



# AAHS FLIGHTLINE

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*Mark IX Spitfire headed to Normandy with a special cargo of beer. Note the beer kegs under the wings.*

## Beer Carrying Spitfires!

Ahh, those resourceful Brits!

After D-Day many fighter pilots found themselves operating from forward bases in Normandy – a long way from their local pub that had sustained them

### Highlights of What's Inside

- [Beer Carrying Spitfires!](#)
- [War Eagles Air Museum](#)
- [Hey, Where's the Pilot!](#)
- [Aviation Research and the Web](#)

### Regular Sections

- [Donations](#)
- [Book Reviews](#)
- [Wants & Disposals](#)
- [AAHS Photo Archives Update](#)
- [New Members](#)

during downtime between flights. With only the aplomb that a fighter pilot would possess, units were determined not to be denied.

During the war the Heneger & Constable brewery donated free beer to the troops. The logistics of supplying troops in Normandy limited shipments to only the vital necessities required to sustain the war effort. Beer was not recognized as one of these necessities.

Many units resorted to “scrounging” wine from local sources as one method to obtain this essential human lubricant. Another alternative was stuffing bottles in any available space of a fighter – ammunition boxes, luggage compartments, or even parts of the wing were partially effective. But due to the limited space in this type of aircraft, squadrons were faced with the fact that demand always exceeded supply.

So, faced with an economical source of beer and the logistics challenge to

transporting it to the forward units in Normandy, RAF Spitfire pilots hit on a novel solution. The evolution of the Spitfire’s development had resulted in the Mark IX having pylons on the wings for carrying bombs and fuel tanks. The pilots discovered that these hardpoints were readily adaptable to also carrying kegs of beer – transport problem solved. Various size kegs were used, based on



*Detail of beer keg mounted on the wing pylon. Note the marginal ground clearance.*

Text in blue are links



*Another Mark IX Spitfire with beer kegs mounted on the wing pylons. Note that these kegs are smaller than the ones previously shown.*

photographic evidence and it is unknown whether the kegs could be jettisoned in case of emergency. A side benefit of this method of transport was the Spitfire could climb to altitude during the flight, cooling the beer to a desirable temperature - thus allowing for immediate distribution and consumption on landing.

In lieu of carrying wooden kegs, long range fuel tanks were thoroughly cleaned so that they could be used for transporting the beer, though there are reports that the beer transported in this way acquired a distinct metallic taste. The press picked up on these flights, which may have been the reason for the modification actually receiving an “official” designation – Mod XXX.

With the supply and transport mechanisms in place, the units only needed authorization to operate their supply line. This was generally done with the unofficial approval of the higher-ups in the command chain. The specially adapted Spitfires were sent back weekly to the U.K. for “maintenance” or “liaison” purposes. Squawks were resolved as quickly as the supplies could be loaded.

In his book *Dancing in the Skies*, Tony Jonsson, the only Icelander pilot in the RAF, recalled beer runs while he was flying with 65 Squadron. Every week a pilot was sent back to the U.K. to fill some cleaned-up drop tanks with beer and return to the squadron. Jonsson hated the beer runs as every man on the squadron would be watching you upon arrival. Anyone who made a rough landing and dropped the tanks would be the most hated man in the squadron for an entire week.

The publicity gained through the press for the beer flights

also probably led to their downfall. In typical government fashion, the British Revenue of Ministry and Excise on learning about the Mod XXX began notifying the breweries that they were in violation of the law for exporting the beer without having paid the appropriate taxes. While this put a damper on the situation, squadrons in Normandy still managed to find ways to get their libations.



*A Mod XXX tank being prepared for shipment. This photo was likely staged in that hanging the tank after filling would have required a lot more effort than if it were filled after it was mounted on the aircraft.*

# War Eagles Air Museum

by Terry Sunday

Perched atop an arid mesa about seven miles west of El Paso, Tex., near the nondescript stucco warehouses and low industrial-style office buildings of the Verde Santa Teresa Logistics Park, the Doña Ana County Airport hardly attracts any local attention. An uncontrolled field with a single 11,000-foot east-west runway, the airport's tenants include a couple of flight schools and FBOs, an array of rental hangars and a skydiving school. Located several miles from Interstate 10, the airport is well off the beaten track. Unless you happen to land to refuel your airplane (there's no "people food" available), you probably wouldn't think twice about stopping there. And that's a shame, because Doña Ana County Airport also hosts one of the Southwest's premier aviation attractions—War Eagles Air Museum.

Fans of historic warbirds and classic automobiles are in for a real treat at War Eagles, which houses one of the largest collections of historic military and civilian aircraft, classic automobiles and aviation artifacts in the Southwest. Many of the WWII, Korean War and Vietnam-era aircraft on display are of great historical interest. Inside the huge exhibit hanger (an enclosed area as big as a football field), located on the airport ramp, visitors take a trip back in time as they stroll among more than 30 professionally restored American, British, German and Soviet aircraft. On display are a Curtiss P-40E Warhawk, a Lockheed P-38F Lightning, a Grumman TBM-3E Avenger, a Vought F4U-4 Corsair, a very rare original TEMCO-modified two-seat North American TF-51D Mustang (one of only 24 ever built, and the only airworthy one in the world) and many other noteworthy aircraft. Representing both sides of the Korean

War are a North American F-86 Sabre and two MiG-15s, one of them a two-seat trainer. The museum's recently restored MiG-21PFM is one of the nicest examples anywhere, and the exceptionally rare WWII-era Tupolev Tu.2 is one of only four on display anywhere in the world. Examples of civil aircraft from the Golden Age of Aviation include an exquisite 1937 WACO EGC-8 cabin biplane, a Douglas DC-3 and one of the world's oldest flyable Piper aircraft, a 1937 40-hp J-3 Cub. The museum maintains many of these magnificent machines in flyable condition.

More than 40 American, British, German, Japanese and Italian automobiles from days gone by reside in an adjacent annex, ranging from a 1908 Overland to a 1981 Jaguar XJ6. Highlights of the collection include a 1962 Aston Martin DB4 (forerunner of the James Bond "Goldfinger" car), a rare 1958 Cadillac Biarritz convertible (one of only 600 made), a classic 1935 Auburn Boattail Speedster and a 1936 Packard Super 8 convertible. Most of the automobiles are drivable. Occasionally, lucky visitors can thrill to the rasping exhaust notes of a Jaguar E-Type Series II, a Maserati Ghibli convertible or a classic MG-TD as volunteer drivers exercise them on the ramp. In addition to marveling at the pristine condition and historical significance of the aircraft and automobiles, visitors can spend hours examining hundreds of other artifacts on display—engines, instruments, weapons, photographs, documents, newspaper clippings, uniforms, scale models and more. Also, a section of the museum celebrates "Women in Aviation," which is of particular local significance because the Cessna 140A *Cotton Clipper Cutie*, in which El Pasoans Ruth



Vought F4U-4 Corsair, NX53JB, BuNo. 81698. (Photo by Terry Sunday - background photo by Bill Faulkner)



*Interior shot of the museum with P-40E, P-38F, Stinson Reliant and Waco EGC-8, clearly visible. (Photo by Bill Faulkner)*

Deerman and Ruby Hayes won the 1954 Powder Puff Derby air race, is on display.

War Eagles Air Museum started out as a long-time dream of West Texas engineer, rancher and oilman John T. MacGuire and his wife Betty. John and Betty, both pilots themselves, began to amass a very impressive private collection of warbirds in the 1980s. As the collection grew, the MacGuires searched for a place to erect a museum to display their collection to the public. The cities of Reno, Nev., and Las Cruces, N.M., vied for the honor of hosting what became War Eagles Air Museum. But John and Betty, then living in El Paso, Tex., decided to build the museum near their home. The Doña Ana County Airport, just across the Texas-New Mexico state line, filled the bill perfectly. Construction of the facility complex, consisting of a 64,000-square-foot main exhibit hangar, a smaller storage hangar and a restoration shop, started in mid-1987. The museum opened to the public on September 13, 1989.

From the beginning, War Eagles Air Museum has been dedicated to educating visitors about the roles of aircraft in maintaining America's freedom and protecting its interests around the world. Admission prices are very nominal, and have increased only once in 22 years. Five dollars for an adult admission is a bargain for aviation and automobile enthusiasts to see this remarkable collection. In line with the museum's educational mission, children and students of any age, including adults (with educational institution ID), are admitted absolutely free of charge.

During the 1990s, War Eagles Air Museum held "mini-airshows" on the first Saturday of each month (weather permitting). Hundreds of people gathered on the ramp to watch as museum staff and volunteer pilots put some of the classic warbirds through their paces.

The crowds were delighted with aerial maneuvers featuring the P-40, the F4U-4, the TF-51D and the Fieseler Fi.156 Storch. Operating expenses, maintenance and insurance costs ultimately spelled the end of these airshows. Although most of the museum aircraft are maintained in flightworthy condition today, the only ones that currently fly on occasion are the 1943 Boeing-Stearman PT-17 Kaydet, the 1942 Vultee BT-13B Valiant, the 1944 North American AT-6F Texan and the 1947 Globe GC-1B Swift. Occasionally, visitors are treated to an engine runup of one of the museum's two Mustangs.

The museum has an excellent climate-controlled library containing thousands of aviation and history-related books, loose and bound periodicals, photographs and documents. Volunteers are currently cataloguing the library's holdings. When completed, the catalog will be distributed to local municipal and university library systems, and to researchers on request, who will then be able to sign up to use the library's dedicated work center, complete with computer, copier and other facilities. The museum also conducts oral history interviews of military pilots and aircrew members in conjunction with the Library of Congress Veterans' History Project. Current and past issues of *Plane Talk*, the museum's acclaimed quarterly newsletter, are posted for download at [www.war-eagles-air-museum.com](http://www.war-eagles-air-museum.com). The website also includes information about the exhibits, restoration projects, memberships and more.

War Eagles Air Museum may be a little out-of-the-way and hard to find, but most visitors feel it is well worth the effort. AAHS members are especially welcome, and will certainly find something to make their visit memorable.



*Another view of the interior with T-28, TBM-3E and DC-3 being the most evident from this view. (Photo by Terry Sunday)*

# Hey, Where's the Pilot!



*Lockheed/Kaman K-MAX UAT, N131KA, picking up a pallet load during flight testing in Yuma, Ariz. (Lockheed photo)*

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History was made December 17, 2011, when the USMC VMU-1 squadron flew a Lockheed-Martin / Kaman Aerospace Corp. K-MAX Unmanned Aerial Truck (UAT) on a 90-minute supply flight from Camp Dwyer, Afghanistan, to Combat Outpost Payne in Helmand province. What is historic about this flight is that it is the USMC's first operational use of an unmanned helicopter designed for resupplying troops in remote locations. The K-MAX UAT successfully delivered 3,500 pounds of supplies to troops at a forward operating base without risk to a pilot or crew. The December 17 flight kicks off a six-month field test. At the end, the Marine Corps could decide to press more of the helicopters into service.

"We delivered cargo today that was supposed to be delivered by convoy," said Maj. Kyle O'Connor, the officer-in-charge of the squadron's unmanned helicopter resupply operations. "Now that convoy has three pallets that it does not have to carry."

In addition to its resupply role, the K-MAX UAT can provide precision aerial delivery in high-hot conditions without endangering the operating crew. Operating around-the-clock in any weather or terrain, the UAT will generate and sustain combat power through delivery of priority cargo services such as fuel, ammunition, and time-sensitive maintenance and medical supplies.

Lockheed Martin and Kaman have successfully transformed Kaman's proven K-MAX helicopter into an unmanned aircraft system (UAS) capable of autonomous or remote controlled cargo delivery. Its mission: battlefield cargo resupply for the U.S. military.

The K-MAX UAT is a transformational technology for a fast-moving battlefield that will enable Marines to deliver supplies either day or night to precise locations without risk of losing life in the process. The aircraft can fly at higher altitudes with a larger payload than any other rotary wing UAS. With its four hook carousel, the K-MAX UAT can also deliver more cargo to more locations in one flight.

The K-MAX relies on the two primary advantages of synchropters, which use two counter-rotating main rotors, over conventional helicopters. The first of these is the most efficient of any rotor-lift technology; the other is the synchropter's natural tendency to hover. This increases stability, especially for precision work in placing suspended loads. At the same time, the synchropter is more responsive to pilot control inputs, making it possible to easily swing a load thus to scatter seed, chemicals, or water over a larger area.

The K-MAX UAT was originally developed and demonstrated as part of a U.S. Marine Corps Limited Technology Demonstration in 2001. A demonstration for the U.S. Army in 2003 proved that the system is capable of lifting up to 6,000 lbs at one time using a multi-hook system to carry four separate loads in one mission.

The team has flown the K-MAX UAT more than 750 hours in autonomous mode since joining forces in 2007. The rugged system can lift and deliver a full 6,000 lbs of cargo at sea level



*Lockheed/Kaman K-MAX UAT, N131KA, undergoing pilotless flight testing in Yuma, Ariz. (Lockheed photo)*

and more than 4,000 pounds at 15,000 ft density altitude.

The K-MAX continues to exceed expectations as an unmanned platform. The aircraft has met all unmanned milestones to date and continues to excel in the commercial logging and firefighting industries. The aircraft will remain optionally piloted for ease of National Airspace Operations, occasional manned mission flexibility, ferry flights, rapid integration of new mission equipment, and allow rapid return-to-service activities.

The 6,000 lb payload of the unmanned K-MAX UAT in support of the resupply and distribution system fulfills a significant capabilities gap. Past UAS payload emphasis has

focused on relatively small intelligence and communication sensors and mission equipment packages due to limited lift capability. Capable of operating around-the-clock in any weather or terrain, the K-MAX UAT can support combat power through sustainment operations and delivery of priority cargo services.

Additionally, the K-MAX unmanned multi-mission helicopter is demonstrating unforeseen capabilities for assisting military and civil homeland security personnel. The unmanned K-MAX is potentially an ideal asset in a civil or military biological or chemical contaminated environment and as a metropolitan first responder.

## K-MAX UAT

### General characteristics

- Crew: 1 (optional)
- Capacity: 6,000 lb (2,722 kg) external load
- Length: 51 ft 10 in (15.8 m)
- Rotor diameter: 48 ft 3 in (14.7m)
- Height: 13 ft 7 in (4.14 m)
- Empty weight: 5,145 lb (2,334 kg)
- Useful load: 6,855 lb (3,109 kg)
- Max. takeoff weight: 12,000 lb (5,443 kg)
- Powerplant: 1 x Honeywell T53-17 turboshaft, 1,800 shp

### Performance

- Maximum speed: 100 knots (185.2 km/h)
- Cruise speed: 80 knots (148.2 km/h)
- Range: 267 nm (494.5 km)

### Key features and benefits:

- Multi-mission capability – 6,000 lbs payload, significant rugged structure for equipment mounting
- Based on a proven helicopter platform - 98-99% availability rates
- Standard day, 5,000-pound payload, 185km range with reserve

- 12 hours+ endurance demonstrated
- BLOS Control
- Programmable waypoint navigation
- Dynamic re-tasking
- Multi-hook carousel for multiple delivery sites in a single mission
- Control hand-off
- Auto-land/auto-takeoff
- Significant payload vs. altitude capability
- 50 hp (37kw) auxiliary power
- Low fuel consumption
- Precision delivery
- Low noise levels
- Low down-wash

### Optionally piloted offers:

- Safety pilot for new mission equipment integration
- National airspace operations
- Expedited flight testing
- Lower system integration testing costs
- Available for piloted missions

# Aviation Research and the Web

In the past few years there has been a proliferation of books and documents available on the Web. Even the current trend toward eBooks appears to be accelerating with the popularity of eReaders such as the Amazon Kindle, Barnes & Noble Nook, Apple iPad and Android based tablet PCs. All of this has a positive impact for individuals doing aviation research for articles, books or their own personal edification in terms of lower cost and ease of access. This article will explore some of the material available as well as access points.



Color Nook with AAHS FLIGHTLINE displayed.

Don't have one of the devices mentioned above? Don't worry. Most of the content suppliers (Google, Amazon, Apple and Barnes & Noble) provide applications that will run on your PC or Apple desktop or laptop computer. Because there are multiple eBook formats, it may be necessary to download a copy of each application, which fortunately are free for the asking.

The current industry trend is that eBooks tend to be less expensive than their printed alternative. So, if you're on a limited budget and more interested in access to content than having an eventual dust collector on your book shelf, the eBook versions can save you money. Also, it is becoming more likely that you can find a readily available eBook version of a title that is no longer in print. Many publishers are moving in this direction because it gives them an alternate source for publications that they just can't justify issuing additional printings for – and that revenue stream costs them practically nothing to tap into. Let's look at an example to help illustrate this point. Seth Shulman's *Unlocking the Sky: Glenn Hammond Curtiss and the Race to Invent the Airplane* published in 2003 will set you back \$14.33 for the paperback version while the eBook version is \$9.99 (from Amazon). [Note: all prices are for new books, not used.]

## Google Books

For the aviation history enthusiast and researcher, there is a treasure trove of free material available on the Internet. The single, largest concentration of material can be found on Google. This relates back to a project started by Google in 2004 with the Google Print Library Project, which today has evolved into Google eBookstore with over three million titles

available – a good number of them available for free. Google even provides an automatic search restrictor so you can limit your searches to free books.

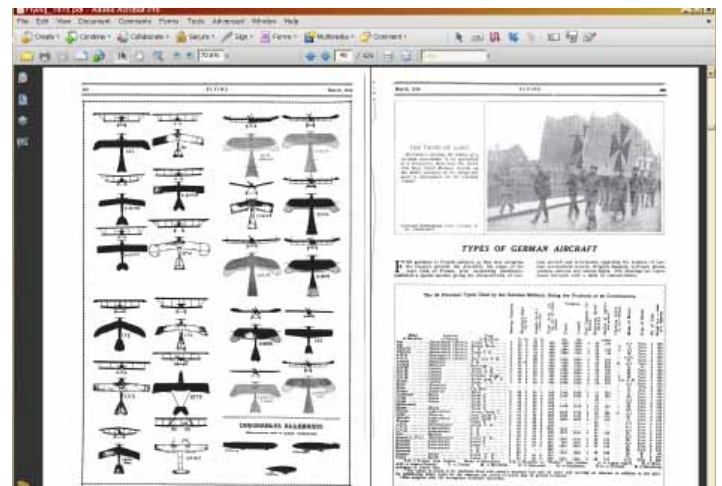
Unfortunately, most of these publications today are limited to pre-1922, due to copyright restrictions. This includes public domain government reports and congressional proceedings that are public domain. We hope Google will update their system in the near future to allow access to these documents as well. But, if you are researching early aviation, there is a wealth of information. For example, you can find the Manufacturer's Aircraft Association year books for 1919, 1920 and 1921, as well as the 1912 *The Curtiss Aviation Book* by Glenn Curtiss and *Flying* by the Aero Club of America 1915 issues.

Under the Print Library Project, Google is scanning millions of copyright books from libraries at Harvard, Michigan and Stanford along with out-of-copyright materials there and at two other libraries. This has led to a number of copyright infringement law suits, of which some settlements are still pending. In addition to scanning library holdings, Google also entered into relationships with authors and publishers, by which Google can include copyrighted material.

James Hilton, associate provost and interim librarian at the University of Michigan, said his school is contributing seven million volumes over six years because one day, materials that aren't searchable online simply won't get read. Additional partners in the project include Harvard University Library, New York Public Library, Bodleian Library (Oxford University, England) and Stanford University Libraries. Since these initial five, a number of other large public and university libraries have joined the program.

## Other Sources

Independent of Google's efforts, a number of other online sources exist for eBooks. For original source material, the *American Memory Project* of the Library of Congress is providing access to document and manuscript scans such as



1915 Flying magazine pages from Google Books displayed on a standard computer screen monitor.

Alexander Graham Bell's papers and correspondence. The Gutenberg Project, a private non-profit activity claiming to be the first and largest single collection of free eBooks, where you can find a 1913 copy of *Jane's All the World's Aircraft*. The Universal Digital Library's Million Book Collection with the backing of Carnegie Mellon University, though it appears to have a very limited aviation related offering today.

Another source for aviation related eBooks are U.S. government websites such as NASA Dryden Flight Research Center, Naval History and Heritage Command and the USAF Historical Studies Office. With a little surfing, there are probably additional sites that provide free eBook material.

### eBook Formats

A vast majority of eBooks available on the Web are in Adobe Acrobat Portable Document Format, or PDF for short. Adobe provides free versions of the Acrobat Reader application available for almost any type of computer including smart phones. In addition to PDF formats there are a number of additional book publishing formats including EPUB, Kindle, HTML, DjVu and good old plain text. While many eReaders have applications that support these and other formats, some have limitations – for example the Nook Color reader from Barnes & Noble does not have the ability to read a Kindle or DjVu formatted file, but the Nook Tablet does because it is an Android-based system. The full-up desktop/laptop computer (Windows and Mac OS) systems have applications for everything you might encounter.

For the history enthusiast and researcher, it is getting easier and more cost effective to use the Web as a primary resource. Even when not primary, the material discovered here can help narrow or identify collections for future visits, thus saving valuable time and expense. All it takes is a bit of effort, an inquisitive mind and access to the Internet. By the way, don't forget that most public libraries today can provide access to

equipment and the Internet if you don't have it yourself. They even have staff that will help you get started. So, no excuses, the AAHS is looking for the fruits of your labor.

### Research Resources:

Google Books: <http://books.google.com/books>  
Project Gutenberg: [http://www.gutenberg.org/wiki/Main\\_Page](http://www.gutenberg.org/wiki/Main_Page)  
Library of Congress, American Memory Project: <http://memory.loc.gov/ammem/index.html>  
The Universal Digital Library: <http://www.ulib.org>  
Naval History and Heritage Command: [http://www.history.navy.mil/research\\_and\\_collections.html](http://www.history.navy.mil/research_and_collections.html)  
NASA Dryden Flight Research Center: <http://www1.nasa.gov/centers/dryden/about/Organizations/TechPubs/resources.html>  
USAF Historical Studies Office: <http://www.afhso.af.mil/booksandpublications/titleindex.asp>



An unusual Grumman Wildcat. BuNo 4038 started life as an F4F-3 but was converted to an F4F-3S floatplane for test and evaluation. Seen here on February 12, 1944. (AAHS photo archives, AAHS-394)

## AAHS FLIGHTLINE Sign-Up Reminder

For those that want to be notified by email when the next issue of the *AAHS FLIGHTLINE* is posted, please register your email address online. You can do this by going to the AAHS website "home page." At the bottom of this Web page is a link and instructions that will allow you to register your email address. This is an "opt in" program. Only those that request notification will receive one. The AAHS will not use your email address registered here for any other purpose than to notify you of a *FLIGHTLINE* posting. You have control and may remove or change your email address at any time. Remember that the electronic version of the *AAHS FLIGHTLINE* is in color.

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The following members have made generous donations to the AAHS. These donations go into the general fund to help pay the costs of producing the *Journal* and *FLIGHTLINE*. All monies are used to support this activity and no salaries are paid to any board member even though many hours are spent by these individuals in promoting and maintaining the Society.

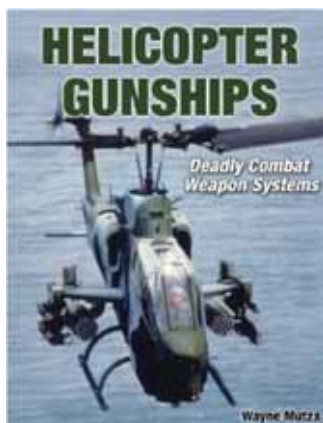
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*Background photo composite by Robert Burns*

# Book Reviews

## **HELICOPTER GUNSHIPS – Deadly Combat Weapon**



*Systems*, by Wayne Mutza. Specialty Press, North Branch, MN, [www.specialtypress.com](http://www.specialtypress.com), 2010. ISBN: 1580071546. Hardcover, 8.5" x 11," 208 pages, numerous photos. \$39.95

*Helicopter Gunships* is an excellent read, as it is not only a documentary of helicopter operations but an interesting and informative narrative. I found this book to be very accurate, and a must-read for anyone interested in rotary-wing gun platforms. For those of us

who flew these aircraft and/or acted as support personnel this book would be a welcome addition to their library. I, for one, thoroughly enjoyed it.

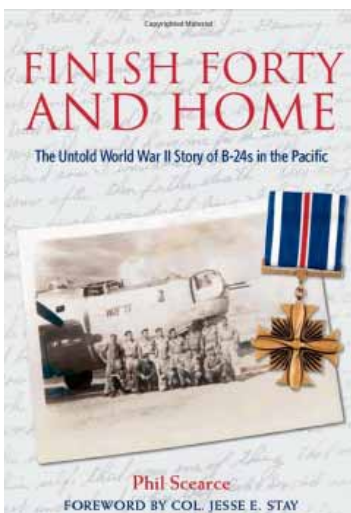
From the first page, it is evident that Wayne Mutza has done his research, and done it well indeed. As helicopters in general became a viable and increasingly valuable component in military aviation, so too has its value as a military gun platform. The book covers early days of rotary-wing flight for military purposes by the U.S. Army Air Corp in 1938, and the subsequent innovations created for military use of helicopters as gunships, up to 21st century use of helicopters in military operations around the world.

Wayne Mutza guides you through all of the research and developmental versions and applications of these versatile machines, spanning many different countries and conflicts. He includes a comprehensive bibliography and index for the serious researcher.

For the rotary-wing fan, this book is a great addition to your library.

Paul Hungerford, III

## **FINISH FORTY and HOME; The Untold World War II Story**



*of B-24s in the Pacific*, by Phil Searce. University of North Texas Press, Denton, Tex., [www.untpress.unt.edu](http://www.untpress.unt.edu), 2011. ISBN: 1574413163. Hardcover, 6.5" x 9.5," 352 pages. \$29.95

History comes in two flavors: the Academic recitation of events and dates, and Personal accounts. This book is clearly the latter. Phil Searce recounts the journey of his father's service in WWII. Well researched, augmented by personal photographs and interviews with many of those who

experienced the war flying on B-24s in the Pacific, the reader is given an intimate glimpse of the sacrifices these crews made.

Like many young men of their generation, Herman Searce did not have a bright future in December 1941. He lied about his age and joined the Army. His early life had been difficult as his parents argued much and eventually divorced. Poverty meant little food, few friends and moving when the rent was due. The Army gave him structure, a place to call home and regular meals.

Basic training was followed by an assignment to Radio School to learn Morse code and radio theory. A visit by Air Corps recruiters suggested that flying would be more interesting than Radio School and the increase in pay if you were on flying status convinced him. Besides, one received a cool leather jacket! However, Herman now had to pass the tough physical for gunnery school. In September 1942 he became a radio operator/gunner with the rank of staff sergeant at age 17 (the Army thought he was 20).

Next was assignment to a B-24 crew for flight training. That completed, in February 1943 his crew was assigned a new B-24D and orders to report to Hickam Field, Hawaii. The B-24 was judged to be better suited than the B-17 to operate in the Pacific theatre as it had longer range, greater speed and a service ceiling of 35,000 feet. It also had a weak underside and fragile bomb bay doors that made a water landing hazardous and the fuselage/wing junction was prone to failure when damaged. The airplane had to be flown constantly and pilots developed their left arm muscles as the right hand was used to cover the throttles. Nevertheless, improved versions did the job of delivering bombs on target.

The book title refers to the need to complete 40 combat missions before one would be eligible to return to the United States. Searce soon found out that training, patrol, search and transfer missions did not count. Thus initially, his count seemed to creep while his hours spent in flight mounted much more quickly. In time he would realize that building crew experience would pay dividends on the real combat missions when all had to act together to save themselves. A damaged B-24 was difficult to bring home over the vast expanses of the Pacific.

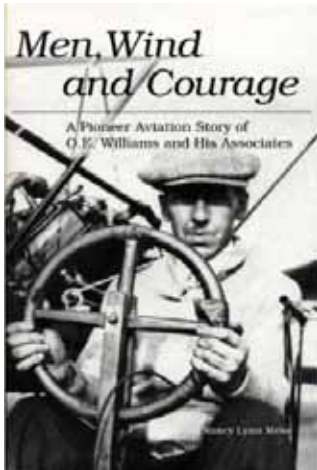
Not until 1944 were combat missions more numerous. Their main task was to soften the defenses of the islands to be invaded by the Army and Marines. This exposed them to anti-aircraft fire and Japanese fighters while near the target but the real enemy proved to be the unforgiving Pacific Ocean. Navigational errors caused bombers to fly past their bases to ultimately crash when fuel was exhausted. Those lucky enough to be found by search aircraft would survive to fight another day. Those found by the Japanese would be killed or imprisoned in terrible conditions. For those left behind, the uncertainty of what had happened to their friends left a hole that was difficult to fill.

The author recounts the memories, exploits and adventures of Sergeant Herman Searce and the men who became his friends. In doing so, the real understanding of life in combat is revealed and it is not the few but dangerous times spent fighting the enemy. This book is a tribute to the human spirit and those who gave their lives defending freedom.

If you have an interest in the personal side of war, this book is recommended reading.

Adrian Ryneveld

**MEN, WIND and COURAGE – A Pioneer Aviation Story of O.E. Williams and his Associates,** by Nancy Lynn Mess.



William Martin Press, Ithaca, N.Y., 2009, ISBN 978-0-615-30901-9. Softbound, 406 pages, b&w photos, notes, sources and index. \$27.99.

In the years immediately after the Wright Brothers flight, many individuals tried to capitalize on the new field of aviation. Some names, like Glenn Curtiss, are familiar to the ardent aviation enthusiast. But there was a larger group of individuals who either purchased

or built their own aircraft and made a living by providing services and entertainment around the country. This reviewer, like many others, refers to this latter group as barnstormers. Barnstormers introduced aviation to the masses, and thus helped establish the civilian aircraft industry. The names and stories of most of the barnstormers are unknown to many of us.

The book's author was going through some family records one day and found she had a great uncle who was a barnstormer. The gentleman's name was Osbert E. (O.E.) Williams. Intrigued, Ms. Mess researched the story of her great uncle and those associated with him through family records, newspaper articles and public records.

Born in 1875, O.E. Williams was originally trained as an engineer and made his living supervising power plant related projects. By chance, Williams met and assisted Cal Rodgers during his transcontinental air trip in September 1911, the first such trip made. After this meeting, he became an ardent aviation enthusiast. Initially he made building and flying aircraft his avocation, but eventually Williams made aviation his profession. His activities eventually included exhibition flying, operating a flight school and designing and producing aircraft. Ms. Mess claims that Williams made a key modification to the pitot tube which allowed accurate air speed readings.

Included in the book's text are reproductions of many of these sources. For example, as a publicity stunt, a Scranton, Pa., newspaper printed an "airship" edition of its paper and delivered them using an airplane Williams designed and built. The front page of this special edition is reproduced in the book. The front page is largely filled with a humorous cartoon portrayal of this stunt and is worth a look.

The book also details many of the stunts the pilots would perform at air shows. In addition to loops and fly-bys, Williams and other pilots staged reenactments of WWI aerial combat. In addition to dog fighting, fake exploding bombs were dropped, something that is continued to this day with the air-show pyrotechnics.

O.E. Williams died in a crash in 1917 while attempting a night landing. Accidents took the lives of most of the barnstormers described in the book,

Unfortunately, while the author has uncovered a wealth of detail about Williams and others, she does not do a good job of presenting this material. The reader has to plow through a mountain of details that are largely irrelevant to the aviation theme. For example, Williams was a supervisor at a power plant. Ms. Mess spent several pages describing the power

plant. The organization of the material is seemingly random. The story does not follow Williams continuously. It skips around to various associates. The disarray of the chronology is compounded in the author's mention of Williams' death in a section about another person. Throughout the 406 pages, the text is not well edited. Whole paragraphs are repeated on some page.

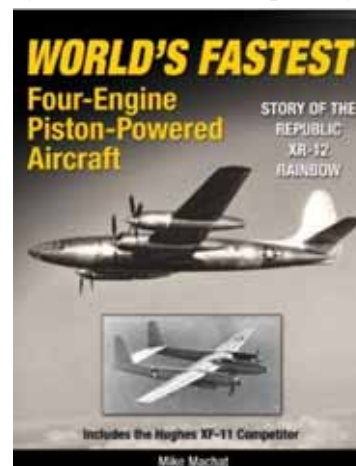
The book may be of value to someone who wants detailed information about the life of a barnstormer as well as illustrations and other memorabilia from that era. Regrettably, I cannot recommend this book for someone who is looking for a casual read about this early era in civilian aviation.

Bruce Lerner

**WORLD'S FASTEST FOUR-ENGINE PISTON-POWERED AIRCRAFT, the Story of the Republic XR-12 Rainbow,** by Mike Machat.

Specialty Press, North Branch, Minn.,

[www.specialtypress.com](http://www.specialtypress.com), 2011. ISBN: 1580071635. Hardcover, 8.8" x 11.3," 144 pages, numerous photos. \$32.95



If there were a list of "Best Aviation History Books of the year," this book would make the list. Mike Machat has provided a delicate balance between a well-written description of an advanced but obscure airplane, the XR-12 Rainbow, the relevant aviation history, its technical

details and a generous array of photographs and illustrations. He also includes descriptions of its competitor, the Hughes XF-11.

Near the end of WWII, the U.S. Army Air Force recognized the need for a high-speed, long-range, high-altitude photo reconnaissance aircraft. It had to operate day and night; providing high-definition photographs developed while the aircraft was still in flight. A tall order, indeed. Two companies were selected to provide two prototypes each: Republic Aviation Corp. and the Hughes Aircraft Company.

The XR-12 Rainbow was designed by Republic's chief designer, Alex Kartveli, best known for his P-47. Equating speed with power, he selected four radial piston engines housed in sleek nacelles. A high-aspect ratio wing provided low drag and good altitude performance. The fuselage was sleek and the bullet-shape nose decreased drag to a minimum. To accomplish the mission, it carried a crew of seven. The proposal was delivered January 1944, the contract was let in March 1944 and the first prototype was ready to taxi on February 4, 1946. The second prototype made its first flight in August 1947.

Not all flight tests were without incident. In July 1947, during a maximum landing weight qualification flight at a high rate of sink, the hard touchdown snapped off the right main gear. The aircraft did not pancake onto the runway, but with skillful piloting, returned to flight. As it settled onto terra firma on the second landing attempt with the fuel turned off, the right wing scraped the ground and the propellers on the right wing

Book Reviews (continued on page 12)

suffered serious damage.. The airplane had shown its structural integrity. As there was no fire, the airplane could be rebuilt.

The second prototype was more complete than the number one airplane. Outfitted with government furnished equipment, it was nearly mission-ready. It had cameras and a photo processing lab. It proved its capability by making a non-stop high altitude flight across the United States in seven hours while taking high-definition photographs. Unfortunately, this ship was lost November 1948 due to a fuel leak with a subsequent explosion and fire. Five crewmembers survived; two were lost.

The Hughes XF-11 was a twin-engine design similar to a P-38. It was much smaller than the XR-12, but with a similar high-aspect ratio wing of 1,000 square feet for altitude performance. It had a normal crew of two and just enough space to carry the required complement of cameras. There was no provision of onboard film development. Handling was more like that of a fighter and its speed met the specifications. Unfortunately, the first prototype was lost on its first flight nearly killing Howard Hughes. The second prototype was flown longer but was struck from the Air Force inventory in November 1948 and ultimately scrapped.

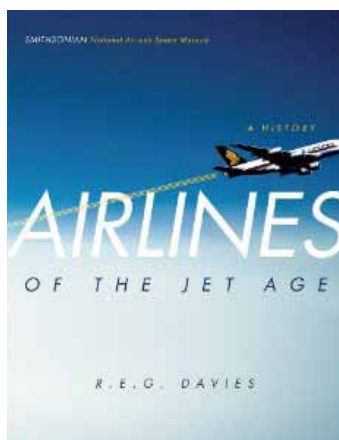
Republic tried to sell the Rainbow as a fast commercial airliner but just as it was seen as an advanced design by the Air Force, the airlines also recognized it would be eclipsed by jet-powered aircraft. Except for the general aviation RC-3 Seabee, Republic went on to build military aircraft until its last design, the F-105 Thunderchief ended its run. The company was taken over by Fairchild.

The Rainbow was a brilliant design that failed only because the requirements changed. Other aircraft were used to fill the role that the XR-12 had been designed for: the RB-50, RB-36, RB-45 and the RB-47. The need for photo-reconnaissance never went away. Aircraft filled that role until satellites and drones gave 'instant' viewing capability. The pinnacle was reached with the Mach 3 ultra-high-altitude Lockheed SR-71 Blackbird that went into service in 1965.

The Foreword is written by Col. Jack Boughton (USAF, Ret.). It relates his association with multiple Republic aircraft. While he did not fly the XR-12, his story is an added bonus.

Adrian Ryneveld

***AIRLINES of the JET AGE: A History***, by R. E. G. Davies. Smithsonian Institution Scholarly Press, Washington, D.C., 2011. ISBN 0978846087. Hardcover, 11" x 8.8" x 1.4," 415 pages, numerous photos. \$99.95



Davies, curator emeritus of the National Air and Space Museum's Air Transport, tells three tales in *Airlines of the Jet Age: a History*. (Editor's note: Mr. Davies passed away in June 2011.)

The first tale begins with the first airline jets. Two covers the "second" age, featuring such ships as the Boeing 747 and DC-10. Three continues with the "third" jet age, beginning with the Airbus 380.

The opus is a world-girdling reference book, an encyclopedia of modern air transport since 1919. The thoroughgoing comprehensive book contains 417 pages of text with 53 chapters, each averaging eight to 12 pages of text, and 40 pages of appendices and indices. The well-illustrated book has photos, charts, or maps on almost every page.

Davies first produced a history of the world airlines in 1964. This follow-on brings us up to 2011. As well as a history, the book contains a multi-faceted treasure trove of trivia for air transport history aficionados. For instance, that KLM operated every Douglas airliner even the rare DC-5. A Honduran airline, ANHSA starting with two DC-3s, transported mostly Aguardiente, a potent government monopolized beverage. One wag commented that the drink could be used for fuel. Lufthansa's "flying crane" tail-borne logo, oldest in the industry, dates back to 1919. So much for trivia.

He devotes chapters to every aspect of the airline business; Deregulation, European Transformation, the Rise of Asia and the Pacific Rim, the British Commonwealth Adjusts, South America: a Continent Made for Air Transport, Africa to the Cape and beyond, and the final part - the Third Jet Age Begins.

The book comments authoritatively on every airline that has ever operated a pure jet or turboprop aircraft. He lists over 250 airlines in the first four pages of the Index.

The book provides a no-holds-barred description of the demise of Braniff, Eastern, Pan Am, TWA, Western, Northwest, National, KLM, Swissair, Varig, Allegheny and Aeroflot.

Appendix Four states the Five Freedoms of the Air plus four others.

In the final part, he foresees a fourth jet age of mega-jets, ships with 1,000+ passengers landing at huge central terminals with a high-speed rail (HSR) facilities. A coupon purchased where the flight began would permit continuation of the journey to the destination via HSR. Davies believed this arrangement would eliminate the need for short range inter-city airlines.

The AAHS will offer the book, set to retail for \$99.95, to members at a 25 percent discount.

Bob Louderback



*Convair CV-600 conversion, N94294, was an upgrade from the basic CV-240 created by replacing the piston engines with Rolls-Royce Dart turboprops. (AAHS Photo Archives, AAHS-P12140.)*

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# Wants & Disposals

**DISPOSAL:** 90-year collection of aviation related items that include limited edition prints, posters, hardback and paperback books, 35mm color slides and B&W negatives, magazines, color and B&W photographs and a complete set of *AAHS Journals*. Some of the books are rare. Also available are diecast and built-up plastic models. For inventory listing, please contact me.

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York, PA 17403  
Tel: (717)-718-7904 [1:30-5:00pm or 6:30-11:30pm, Eastern]

**DISPOSAL:** The following aviation books are available:

- *ABOVE THE PACIFIC*, 1966, 1st Ed. by Wm. J. Horvat, @ \$15.00.
- *SEA WINGS*, by Jablonski, 1972, 1st Ed. @ \$15.00
- *JACKRABBITS TO JETS*, by Elretta Sudsbury, 1967, 1st Ed. @ \$20.00.
- *AIR WAR AT NIGHT SINCE 1915*, by R. Jackson, 2000, 1st Ed. @ \$14.00.
- *THE LAFAYETTE ESCADRILLE*, by Herbert Molloy Mason, Jr. 1964, 1st Ed. @ \$15.00.
- *FLIGHT TO EVERYWHERE, (HISTORY OF ATC IN WW II)*, 1944, 1st Ed., by Ivan Dmitri, @ \$15.00.
- *U.S. NAVAL AVIATION IN THE PACIFIC*, Issued by the Office of the Chief of Naval Operation, USN, 1947. (Prepared by air combat intelligent officers WWII) @ \$18.00.

Postage extra via U.S. Postal Service Media Mail.

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**WANTED:** I'm looking for help with a high-resolution image or a good quality print for scanning to be returned to the lender of the MX-324 at Wright-Patterson AFB, circa 1945. For my Northrop project I would appreciate the loan of a well defined and processed copy to scan, or a 600 dpi scan of a good print. Any help would be appreciated.

Gerald Balzer  
3615 E. Churchill St.  
Springfield, MO 65809  
(417) 869-9488  
[gbalzer626@sbcglobal.net](mailto:gbalzer626@sbcglobal.net)



*Need a quality copy of this photo or high-resolution scan of the MX-324 at Wright-Patterson AFB circa 1945 for a book project.*

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## AAHS Photo Archives Update

Volunteer work on the AAHS photo archives continues with cataloging existing and new contributions. This work includes scanning of both the print collection and a collection of glass slides. As of this date, the glass slide collection has been scanned and the primary work on this collection is cataloging of the images. Many of the images are from the 1920s and 1930s and have few identifying markings making the identification a challenge.

The online photo archive and database have been updated as of this *FLIGHTLINE* and now contains 50,481 entries in the database and an additional 2,600 images, bringing the total number of online large thumbnail preview images to over 14,200. We have also gone back and updated the database in an attempt to eliminate a number of occurrences where the thumbnail images were missing. Hopefully, this will reduce the number of such occurrences. If you do find a problem when using the database, please let the webmaster know (include specifics: negative number, etc.) so we can more quickly get

these fixed.

If you are interested in helping with the cataloging effort, please let Kase Dekker know ([kasedekker@aol.com](mailto:kasedekker@aol.com)). Please be patient as we may be late at responding.



*1948 photo of a Western Airlines DC-4 Skymaster, N88816. (From the Hufford collection, AAHS photo archives, AAHS-41074)*



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# AAHS Photo Archive CDs Series

The Society has recently started development of a series of photo CDs. These CDs contain high-resolution scans of negative, slides and prints from the AAHS Image Library. The resolution of these scanned images is sufficient to make an 8"x10" photographic quality print. Each CD focuses on a particular aspect of American aviation history - be that a particular manufacturer, type or class of aircraft.

As of this date, the following CDs are available. Each CD contains between 70 and 140 images depending on content.

- 1001 Douglas Propeller-Driven Commercial Transports
- 1006 Lockheed Constellations, Part I
- 1007 Lockheed Connies in Color
- 1009 Lockheed P-38/F-5
- 1011 Curtiss Transports
- 1021 Boeing Propeller-Driven Commercial Transports
- 1031 Golden Age Commercial Flying Boats



These CDs are available to members for \$19.95 (\$29.95 non-members) each plus shipping (\$2.50 U.S., \$5.00 International - add \$1.00 for each additional CD). Order forms are available online and on request, but a note along with your donation specifying your particular interest is sufficient.

Proceeds go to support the preservation of the photo archives. Do you have a particular interest or suggestion for a CD in this series? Drop us a line or email the webmaster ([webmaster@aahs-online.org](mailto:webmaster@aahs-online.org)). We are currently researching the possibilities of offerings covering the following areas: Connies Part II, Connies in Color, XP-56, Northrop X-4, Bell Aircraft, and Early Lockheeds.

# AAHS Print Service

The AAHS Print Service allows members to obtain photographs from the AAHS collection to support individual research projects and to expand personal collections. Images are made from negatives, slides or scans of high quality prints contained in the AAHS collection.

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