below me – an iceberg, lustrous white against the water. I've never seen anything so white before. Like an apparition, it draws my eyes from the instruments and makes me conscious of a strange new sea. Ahead and on each side are several more. So that's why surface ships stay south in warmer waters! Well, I'm flying high enough to miss those drifting crags. Here and there a wisp of fog hangs, low-lying, above the waves.

Soon there are icebergs everywhere – white patches on a blackened sea; sentries of the Arctic. The wisps of fog lengthen and increase in number until they merge to form a solid layer on ahead; but, separating as I pass above them, they leave long channels of open water in between – stripes of gray fog and black water across my course. With every minute I fly, these channels narrow; until finally all the ocean is covered with a thin, undulating veil of mist. [pp. 298-99]

In a sense, now, with the coming of darkness and the enveloping mists and fogs below, Lindbergh is flying blind.

Or, rather, he is flying on his instruments. What his senses tell him is subject to error and to illusion. He must trust his instruments and adhere to what they tell him. And he must guide on the stars.

The fog, the icebergs, and the gathering haze caused me to neglect the sky. Here it's risen on the breaking crest of darkness to claim the night for its own. Those few faint stars, twinkling down through the window above me, seem more important than all the world below.

You fly by the sky on a black night, and on such a night only the sky matters. Sometime near the end of twilight, without realizing when it happens, you find that the heavens have drawn your attention subtly from earth, and that instead of glancing from the compass down toward ground or sea, your eyes turn upward to the stars. [p. 301]

This is an important realization or insight for Lindbergh. When the fog or the darkness denies him the ground or the waves on which to rely, Lindbergh transfers his allegiance to the sky, to the stars. He puts this insight as a basic rule — what he is able to do, is a function of what his immediate problems, his immediate circumstances, force him to do. He rises to the occasion, as every great explorer has done, before and after him.

Subconsciously, without understanding the full significance of my action, I adopt a basic rule for the flight. Somewhere, in an unknown recess of my mind, I've discovered that my ability rises and falls with the essential problems that confront me. What I *can* do depends largely on what I *have* to do to keep alive and stay on course. If there were no alternative, I could fly blind through fog during all the night and day. The love of life is sufficient guarantee for that. But there *is* an alternative, the alternative of climbing faster; and that I choose.

My head is thrown back to look upward. My neck is stiff. But what of it? Hold on to those stars. Guide on them. Don't let them get away. [p. 310]

Both photos above are released to the Creative Commons from the PxHere.com website.

Clouds: Mountains and Valleys in the Sky
Climbing to keep the stars in view, Lindbergh finds himself confronted by mountainous cloud formations — there are clouds below him, covering the ocean, clouds in front of him, clouds on his sides. What is he to do? How is Lindbergh to deal with them?

> It's nine o'clock. I've reached an altitude of ten thousand feet. Clouds are still rising up to meet me, but the undulating plain they formed in early evening has given way to a foothill country of the sky. Passing over a misty summit, looking down onto a night-filled valley, I wonder what mountains lie ahead. [p. 322]

> As I fly through the body of night, haze lessens, and I discover that I'm among the cloud mountains themselves – great shadowy forms on every side, dwarfing my plane, dwarfing earthy mountains with their magnitude, awesome in their weird, fantastic shapes. Huge pillars push upward thousands of feet above the common mass. Black valleys and chasms open below me to unfathomed depths. [pp. 322-23]

Of immediate concern, as Lindbergh climbs higher, is icing. His wings build up with ice, his air induction tube ices up — everywhere in the crystalline purity of the atmosphere at this altitude, there is ice.

> Great cliffs tower over me, ward me off with icy walls. They belong to mountains of another world, mountains with forms that change; with summits that overhang; mountains alluring in their softness. There'd be no rending crash if my wing struck one of them. They carry a subtler death. A crash against an earthly mountain is like a sword stroke; one flash and it's over. But to plunge into these mountains of the heavens would be like stepping into quicksand. They enmesh intruders. They're barbaric in their methods. They toss you in their inner turbulence, lash you with their hailstones, poison you with freezing mist. It would be a slow death, a death one would have long minutes to struggle against, trying blindly to regain control of an ice-crippled airplane, climbing, stalling, diving, whipping, always downward toward the sea. [p. 330]

If Lindbergh cannot fly above the clouds (because they tower above him), and if he cannot fly under the clouds (because the fog seems to go right down to the surface of the sea, and he cannot fully trust his altimeter), and if he cannot fly through them (because of the danger of icing), then what can Lindbergh do?

> For the first time, the thought of turning back seriously enters my mind. [pp. 330-31]

This is an amazing revelation. With everything he has so far achieved, it still seems possible that all his efforts and planning and execution may count for nothing. Lindbergh is, then, not indomitable. —Yet, shockingly, courageously, he remains resolute.

His calm resolve, thinking through his problem without panic, is to improvise. If he cannot immediately follow the most direct path, cannot fully follow the route he marked out for himself on his maps and charts, then he can follow the valleys amongst the mountainous clouds — these are canyons leading him east, toward Europe, or else southeast, toward warmer waters and the shipping lanes, where perhaps he can follow the lights of a ship heading to the British Isles. Again, Lindbergh does what he *can* do, in the face of what he *must* do, as he refuses to turn back and abandon his mission.

As Lindbergh puts it, "I follow narrow canyons between [the clouds], weaving in and out around thunderheads, taking always the southward choice for course, edging toward the ship lanes and what I hope is clearer weather. Dark forms blot out the sky on every side, but stars drop down to guide me through the passes." [p. 331]

Photos above released to the Creative Commons at PxHere.com website

His Passengers
Later, twenty-two hours into his trans-Atlantic flight, Lindbergh is nodding off, and then suddenly awakening to find himself drifting off-course, or climbing, or diving. He is seriously sleep-deprived. Exhausted from the emotional drain, having expended everything in the flight preparations, in his harrowing takeoff, and in the flight issues that he has faced and overcome (e.g., changing his course to avoid thunderstorms), Lindbergh senses presences in his plane.

> While I'm staring at the instruments, during an unearthly age of time, both conscious and asleep, the fuselage behind me becomes filled with ghostly presences – vaguely outlined forms, transparent, moving, riding weightless with me in the plane. I feel no surprise at their coming. There's no suddenness to their appearance. Without turning my head, I see them as clearly as though in my normal field of vision. There's no limit to my sight – my skull is one great eye, seeing everywhere at once.
>
> These phantoms speak with human voices – friendly, vapor-like shapes, without substance, able to vanish or appear at will, to pass in and out through the walls of the fuselage as though no walls were there. Now, many are crowded behind me. Now, only a few remain. First one and then another presses forward to my shoulder to speak above the engine's noise, and then draws back among the group behind. At times, voices come out of the air itself, clear yet far away, traveling through distances that can't be measured by the scale of human miles; familiar voices, conversing and advising on my flight, discussing problems of my navigation, reassuring me, giving me messages of importance unattainable in ordinary life. [p. 389]

What are we to say? That Lindbergh was hallucinating? That he dreamed or imagined these presences? Perhaps. Still, they had a reality for him; and they proved helpful to him in his flight.

> The spirits have no rigid bodies, yet they remain human in outline form – emanations from the experience of ages, inhabitants of a universe closed to mortal men. I'm on the border line of life and a greater realm beyond, as though caught in the field of gravitation between two planets, acted on by forces I can't control, forces too weak to be measured by any means at my command, yet representing powers incomparably stronger than I've ever known. [pp. 389-90]

It interests me that a pilot as hard-headed as Lindbergh — an engineer and the ultimate realist — would accept these emanations quite so easily and comfortably within his apparent world-view.

> At another time I'd be startled by these visions; but on this fantastic flight, I'm so far separated from the earthly life I know that I accept whatever circumstance may come. In fact, these emissaries from a spirit world are quite in keeping with the night and day. They're neither intruders nor strangers. It's more like a gathering of family and friends after years of separation, as though I've known all of them before in some past incarnation. They're as different from men, and yet as similar, as the night's cloud mountains were to the Rockies of the West. They belong with the towering thunderheads and moonlit corridors of the sky. Did they board my plane, unseen, as I flew between the temple's pillars? [p. 390]

For my part, never having had such an experience, I can only honor and respect Lindbergh's account. His truthfulness in insisting that he include this portion of his story — knowing, as he must have, that its inclusion would expose him to ridicule or at least deep skepticism — is powerful. It is a testament to his fundamental self-assurance: he records his experiences as he beheld and recalls them, and lets the chips fall where they may.

For Lindbergh, as I understand him, this experience connected him with his ancestors, in the sense that it transcended his living in the present only. Rather, this experience bridged the past, present, and future, in some way otherwise unavailable to us or inexplicable by us.

> I live in the past, the present, and the future, here and in different places, all at once. Around me are old associations, bygone friendships, voices from ancestrally distant times. Vistas open up before me as changing as those between the clouds I pass. I'm flying in a plane over the Atlantic Ocean; but I'm also living in years now far away. [pp. 390-91]

Sightings, or Insights?
Lindbergh is changed by these experiences, these insights and illusions (or are they something else?). His adventure leaves us with this provocative thought on the spirit of discovery:

> One senses only through change, appreciates only after absence. I haven't been far enough away to know the earth before. For twenty-five years I've lived on it, and yet not seen it till this moment. For nearly two thousand hours, I've flown over it without realizing what wonders lay below, what crystal clarity – snow-white foam on black-rock shores – curving hill above its valley – the hospitality of little houses – the welcome of waving arms. During my entire life I've accepted these gifts of God to man, and not known what was mine until this moment. It's like rain after drought; spring after a northern winter. I've been to eternity and back. I know how the dead would feel to live again. [pp. 463-64]

Landing
It's a marvelous book, and a moving document of the human spirit. —But don't take my word for it; check it out for yourself. You'll be glad you did.

[*Lindbergh spent two years at the University of Wisconsin—Madison, pursuing an engineering degree. This brief relation allows us to claim him, I believe, as a Badger aviator.*]

Frank Birmingham
A Wisconsin Flyer in World War II

By Tom Eisele

Frank Birmingham was born in 1924. As with most children of the twenties, he went through the trials of the Great Depression as a growing youngster; then he had to go through the horrors of war as a young adult. His was "the greatest generation," likely because his generation had the most obstacles put in its way and the most hurdles to overcome.

Frank's parents, Edward and Ida Birmingham, created a loving family, and a large one, in the Milwaukee area. Frank had five siblings (Dolores, Yvonne, Denis, Robert, and Marie). As a young man, Frank was a member of the Boy Scouts, and he played football in high school – pretty standard stuff for a young man of the twenties and thirties.

But then the war came. With its coming, Frank joined the Army Air Corps, entering in July, 1943. His training took him first to Biloxi, Mississippi. This change in climate must have been a bit of a shock for a young man from the Badger state. In one of his letters home, he wrote, "We do a lot of marching and physical training in hot sun without much rest, plus studying in the lecture hall." Frank was a hard worker, though, and he very much wanted to become a bombardier.

This goal was to prove to be impossible; in fact, it was out of Frank's control. The Air Corps changed its bombing policy, so that most planes in a bombing formation dropped their bombs on cue from the lead plane, thus reducing the need for bombardiers. By January, 1944, during his continued Air Corps training, Frank had moved to Nashville, Tennessee. While his scores were good enough to gain entry, the quota for bombardiers had already been met.

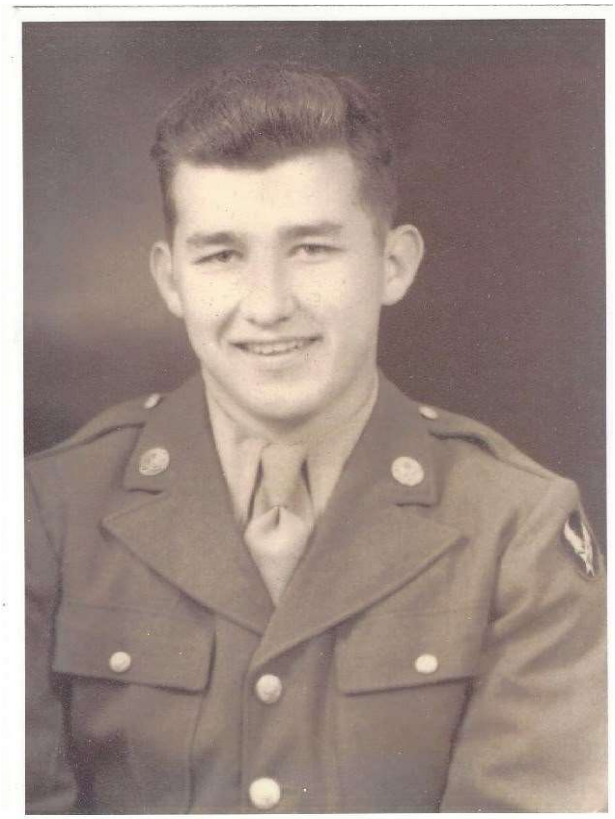
There was, however, still a pressing need in the Air Corps for men who understood armory and gunnery matters. So, Frank turned his talents toward that field of fighting. In early 1944, Frank was assigned first to the Technical School Squadron at Buckley Field, near Denver, Colorado; then he moved to gunnery school in Harlingen, Texas. Frank was learning about guns, bombs, fuses, and the like – all matters crucial to the mission of heavy bombers.

In May, 1944, Frank received his Armory-Gunnery wings and a rating as a Corporal. He was no longer an Air Cadet; he had arrived as a military aviator.

Now for a crew. At Chatham Field in Savannah, Georgia, Frank was assigned to a flight crew. [Photo, p. 20] He became a staff sergeant in charge of all the armament on the crew's new B-24H Liberator. The ship was christened the "Briney Marlin."

Frank's crew made the journey over to England in late 1944, where the men became members of the 754th Bomb Squadron of the 458th Bomb Group, located at Horsham St. Faith (Station 123).

Frank's first mission was a big one for the 8th Air Force. It came on Christmas Eve, December 24, 1944, eight days after the beginning of the Battle of the Bulge (December 16, 1944). Hitler's hordes had surprised the U.S. Army with an attack through the Ardennes Forest. For a week, the American soldiers had been pushed back by the Germans, and the U.S. Air Force could do nothing in response because of abysmal weather both in England and over the European continent.



A young Frank Birmingham, in uniform and ready to fly

Finally, the weather broke, ever so briefly, with a high-pressure system pushing away clouds from southwest Germany, where many of the staging areas for the German army were situated, as well as many Luftwaffe airfields. For the 8th Air Force overall, this was Mission 760, and it called for a maximum effort. All three Air Divisions participated, sending every available plane on this mission. The 1st Air Division dispatched 14 Bomb Groups against multiple targets; the 2nd Air Division (with which Frank flew, in the 458th BG) sent all operational aircraft against fifteen targets; and the 3rd Air Division sent all operational aircraft as well.

The target for Frank's squadron in the 458th BG was an industrial complex near Schonecken. Despite the forecast of more favorable weather conditions, persistent fog and clouds and winter freezes made flying difficult. There were multiple accidents in England upon attempted takeoffs, and more accidents and near-misses over the continent. Many crews and even squadrons had to bomb "targets of opportunity" because their assigned targets simply were indistinguishable through the cloud cover. Frank reported in his personal mission list that this one was "rough."

Indeed it was. But the aircrews desperately wanted to do everything they could to support the troops battling on the ground.

On the same mission, but in a different plane with the 458th BG, was Sgt. Donald Shannon, top turret gunner and engineer. He reported the following: "The target today was ground support, designed to break up the German counter-attack into Belgium. … Finally, we came in and bombed any place there might be concentrations of German troops. Our target was the village of Schonecken. We hit our target hard.

Photo courtesy of Marybeth Birmingham Dyer

Flak was moderate but accurate. We lost two bombers. Coming home, we passed over Luxemburg and Brussels, then back to base on Christmas Eve." [War diary of Donald Shannon, 2ndAD digital archives]

This 8th AF Mission 760 was led by General Frederick Castle, the commanding officer of the 4th Combat Wing. General Castle's bomber developed trouble in the #4 engine over the battlefield, and then was set upon by ME-109s. Still carrying a full bombload, General Castle attempted to divert his plane from crashing near Allied troop lines, but the general and the pilot of the bomber both died in the ensuing crash-landing of their plane.

General Castle was awarded posthumously the Congressional Medal of Honor for his brave leadership.

Not all of Frank's mission were quite so eventful, although of his crew's first eleven missions (through February 22, 1945), nine of them Frank annotated as "rough" or "very rough" in his personal mission list. Very few proved to be "milk runs."

Amongst Frank's first eleven missions, his 7th, 8th, 9th, and 10th were all to the same place: Magdeburg. There were tank factories, marshalling yards, and an oil refinery near the vicinity of Magdeburg, plus an abundance of flak batteries. (These same missions were, respectively, the 8th Air Force's Mission 796 on January 16, 1945; Mission 817 on February 3, 1945; Mission 821 on February 6th; and Mission 832 on February 15th.)

At this stage in the war, the Battle of the Bulge had been won and the German armies were in full retreat – but not yet beaten. And the Rhine River barrier still needed to be crossed.

On Frank's 8th mission, his squadron was hitting a tank factory and marshalling yards in Magdeburg. Other bomb groups were targeting communication centers and transportation centers. A navigator in the 755th Bomb Squadron of the same group, the 458th BG, reported on this mission flown February 3rd against Magdeburg: "When we got over the target it was covered by clouds, so we took a target of opportunity. … They really had the planes out today, our group put up four squadrons. The flak wasn't bad because of the clouds." [Navigator Charles A. Bosshardt, 458th BG, digital archives]

Many of the 8th Air Force's planes that same February 3rd were headed to Berlin. Col. Lewis Lyle, commanding officer of the 379th Bomb Group, was the Air Commander of Mission 817 on February 3rd and he reported that there was "a bomber stream three to five hundred miles long. … [T]here were bombers heading to Berlin, practically all the way back to England. It was a very successful mission." (For Frank, it was "rough.")

February 22nd, Frank's 11th mission (8th AF: Mission 841) was special. First, it mobilized more than 1,425 bombers and 860 fighters to hit the German rail and road system as well as airfields, hoping to paralyze the German war machine and stymie its mobility. What was extra-ordinary in the 8th Air Force mission orders was their direction for the planes to bomb from 10,000 feet! This was less than half the altitude of most missions (where bombing was done from 22,000 – 25,000 feet). It was thought prudent for Mission 841 crews to bomb from such low altitude because the targets were selected as having few or no flak defenses.

On Frank's 11th mission, the 458th BG was part of more than 450 B-24s from the 2nd Air Division attacking over fifteen separate targets. Frank's squadron attacked the marshalling yards at Peine, and Frank noted in his personal mission list that they bombed at 8000 ft. He called it a "very rough" mission. Their relatively low-level bombing height would have made their planes incredibly vulnerable. And yet, the 8th Air Force planners must have known what they were doing, because the 2nd Air Division lost only 4 bombers that day (although another 68 B-24s did suffer some kind of battle damage).

Navigator Charles Bosshardt left a record of his thoughts on this unique low-level bombing mission: "Something new has been added – today we bombed from 10,000' instead of the usual 22,000'. Of course there wasn't any flak at the target. Today was the first time I've seen our bombs hit. … The 500-pounders make quite a blaze. Smoke and flame really gushed up. The 8th Air Force was all out today. We passed several smoking towns. Our gunners saw one ship get a direct hit in the wing. It blew the wing off, and the ship spun in. There were no chutes." [Navigator Charles A. Bosshardt, 458th BG, 2ndAD digital archives]

Frank's 14th mission, on February 26th, 1945, was to Berlin, the only time his squadron went to that most-difficult target. This was another mission that he marked as "rough." More than 1200 bombers and 725 fights were dispatched by the 8th Air Force on Mission 849, aiming to knock out railroad yards and rail facilities that day. The 2nd Air Division put up 361 B-24s specifically tasked with taking out the North rail station in Berlin. Again, we have the notes left by Navigator Charles Bosshardt, who reported: "Today was the group's 200th mission in less than a year. To celebrate, we hit the 'Big B' – Berlin, with its 600 guns. I wasn't overjoyed by the prospect, but luck was with us, we had 10/10 cloud cover, and went in on instruments. The flak wasn't even near us, thank goodness." [Navigator Charles A. Bosshardt, 458th BG, 2ndAD digital archives] If you can believe it, Bosshardt also noted an amazing deed done in his own bomber: "One of our bombs hung up. Scottie, the engineer, went out on the catwalk, and tripped the release with a screwdriver." The brave man was James H. Scott of Idaho.

Although several of Frank Birmingham's 31 missions were "rough" ones, generally speaking, as the war moved into March and April of 1945, most of the missions became easier (relatively so). Men and planes still were lost, of course, but not nearly so many of them as before.

For example, on Frank's 20th mission to the marshalling yards in Freidberg (8th AF: Mission 883), on March 12th, a force of 1,350 Liberators and Flying Fortresses was split, some planes heading toward the Baltic Sea, the others heading to the Rhine River. For the planes, such as Frank's, that were bombing railyards along the Rhine, only one bomber was lost.

Later in March, on Frank's 23rd mission, to the airfield at Leipheim (8th AF: Mission 896), 341 B-24s from the 2nd Air Division took out several Luftwaffe air-bases, including an airfield where dangerous jet aircraft (the ME-262 and the ME-163 Komet) had been staged.

Again, only one B-24 was lost on this mission. Regarding this mission, on March 19, 1945, Frank's 458th

ABOVE: A more seasoned Frank Birmingham

LEFT: Frank's B-24H crew
[standing]: L. Rosemann, T. Walsh, B. Everett, G. Shupp

[**kneeling**]: F. Birmingham, G. Bake, J. Needham, J. Bradley, J. O'Malley, K. Konkle

Bomb Group diary gives the following account:

> "On the 19th we were again favoured with a visual [bomb] run and proved that the eyes of the bombardiers had not lost their keenness after such a prolonged run of instrument bombing. Our hapless victim for the day was the [airfield] at Leipheim, the first [air-base] we have attacked in quite some time. This was the 3rd largest producer of the jet ME-262s therefore [it] warranted some good bombing results. … Crews reported good to excellent results … . Boy that is bombing accuracy any way one wants to look at it. Now give us a few more visual [bomb] runs and let us show what we can accomplish." [458th BG Combat Diary, 2ndAD digital archives]

The war kept going, of course, and these occasional respites were only that – occasional interludes of relative success when weather conditions and a lack of Luftwaffe opposition made the bombing missions less lethal for the Americans flying those missions. But, mostly, men still died, and planes still were lost.

March 21st, Frank's 24th mission was to an airfield at Hesepe. This mission (8th AF: Mission 901) was flown in support of the Allied armies crossing the lower Rhine River. Over 500 B-24s flew on this mission and 21 bombers suffered battle damage. And, on March 23rd, Frank's 25th mission, his plane bombed Osnabruck. There were more than 310 B-24s on this mission (8th AF: Mission 908), three of which were lost, and 95 of which returned with battle damage. Frank characterized it as "very rough."

Finally, in April 1945, the bombing campaign came to an end. Frank Birmingham was there, right up to and through the final mission. This was the 8th Air Force's Mission 968, and Frank's 31st, and it took place on April 25th.

Frank's squadron bombed Bad Reichenhall. Their final mission is described in Navigator Bosshardt's notes: "The target was the railroad at Bad Reichenhall, south Germany. It was visual over the continent. We could see a lot of the ruined towns and villages, with buildings burned and blasted to bits." [Navigator Charles A. Bosshardt, 458th BG, 2ndAD digital archives] For the last time, the men returned safely to base at Horsham St. Faith.

All told, the 458th BG had flown 240 missions during the war, with 5,760 individual sorties. They dropped 13,204 tons of bombs, and they lost 47 aircraft during that time.

Frank Birmingham had been there for 31 of those missions, sweating out the takeoffs, the bomb runs, the landings, and all the flak barrages and enemy fighter attacks in between. He was a waist gunner who did his duty, who persevered, and who made the long-haul home, safe and sound.

Nothing flashy, nothing glamorous – just the hard road of doing what is right, not bragging about it, but with the quiet, calm confidence that he had served well his country.

I suppose that there also may have been a certain satisfaction — even fascination — with the wonders of flying (we don't know, since we don't have many notes or any diaries from Frank B. on which to base our speculations).

There is, however, this wonderful piece of reporting from Sgt. Donald Shannon, another member of the 458th BG, who shared some of the same missions with Frank Birmingham. Sgt. Shannon leaves us with this impression of the spectacular experiences, not of war, certainly, but of the sheer joy of peaceful, serene flying:

> "I should mention ... the fantastic clouds we flew thru today. One of the real compensating joys of flying, even combat flying, is the days when the huge billowing clouds form deep valleys into which you can fly, free to enjoy the beauty of the cloud formations around you, relatively free from fighter attacks. Today was such a day, with the sun shining down from above, as we wove our way home down those beautiful cloud valleys. Everyone who has flown will know the beauty and joy I am describing." [Sgt. Donald Shannon, 458th BG, 2ndAD digital archives]

Photos courtesy of Marybeth Birmingham Dyer

EAA Celebrates 51 Years at Oshkosh AirVenture in 2020

Dates are July 20—26, 2020

The Experimental Aircraft Association is marking the 51st consecutive year of its annual EAA AirVenture fly-in convention being located in Oshkosh. Held July 20-26, 2020, at Wittman Regional Airport in Oshkosh, the event will have a full schedule of activities for arriving aviators and residents alike.

The EAA fly-in convention was first held in Milwaukee in 1953, so this year's convention will be the 68th such event overall. From 1959 to 1969, the annual fly-in convention was located in Rockford, Illinois.

In 1970, the EAA annual event moved to Oshkosh, and the EAA moved its permanent headquarters to Oshkosh in 1983.

For the 2020 AirVenture, EAA has announced that it will highlight the U.S. Air Force Special Operations Command.

The USAF Special Operations team comprises highly trained and rapidly deployable air personnel, who conduct special operations world-wide. Their people possess special skills in parachuting, scuba diving, rappelling, and motorcycling; their survival skills are among the tops in the world.

Aircraft in AFSOC include special mobility aircraft (such as the MC-130, the CV-22, and the C-146); close air support aircraft (such as the AC-130 gunship); and aircraft specializing in the roles of intelligence, surveillance, and reconnaissance (such as the MQ-9 and the U-28).

It should be a very exciting and educational week.

Also expected to appear at the 2020 AirVenture is the Canadian Forces Snowbirds, a popular military aerial demonstration team. The Snowbirds were the first military team to perform at Oshkosh when they flew over during the 1970s.

Additional EAA AirVenture information can be found at *www.eaa.org/airventure*. For more information on EAA and its programs, visit *www.eaa.org*.

Light Aviation Safety Seminar WINGS Event in Oshkosh

Date is Saturday, March 21, 2020

The Wisconsin Light Aviation Advisory Council is holding a one-day Safety Seminar on Saturday, March 21, 2020. It is the 27th annual meeting dealing with safety in light aviation.

This event will be held at the EAA AirVenture Museum's "Founders Wing," located at the EAA Aviation Center in Oshkosh.

This event emphasizes safety and safe practices for enthusiasts of light, ultralight, and drone aviation.

Speakers at the seminar will discuss 2019 accident information for Wisconsin, accident prevention and risk management, Class D airspace and tower operations, drone operations in today's airspace, and unleaded future aviation fuels, among other topics.

- This event qualifies as a FAA "WINGS" event.
- Registration is free and can be done as a walk-in (walk-in registration begins at 8 am on Saturday the 21st).
- There is no admission fee.

The actual seminar begins at 9 am and ends at 4 pm.

There are several breaks scheduled during this event, as well as a lunch break (lunch will be available on-site).

Contact Steve Krueger (715-204-2928) for additional information.

You may email your inquiries to *info@WULAC.com* or else visit *www.av8safe.org*.

Austin Straubel [inset], survivor of crash (Smithsonian National Air & Space Museum)

WAHF Inductees

There are several WAHF inductees who are members of the Caterpillar Club.

Austin Straubel (2016 inductee), stationed at Selfridge Field, Michigan, became a member on November 16, 1929 when the engine of his P-6 pursuit plane caught fire as he was recovering from a roll at 4,000 feet. Cutting the engine and pulling the fire extinguisher failed to put out the fire. As he stated in the accident report: "I then turned the ship in the direction of Lake St. Clair and after staying with the ship for about 1500 feet and not having put the fire out decided to go over the side with parachute." The description under the photograph states: "When his plane caught fire 4,000 feet in the air Saturday afternoon, Lieutenant Austin A. Straubel of Selfridge Field attempted to land but was forced to jump at 2,500 feet. Photo shows wreckage of plane, and insert is Lieutenant Straubel who was uninjured."

Walter S. Lees (2004 inductee) was a civilian test pilot for the Johnson Airplane & Supply Company of Dayton, Ohio.

On June 13, 1924, he was testing a captured German World War I airplane that had been rebuilt by the company for a customer. While coming in to land, a fire extinguisher jarred loose and jammed the controls. He quickly decided to bail out. He knew that he would not have enough time to follow the normal procedure for bailing out (jump clear, count to three, and pull the ripcord). He unfastened his seat belt, stood up on the seat, and pulled the ripcord at the same time he jumped. He estimated that he was only 150 feet above the ground. Before the flight, Lees had requested to borrow a parachute from nearby McCook Field. Normally, government parachutes were not for civilian use, but since Lees was also an Army reservist, he was allowed to borrow the parachute. An Army report stated: "This jump was of special interest to flyers as it proved the efficiency of the parachute in saving life with prompt action on the part of the jumper even at extremely low altitudes."

States Parasol B-3 plane

On October 28, 1945, ***Russell Van Galder*** (1995 inductee along with his wife Marjorie) was asked to take up a States Parasol B-3 plane (parasol is a wing design where the wing is not attached to the fuselage directly but is supported by struts or pylons). Members of an acrobatic club had been practicing without parachutes. Referring to the plane as "that old crate," he wore a parachute and climbed up to 3,500 feet. He performed a number of maneuvers, and then a strut buckled and the wing folded. He parachuted and landed safely.

Herman "Fish" Salmon (1995 inductee) was a test pilot for Lockheed when he ejected from a prototype of the Lockheed XF-104 fighter on April 19, 1955. When Salmon test-fired a new gun at 47,000 feet, the vibration loosened the escape hatch underneath the cockpit resulting in explosive decompression of the cockpit. The cockpit filled with dust, insulation, and other debris, restricting his vision. The extreme cold and the tight-fitting G-suit also restricted his movement. With the jet out of control, he bailed out at 15,000 feet.

Lt. Sijan boarding F-4C Phantom II (from *Air Force Magazine*)

During the Vietnam War, ***Lance Sijan*** (2006 inductee) bailed out of an F-4C Phantom II over Laos on November 9, 1967, when the premature detonation of bombs just after release crippled the plane. Injured and weak, he unbelievably avoided capture for six weeks. He continued to resist in captivity even though tortured; he died on January 22, 1968.

Lt. Sijan was posthumously awarded the Congressional Medal of Honor, and one (Sijan Hall) of the two dormitories at the Air Force Academy is named after him. The other dormitory, Vandenberg Hall, is named after Hoyt Vandenberg (1989 inductee), after whom Vandenberg A.F.B. is also named.

Conclusion

Still true today as written in the May 5, 1925 *News Letter*, the parachute is "one of the greatest boons to the flying game."

Improvements in parachutes have kept pace with developments in the airplane. Ejection seats have replaced pilots stepping out of the cockpit. The photograph below shows Captain Chris Stricklin of the Air Force Thunderbirds demonstration team ejecting from an F-16 in 2003 at 140 feet, less than one second before the plane hit the ground. He had miscalculated the altitude at which he began his maneuver—a Split-S which begins in the inverted position followed by a descending half loop. (He did not have enough altitude to come out of the loop.) Stricklin and those before him who parachuted at very low altitudes (for example, Lees and Doolittle), might be called "lucky." If Smith, Irvin, and Hoffman were alive today, they just might say it was not luck.

Capt. Stricklin ejecting from F-16 (U.S.A.F. photo)

Finally, what about the silkworm that saved so many lives over the years? They are still making silk but not for military parachutes. Silk for parachutes had been made in Japan before World War II, and the war obviously halted that use. More importantly, nylon was invented by DuPont in 1939 and became the substitute for silk.

States Parasol B-3 plane from WAHF archives

WISCONSIN AVIATION HALL OF FAME

Aviation Talks by Tom Thomas

COMING SOON, BUT LIMITED AVAILABILITY CURRENTLY

The Wisconsin Aviation Hall of Fame is pleased to announce that its President, Tom Thomas, will be available soon to present aviation talks to small or large groups.

These talks are made with Power Point slides and other audio-visual aids.

Here are some of the topics of interest available for presentation later in 2020:

- **Richard Ira Bong, Wisconsin's and the United States' Top Gun in World War II**
- **Women over Wisconsin (WOW)**
- **Wisconsin's Brigadier General William (Billy) Mitchell**
- **UFOs — Fact or Fiction? A Wisconsin Perspective**
- **World War II Wisconsin Aviators (19 aviators discussed)**
- **The Role of the Air National Guard and the Air Force Reserve in our National Defense**
- **The Landing of a B-377 at the Dodgeville, Wisconsin Airport**
- **A Snapshot of the History of Aviation in Wisconsin**
- **A.P. Warner, Wisconsin's First Pilot and Aircraft Owner**
- **Connie Mattson, Wisconsin's First Jet Ace**
- **Dirigibles and Wisconsin's Role in their Origin**

Anyone interested in scheduling an aviation presentation is welcome to contact Tom Thomas at 608-332-0490, or at <tomas317@live.com>.

Wisconsin Aviation WAHF Hall of Fame

WAHF Scholarships

Launched in 2002, WAHF's scholarship program annually awards scholarships to aviation students. The Carl Guell Memorial Scholarship is named in honor of WAHF's founder; the $1000 award goes to a continuing student who meets the required academic standards and is active in both community and extracurricular activities.

Today, three additional scholarships are offered annually to students from Wisconsin enrolled in an aviation program in a technical college or college/university in Wisconsin or outside our state. WAHF member/supporter Jerome Thiessen began a $500 scholarship. The EAA Chapter 640/ Robert Payzer Memorial Scholarship and the Jeff Baum & Jim Quinn Scholarship began in 2013, for students pursuing a career in aviation management in the amount of $500; the $500 Payzer and $1000 Thiessen awards are for any aviation or aerospace field of study.

Scholarship applications are available online at the Community Foundation of North Central Wisconsin website (*www.CFONCW.org*).

Completed applications must be received by March 1.

Have you Sent in Your Change of Address?

Send your Change of Address to:

Tom Eisele
Editor, Forward in Flight
W8863 U.S. Highway 12
Fort Atkinson, WI 53538-9762

Or email to: *t.d.eisele@att.net*

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A New Decade

By Tom Eisele

We sometimes make too much of artificial divisions and signs, such as the turning of the decade. Is January, 2020 all that different from December, 2019? Of course not. Still, these markers can be handy tools, if we don't place too much faith in them, or put too much emphasis on them.

Any stretch of 10 years can be an interesting way to measure human change, and perhaps human progress. What might we look for on the aviation front in the years ahead as we move into the 2020s?

Militarily speaking, we are entering a decade of new fighter planes, headlined by the stealth technology displayed in the F-22 Raptors and the F-35 Lightning IIs (featured on our cover). How remarkable they are – incredible speed, incredible firepower, and remarkably cloaked from radar.

Also on our cover is the P-51 Mustang, which was, in its time, a big step forward. It gave us the ability to fly roundtrip from our bases in East Anglia in England to targets across western and central Europe. That mattered deeply in 1944-45, as we were winning the air-war in Europe (featured last issue by the Ploesti Raid story, and this issue by the article on Frank Birmingham's exploits in the 8th Air Force).

The B-25 Mitchell medium-range twin-engine bomber ("Triple Four") set on display at the Milwaukee airport, and reported on so well by Ron Wojnar in this issue, is another marker of aviation advancement. It connects us with the Doolittle Raid against Japan in World War II, the Cold War nemesis during the 1950s, and the continuing efforts of the Wisconsin Air National Guard to stay ready, always on the alert.

Ron's use of the long excerpt from Paul Poberezny in his "Triple Four" article also connects us, not only with the ANG, but also with the origins of the EAA. Look how far recreational aviation, and experimental aircraft, have come in the past decades. We are reminded that EAA has grown into an international beacon for aviators around the world, even as we report in this issue on its next gathering in July 2020 in Oshkosh, and the Light Aviation Safety seminar being held in March 2020. This next decade undoubtedly will see important changes in the burgeoning world of recreational aviation.

Commercial aviation also holds the stage in today's world. What will become of the Boeing 737 MAX? Harold Dahlstrom walked us through several of the concerning questions about the handling of this plane (Summer 2019 issue). Have these questions and concerns been adequately addressed and answered – by Boeing and by the FAA? I suspect we'll hear very much more on this topic in the months and years ahead.

* * * * * * * * * *

Marking decades inevitably marks the passage of time. In closing, I want to salute Duane Esse's heart-felt tribute to his years of flying and instruction. He is eloquent in saying why *now* is the time for him to stop flying. Well said, sir, well said.— TDE

Evolution in aviation continues apace, as shown above and below.

ERRATUM: We apologize for the reference to "Sullivan" in the Winter 2019-2020 issue of *Forward in Flight* [page 13]. We all know the heroism shown by "Sully" Sullenberger on that cold January day in 2009. The mistake can be attributed only to human error — mine.

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