



Shattered Dream

Russia Destroys the An-225

It is, or rather was, the world's largest airplane. The Ukrainians nicknamed her *Mriya*, meaning "dream" or "inspiration." *Mriya* can now be added to the list of victims in the brutal invasion of Ukraine, begun weeks ago on the orders

of Russian President Vladimir Putin.

The An-225 was severely battered during the February battles around "Antonov Airport" (Hostomel, GML) but the damage could not be fully assessed until Russian forces withdrew from the area in early April.

It appears that the aircraft, last registered UR-82060, took a rocket or artillery round in the upper fuselage just forward of the wings. Most of the remainder of the aircraft was peppered with shrapnel.

Designed to tote the Soviet "Buran" knockoff of the U.S. Space Shuttle, the An-225 was built by the Antonov Bureau in Kiev (Kyiv).

Antonov was no stranger to large aircraft—the resemblance of the An-225 to the four-engine An-124 (NATO reporting name "Condor") is obvious. The still larger An-225 made its inaugural flight in in December 1988.

The next year, the An-225/Buran combo made quite a splash at the Paris airshow. A solo appearance at the 1990

Farnborough show completed a widely hyped introduction to the West.

The An-225 was in fact an impressive machine. Inevitably, comparisons were made with the nearest U.S. equivalent, the Lockheed C-5 Galaxy. With a wingspan some 27% wider than the Galaxy and boasting more than 50% higher maximum takeoff weight, the Antonov could justifiably claim "the world's largest" title.

After the collapse of the USSR and cancellation of the Buran program, the aircraft was mothballed for nearly eight years. Brought out of storage in 2001, a U.S. \$20 million refurbishment, including installation of quieter turbofans and up-to-date avionics, brought the big bird up to international certification standards.

The An-225 solidified its place in aviation history by hauling record amounts of cargo all over the world. *Mriya* appeared in American skies on several occasions, its many missions
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An Aviation Weekend in the California Wine Country!

Our Aviation Weekend is shaping up to be a relaxing jaunt through aviation history, surrounded by the vineyards of the Sonoma Valley. Don't miss out on this chance to visit some unique aviation venues, from vintage to space age, all included in one low price! (\$175 all events, \$80 Saturday only.) In these beautiful open air spaces, you can relax and enjoy aviation history with friends, old and new. You'll leave with new knowledge, great gifts, and perhaps even a bottle of wine or two!

Jerri Bergen

AAHS President

Click **HERE**
to Register!

Events Schedule ~ Non-members Are Welcome!

Friday, June 10

3:00 pm to 7:00 pm

The Rowland Freedom Center, 300 County Airport Rd. C4, Vacaville CA 95688. View classic warbirds, a unique 1912 homebuilt, vintage vehicles, and more at the historic Nut Tree Airport. We'll do a down-home BBQ social right at the airport—with a wine tasting!

Saturday, June 11

9:00 am to 4:00 pm

Sonoma Valley Airport, aka "Schellville Airport," 23980 Arnold Drive, Sonoma CA 95476. It's June "Display Days," featuring an ever-changing lineup of warbirds and classic aircraft. Schellville is home to The Vintage Airplane Co., where you can book a ride in their Stearman, "Big Red," or in one of the more exotic machines in the fleet.* Lunch will be catered. We'll have gift giveaways, a raffle, and book sale. Afterwards, we'll meander over to the **Sonoma Skypark, 21870 8th St E, Sonoma CA 95476** for our guest speaker's presentation.

* Cost not included in your registration fee.

Sunday, June 12

9:00 am to 11:00 am

The Aerospace Museum of California, 3200 Freedom Park Dr., McClellan CA 95652. We'll close out our Aviation Weekend in Wine Country with a docent-led tour of the museum, on the grounds of the former McClellan AFB. The museum boasts a sizeable collection of aircraft, including the USAF "century series" fighters, some contemporary USN and foreign jets, and a variety of transports and civilian types. Many other artifacts are on display, including historic aircraft engines dating all the way back to the legendary Curtiss OX-5.

We're all set, but . . .

Check the AAHS website for any last-minute updates.

AAHS HQ will be at the **Marriott Fairfield Inn, 370 Orange Drive, Vacaville CA 95687.** A special AAHS rate of \$129 per night (2-night minimum stay) is available—but hurry! Click **HERE** to for details and to make your reservation.

Get your tickets now for the AAHS Annual Meeting in beautiful Sonoma Valley!

All attendees will get their selection of one of the following: An original 1994 limited edition print of “Strategic Air Command’s” by aviation artist Nixon Galloway, signed by the artist and four SAC wing commanders.



~ Or ~

An original limited run print of “Short Flight–Long Walk Back” by Dan Kelly, signed by the artist and Roland Speer, the pilot of the P-51B in the painting. Speer gained some fame for his exploits after writing two books about his aviation experience, including his time as an AVG pilot, and did several speaking tours. Decades later, it was discovered that Roland had entirely fabricated his flying career, including the story depicted in this print.



(cont. from page 1) including airlifting oil refinery components from Milan, Italy, to Wichita, Kan., (via Bangor, Maine) and airlifting a 120-ton power generator from Raleigh-Durham (RDU), N.C., to Tanzania.

But the U.S. and NATO never lost sight of the An-225's military potential, assigning it the reporting name "Cossack."

Ironically, the An-225's last cargo run was a humanitarian mission, hauling 90 tons of Covid testing kits and PPE from Tianjin, China (TSN) to Billund, Denmark (BLL.) UR-82060 returned to Hostomel on February 5 where, deliberately or otherwise, it was destroyed in the battle that followed. ➔

Article by Joe Martin



The lone An-225, carrying the Buran orbiter, as it appeared at the Paris Air Show, 1989. The orbiter, clearly a copy of the U.S. Space Shuttle, made its one and only orbital flight, a 3-hour unmanned, auto-piloted mission, on November 15, 1988.

When the Buran program was canceled in the early 1990s, the An-225 was put in mothballs. Resurrected years later, it went on to a successful heavy lift career before being destroyed in its hanger during the Russian invasion of Ukraine.

Credit: Ralf Manteufel via <http://www.airliners.net>



Credit: USA Today



Credit: USA Today

(Above left) A Ukrainian soldier pats the broken nose of the "Dream." The damage is far too severe to be economically repaired.

(Above right) Even the less damaged portions of the aircraft are pocked with shrapnel holes.

(Right) The partially finished hull of the second An-225. Construction was halted years ago. Its current status is unclear, but Mriya is something of a national symbol. Some Ukrainian authorities believe the second ship could be completed. But replacing 1980s components would be a tough job, if it can be done at all.



Credit: Getty Images

No. 201 asked, “Is Supersonic Air Travel on the Horizon?” We take a fresh look.

Almost 20 years after the last flight of the Concorde, it would be a terrible pun indeed to say that supersonic air transport is again ready to boom. The problem, of course, is to reduce that boom to a level folks on the ground will tolerate. Here we look at a couple of aircraft that should provide some answers.

The Boom XB-1. Boom Technologies recently announced construction of its Superfactory campus just northwest of Greensboro, North Carolina’s Piedmont Triad International Airport (PTI/KGSO), future production site for the company’s Overture supersonic airliner.



Boom’s BT-1 ready for ground testing (Credit: Boom)

A Boom press release describes the Colorado ground tests: “The team is using engine runs to determine that everything functions as designed, from the stall susceptibility (due to the unique . . . configuration), to the performance of the engine’s accessory gearbox that powers hydraulic pumps, generators and more. This, in turn, is enabling the checkout of all the other systems on the aircraft, such as the flight controls and avionics.”

The test team reports that “We’ve had all three engines running at the same time, and the aircraft running under internal power, and flight controls running. We are just methodically going through all the things you check on the ground before it’s time to go put it in the air. The landing gear was retracted for the first time about three weeks ago (ca. April 1) so that was a big milestone. We have now finished 75% of all planned ground tests successfully!”

Flight control software was also successfully tested in early April. “We got a clean bill of health, which I didn’t expect, and now we’re entering flight control software in the loop testing,” says Boom CEO Blake Scholl. The full-scale Overture will have a full, all-axis digital fly-by-wire flight control system. The XB-1 is configured with a simpler system, only two axes having digital stability augmentation.

“There’s a digitally controlled rudder limiter to prevent exceeding G limits on the aircraft at high speed. There’s also an artificial Q feel system with a digital controller, and so we’re getting through all of the flight control system software in the loop testing,” Scholl adds. “The artificial Q feel system provides increased resistance to flight control movement as dynamic pressure increases, the resistance being proportional to the square of the indicated airspeed.”

More engine runs and slow-speed (up to 60 kt.) taxi tests are due to be completed in Colorado before the aircraft is disassembled and trucked to Mojave Air and Space Port, California, for flight testing. Flight testing was originally scheduled to begin in 2021, but Boom has “taken a very conservative approach to exactly how we step through testing.”

Meanwhile, Boom is focusing on opening the North Carolina Superfactory. The company claims that more than 1,700 jobs will be created through 2030 as the project brings an investment of more than \$500 million. Annual salaries for these new jobs will average over \$65,000. →

Quotes above are from a Boom Technologies press release dated Jan 14, 2022, and an *Aviation Week & Space Technology* digital article dated April 15, 2022.



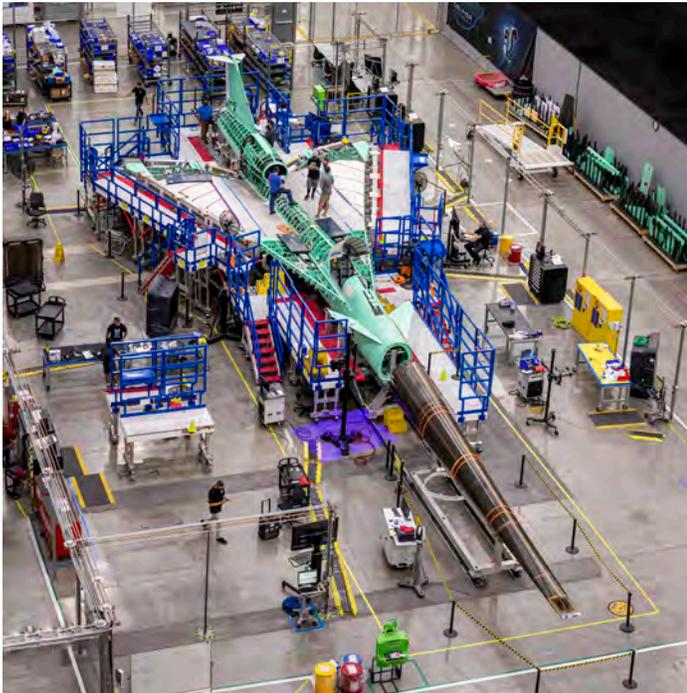
NASA/Lockheed Martin X-59 QueSST. Back in 2018, **FL197** (p.4) introduced the aircraft that may determine the future of commercial supersonic flight in the U.S. NASA “hopes the ban on commercial supersonic flight over land can be lifted by replacing the loud sonic boom with a softer sonic ‘thump.’”



Artist’s rendering of the X-59 QueSST (Lockheed Martin)

The spindle-nosed X-59 design is based on much aerodynamic research, including testing of a small-scale model—about a foot and a half in length—in NASA’s eight-by-six-foot Supersonic Wind Tunnel. Results are encouraging; the shock waves produced by the model match predictions from earlier computer models. More testing will follow.

The X-59 Airframe is being constructed at Lockheed's Palmdale, Calif., Skunk Works but will be taken off the assembly jigs (see photos) for installation of the landing gear and other hardware before being moved its Fort Worth, Texas, plant for structural testing. Flight testing is projected to begin in late 2022, but that may prove to be overly optimistic. →



The X-59 moved from jigs to jacks. (Lockheed Martin)



For more on the X-59 and the problem of reducing supersonic boom, see <https://www.nasa.gov/specials/X59/>



Other items . . . The venerable B-52 hasn't been mentioned in *FlightLine* for several years, but this item is worthy of inclusion. The long debated, long delayed initiative to reengine the B-52 at last seems to be underway. In September, 2021, the Air Force announced Rolls Royce North American as the winner of the B-52 Commercial Engine Replacement Program (CERP), under which up to 650 F130 engines, including spares, will be furnished to replace the Pratt & Whitney TF33 types currently installed on the 76 Stratofortresses that are

expected to remain in USAF service until 2050. The youngest of these B-52H models rolled off Boeing Wichita's assembly line in 1962. That plant has been operated for some years now by Spirit Aerosystems, which Boeing recently announced would supply the supply pylons and nacelles for the CERP. The program is scheduled to be completed by Sept. 23, 2038.

Granted, the rate of technology change has slowed, but to put all this into historical perspective, imagine the Curtiss Jenny being retired about the time of Desert Storm, or the *Enola Gay* as the flagship of the manned bomber force today!



Credit: Rolls Royce

Much of the extended reengining debate centered around replacing the original eight-engine configuration (two-engine nacelles on each of four pylons) with a single, more up-to-date high bypass turbofan on each pylon.

While this may appear to be the most logical solution, it ignores a host of aerodynamic and other engineering issues that would arise. Better to stay as close to the original airframe design as possible while increasing the efficiency of the engines. The T130 replacement is touted as being able to deliver up to a 40 percent improvement in range and fuel economy, with reliability such that the engines would never need come off the wing while in service. →



AAHS FlightLine

American Aviation Historical Society

President: Jerri Bergen

Managing Editor: Joe Martin

The AAHS FlightLine is a quarterly electronic publication of the American Aviation Historical Society and is a supplemental publication to the AAHS Journal. The FlightLine is principally a communication vehicle for the membership.

Business Office:

15146 Transistor Lane
Huntington Beach, CA 92649-1156, USA

Phone: (714) 549-4818 (Mon/Wed/Friday)

Website: www.aahs-online.org

Email: aahs2333@aahs-online.org

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President's Message

In recent Journals I have announced that after ten years as President, AAHS would be seeking another President, and I would take on another role in the organization. I'm proud to introduce a new AAHS member, Jim Logue, from Oceanside, CA, has been selected to fill the position as President, and I will take on the role of CEO for the Board of Directors.

Jim has worked in aviation his entire career, as an avionics technician, an A&P mechanic, an instructor in aviation courses at Cape Cod Community College, and currently as the Director of Maintenance for Latitude 33° (see his bio at <https://l33jets.com/meet-the-team>). Jim is passionate about aviation, and is looking forward to giving back to the community, helping AAHS meet its mission to share aviation history.

AAHS in recent decades has operated without a CEO, with the President's function serving in both capacities. With the expansion of the projects and obligations to our members, it is a good time separate these roles so we can manage all more judiciously.



Jim Logue

One skill set Jim has already put to good use in the office is his knowledge of social media platforms. We've been able to resurrect our defunct Facebook page and tie other needed social media apps to it (such as Instagram), to increase our visibility to potential members.

We have a great team at AAHS that works tirelessly to keep the organization, our members and our mission healthy and moving forward. Your continued support is vital to make this effort viable for generations to come.

Thank you!

Jerri

Jerri Bergen
AAHS President

Wants & Disposals

DISPOSAL: Must downsize my aviation book and magazine collection. Lots of books and mags. Priced to move. Write for a listing. Please specify in email subject line, "Book List."

Axel Kornfuehrer, AAHS #10476
 Email: akornfuehrer@msn.com.

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New AAHS Organization Chart (Below)
 See President's message on p. 7

American Aviation Historical Society Organization Chart

As of 4/25/2022

*Positions required in Bylaws



The second quarter of 2022 marks the 80th anniversaries of three major episodes in Pacific air war—the “Doolittle Raid” of April 18, 1942, the Battle of the Coral Sea a few weeks later, and the Battle of Midway in early June.

Hundreds of books and articles have been written about these events, and the most casual aviation history buff knows at least the basic details.

But suppose you want to learn more. Years ago, that would’ve started with a trip to the local library. If you live in a major metropolitan area, that may still be a good idea. Nowadays, though, tapping in a few key words in your browser will yield information on almost any subject imaginable, sometimes in mind-boggling quantity—all without moving from your favorite recliner.

We decided to make a test run. Chronologically, the Doolittle raid was the first of our three Pacific events, so we started there. One of the great things about an AAHS membership is having access to more than 65 years of aviation history research published in the *AAHS Journal*.

There are a few tricks in getting optimal results from the AAHS search engine. Start by signing in as a member. A new screen will appear, with your name in yellow at top right. In the box to the left of your name, type a few words describing your search target. The more accurate and concise the search terms, the better the results. If you haven’t used the search tool before, you may want to follow our example for practice.

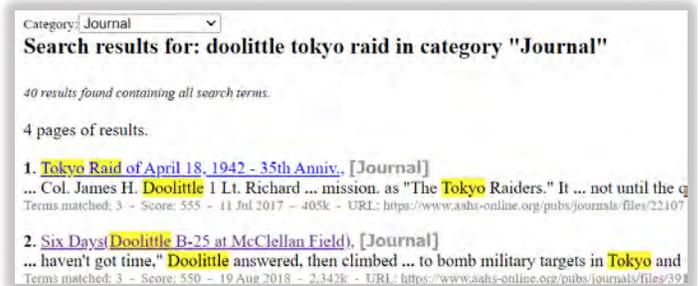
For this trial run, we used “doolittle, tokyo, and “raid.”

Clicking the magnifying glass icon beside the text box will open a new page showing your search results, as shown in the screen shot clip below.



“All search words” is the default setting, which you’ll want to use in all but very special cases. Of the 59 “hits,” the 40 *Journal* articles are likely to be the most useful sources of information.

Clicking on “Journal” will bring up a list of article titles, ranked high to low in relevance as determined by the search engine algorithm. The three search words are highlighted in yellow, flanked by a few words of surrounding text. The text snippets provide a clue to the article content. Clicking on the underlined title opens it as a pdf file.



Thousands of pages of primary source documents from WWII, previously available only to well funded researchers, have now been digitized and placed on line by the National Archives and commercial affiliates. We’ll go there next.

To be continued in FlightLine No. 205

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.

Pricing: Black & White or Color	
5" x 7"	\$4.00
8" x 10"	\$6.00
Digital Images CD base price	\$2.95
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Credit: Posey Brothers

Restorations and Reproductions

Kinner B-2 Sportwing

In the FL202 article “Aces in a Day?,” we asked if anyone could identify the rather indistinct aircraft in the background of the photo on page 11. (Inset in the picture above.) We got no responses but decided to answer anyway. We think it’s a Kinner B-2 Sportwing, a rare bird indeed as only eight were built. There appears to be only one example remaining in airworthy condition. That is the beautifully restored NC14927, owned and flown by David Devries of Windham, New Hampshire.

Mr. Devries first spotted the airplane some years ago, but didn’t manage to acquire it until 2016. The Sportwing had languished for many years, but other than some noticeable rot in the wooden wing structure was in surprisingly good condition as Posey Brothers Inc. undertook a complete restoration at their Erwinna, Pennsylvania, workshop. Refurbishment of the 5-cylinder radial engine, also a Kinner product, was entrusted to Antique Aero Engines in Santa Paula, California.

The demands of 21st Century flying required some alterations, including installation of a radio and transponder—the original Sportwing had a bare minimum electrical system. That minor obstacle was cleverly overcome by mounting a 1930s-vintage wind powered generator under the fuselage. A battery, the avionics, and their controls were hidden in the fuselage

or behind the instrument panel, with their controls placed to minimally disrupt the panel’s original configuration.

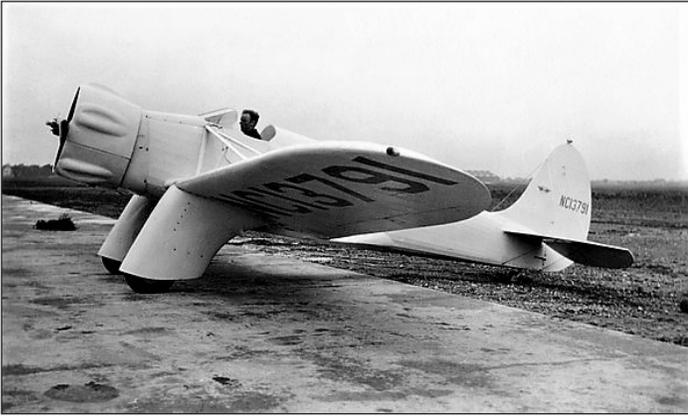
A leaky 80-year-old valve in the compressed air starter proved to be a more difficult challenge, but a work-around was found for that, too.

After a year in the Posey’s Van Sant Airport shop, where the photo above was taken, Devries flew NC14927 home to New Hampshire. He has since logged about 20 flying hours in this relic of aviation’s “Golden Age.”

The entire story of this wonderful airplane and its meticulous restoration, including a great inflight video, can be found on the [AOPA website](#).

More on the Sportwing. A quick check of Juptner’s *U.S. Civil Aircraft Series* (vols. 6 & 7) indicates that NC14927, at least in its final form, was actually a model B-2R, the primary differences being in the Kinner R-5 engine, revised nose contours, and removal of the NACA cowl of the B-2 as shown in the photos on the next page.

As the Kinner Airplane & Motor Corp. began to experience financial difficulties in the late 1930s, Otto Timm acquired design and manufacturing rights for the re-engined Sportwing which, on paper at least, became the Timm Model 160. Juptner lists the total population of the B-2R/Timm 160 as only four airframes.➔



(Above) An original B-2, NC13791, and what appears to be B-2R NC14964 (below.) On the latter model the NACA engine cowl was not installed, and the “booted” landing gear covers were given a sleeker appearance. The BR-2 later became known as the [Otto] Timm Model 160, but apparently none were built as such.



The undated slide below shows NC14927 at an airshow, evidently before it was shelved and finally resold to Mr. Devries. A couple of crew members (or just onlookers?) shade themselves under the wings.



(All photos this column from the AAHS Archives)



Before and after: Restoring a vintage aircraft such as the Sportwing requires a whole different set of skills than those used on more modern aircraft, but that's been Posey Brothers' specialty for more than 40 years. Restoring those ancient wooden wings required much careful attention by Bill McDevitt.



(Credit: Posey Bros. via AOPA Pilot)



AAHS Needs YOU at 2022 AIRVENTURE

AAHS has reserved a display booth at this year's EAA AirVenture, and we need your help! We're looking for AirVenture attendees to volunteer at our booth, sharing AAHS's mission and membership opportunities with other aviation enthusiasts. We also need a Booth Manager, who will attend AirVenture for the full week and can oversee the volunteer schedule, supplies, and setup of the booth. AAHS will provide the Booth Manager free entry to AirVenture for the whole week, a vehicle pass, and a discount on housing.

AAHS has rented a home in Oshkosh for this epic event, with three private rooms and one shared room, for members wanting to enjoy a week of full aviation immersion! Rates for the rooms/beds are set on a weekly rate, averaging \$100-\$150 per night. Priority will be given to members who volunteer at the booth. Those same members who commit a few hours each day of the event may also receive a week pass (limited availability).

Will you accept the challenge? Help AAHS reach more members at the EAA AirVenture Oshkosh Airshow! For more information about volunteering and housing availability, contact us at membership@aahs-online.org or (714) 549-7818. See you there!



Bill Allen, John Lyon, and Jerri Bergen at 2017 AirVenture



Two days prior to 2017 AirVenture, on downwind leg in the Stinson L-5

AAHS Log Book

There's a lot going on behind the scenes at your AAHS headquarters that doesn't get regular coverage. The following provides a snapshot of activities being performed by our office and remote volunteers during the last quarter. There are opportunities for you to actively help further the objectives of the Society.

Organizational

- New AAHS President (Jim Logue – prez@aahs-online.org) (see President's Message)
- Updated AAHS By-Laws approved by the Board of Directors
- Board of directors approved new AAHS organization structure

Operational

- Partnered with Spartan College to employ six students 15 hrs weekly (per student) to complete book cataloging
- Obtained donation from Flabob to fund additional work hours for C. Shaw to complete AAHS book cataloging
- Completed cataloging 5,000+ AAHS books in Book Connect;
- Beginning to catalog periodical collection (at issue level only)
- AAHS Image archives
 - 6,200 slides scanned this Quarter
 - 2,000 negatives scanned this Quarter
 - ~ 23,000 images identified in AAHS PlaneSpotter (since August 2021)
- New AAHS website now LIVE!
- Winter 2021 Journal published; Spring 2022 Journal to print by May 9
- FlightLine publication back on schedule with editor Joe Martin
- Partnering with Flabob Airport to publish a quarterly newsletter
- 7 volunteers working at Flabob office
- 12 volunteers working at Huntington Beach office

Outreach

- Have an active presence on Facebook (generated ~150 links to our website in Q1)
- Have an active presence on Instagram
- Published PR piece in Sun 'n Fun daily advertising newspaper
- Purchased booth at AirVenture Oshkosh '22 for AAHS; organizing booth volunteers
- Advertisements in *Air Classics* and *FlyPast* magazines
- Acquired museum grade model aircraft collection (24 examples) for use in trade or display with selected museums or educational institutions
- Toured Flabob Aviation Academy staff (high school) through AAHS Flabob facility and presented PlaneSpotter overview as possible student credit project
- Organizing 3-day aviation museum and wine tasting weekend for Annual Meeting, Sonoma Valley, June 10-12

Volunteer Opportunities:

From Home

- Aircraft identification with PlaneSpotter from your own home
- Go to www.AAHSPlaneSpotter.com and click "Sign Up" button
- Website
 - Links – additions and updates
 - Cross-linking photo archives with Golden Age database

Southern California Local

At Huntington Beach

- Slide and print organization

At Flabob

- Photo archive quality control for slides
- Managing library collection



American Aviation Historical Society

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MEMBERSHIP APPLICATION

Please email me as a member of the AAHS. Enclosed is my check (money order or bank draft) for dues as checked below. I understand that I will receive all issues of the AAHS Journal published to date during my membership year, plus all issue of the AAHS FlightLine (Downloadable from the AAHS website). Individuals joining after October 1, will have their membership begin the following year, but will receive the Winter issue of the Journal as a bonus. I also understand that renewal is due at the end of the calendar year in which membership will expire. (Valid through December 31, 2021)

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| Canada & Mexico | <input type="checkbox"/> \$54 | <input type="checkbox"/> \$104 |
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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 negatives, 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., \$10.00 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). We are currently researching the possibilities of offerings covering the following areas: Connies Part II, XP-56, Northrop X-4, Bell Aircraft, and Early Lockheeds.