



## The Can't-Miss Event for All Mustang Lovers!

PCAM is improving on the typical car show by combining cars and Planes!

Come and see a unique gathering of meticulously restored Ford Mustangs from every era, and muscle cars of every description! They'll be parked on our field right next to examples of the superlative P-51 Mustang fighter of World War II. Performance Mustangs of each generation will be on display in addition to classics from private collections. Bring your camera, your kids, and your love of mechanical magnificence!

### What You'll See and Do

- Fun, Fords, and Fighters!
- Up to 100 Mustangs, muscle cars, and classics.
- Show off your classic Mustang or muscle car like nowhere else.
- Photo ops with P-51 Mustang fighters.
- Raffle: Grand Prize winner gets a ride in a P-51 Mustang!
- Food: Hot Dogs and drinks for sale by the PCAM team.
- See the latest Performance Mustangs at the Hansel Ford tent.
- Gift Shop open with loads of aviation memorabilia.

### Display Your Mustang or Muscle Car Next to the P-51s

Display your Ford Mustang or any other muscle car or classic car! [Register in advance](#) at no charge to show off your vehicle to hundreds of automobile fans. Exhibitors get to photograph their cars next to a P-51 Mustang, time permitting.

### Sound Off Contest

We're gonna fire 'em up. One selected Ford Mustang will get a chance to have a screaming contest with a P-51 and its 1,800 horsepower Rolls-Royce Merlin V-12.

### Fun for All — Tell Your Friends!

Entrance fee for this special fundraising event will be \$15.00 for everyone 8 and older, including PCAM members. 7 and under are free. Get full information at [www.pacificcoastairmuseum.org/events/mustangroundup](http://www.pacificcoastairmuseum.org/events/mustangroundup). ☎

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### The PCAM Mission

“To Educate and Inspire both young and old about our aviation heritage and space technology, to Preserve historic aircraft and artifacts, and to Honor veterans.”

## President's Message

### Relocation Update

We are working on the last component for the county and plan to have this completed the week of April 4<sup>th</sup>. I have met with Project Manager Ben Barker and we are trying to coordinate the first meeting of the Relocation Project Team that I mentioned in last month's report. Schedules have been crazy.

### Acquisitions

We continue to receive additional aircraft and artifacts. We also have a number of projects underway and are exploring additional space that can be used to do work on our aircraft.

### Events

- The first Hot Dog Thursday for 2016 is April 7.
- We have a private tour for Lucas Films coming up on April 12<sup>th</sup>.
- The Bus Trip to the Computer History Museum in Mountain View is scheduled for Friday May 13.
- The Mustang Roundup and Muscle Car Show is June 18. If you haven't heard about this yet, take a look at the PCAM website and page 1 of this newsletter.
- The 2016 Air Show is September 24 and 25. Air Show Director Nancy Heath and the Executive Committee will begin having meetings starting at 6:00 on the nights of our membership meetings beginning April 20<sup>th</sup>.

### Board Vacancies

I have appointed a Nominating Committee to review and interview the candidates for our two Board Vacancies. We plan to have the new Board members appointed for the April 13<sup>th</sup> Board meeting.

### Volunteers

Again I want to thank the Steadfast Gift Shop Volunteers – Mike Lynch, Alan Chensvold, Bob Bergeron, Mike Madalena, Theresa Whirmine, and Larry Houghton, member on leave Tom Chauncy, and new volunteers Lee Ann Sacchi, Fred Hostermen, Carol Lawson, Ellen Bohms, Dave Sandine, Bill Greene, and Cari Brem. As I mentioned previously, the additional support has enabled us to open the Museum Wednesday through Sunday now, and I can only think this will boost our attendance and gift shop sales. The new schedule is:

Wednesday	10:00 a.m. - 4:00 p.m.
Thursday	10:00 a.m. - 4:00 p.m.
Friday	10:00 a.m. - 4:00 p.m.
Saturday	10:00 a.m. - 4:00 p.m.
Sunday	10:00 a.m. - 4:00 p.m.
Monday	CLOSED
Tuesday	CLOSED

### New Life Members

Finally, I want to thank our four new Life Members for their investment in the Pacific Coast Air Museum: Ray Peterson, Bill Conklin, Charley Taylor, and Judy Knaute.

— Jim Sartain

### Gift Shop April News: Assorted Toys 20% off!

We've got a lot of goodies for the youngsters! And oldsters too, if they're so inclined. Come on in and see what's on sale. Subject to stock on hand.

And remember, PCAM members get a 10% discount on all regular-priced merchandise in the Gift Shop, including special order items like our new line of PCAM logo jackets. Discount cannot be applied to sale items. ✨



## Bus Tour May 13: Get Tickets Now!

### Computer History Museum, Mountain View



All PCAM Members are invited to sign up for our annual Spring Field Trip. This year we will visit one of the more exclusive technology exhibits in the world: the Computer History Museum. It's in Mountain View, CA, the heart of the Silicon Valley. This visit will allow an up close and personal view of technology that has become an everyday

part of our lives, the computer and its history.

The cost for this special day is \$50.00 per person, which includes bus fare, museum admission, and catered lunch. Save the date for this trip: May 13, 2016.

### Exhibits at the Museum

Discover why computing history is more than 2,000 years old. Hear from the pioneering men and women who built the computing industry and changed the world. Experience demonstrations of the 5-ton Babage Difference Engine No. 2, play Spacewar! on a restored DEC PDP-1, and learn just how noisy a fully operational IBM 1401 mainframe system can be. Explore how technology and computers have impacted the way we work, play, and live through the Computer History Museum's rich selection of onsite and online exhibits. Pocket protector not required.

### Reservations Required!

Reservations are taken in advance at the PCAM Gift Shop or office. You can also contact Duane Coppock for more information, at 707-575-7900 or through email at [admin@pacificcoastairmuseum.org](mailto:admin@pacificcoastairmuseum.org).

### Details

Reservations are \$50 each, and include bus fare, entrance to the Computer History Museum, and catered lunch at the Computer History Museum. The bus, provided by Sonoma County Airport Express, will be a comfortable touring coach equipped with wifi and a restroom.

Don't hesitate! The PCAM bus tour always sells out so act soon!

#### When

Friday, May 13, 2016

7:15 a.m. - about 6:00 p.m.

(Gather at PCAM at 7:15. Bus leaves at 7:30.)

Advance reservations required by Tuesday May 3.

#### Deadline

Make your reservations, pay your fare, and order your lunch from PCAM by Tuesday, May 3.

#### Where

We depart from and return to the Pacific Coast Air Museum. The destination, the Computer History Museum, is in Mountain View.

#### What

- All-Inclusive Bus Tour
- Admission to the Computer History Museum
- Catered lunch at the Computer History Museum
- Comfortable coach from Sonoma County Airport Express

#### Cost

\$50.00. Requires advance reservations.

#### Order Your Lunch

Order your lunch from PCAM when you make your reservation. A catering menu will be available.

#### Reservations

Make your reservations with the PCAM Gift Shop or office. Phone 707-575-7900 or email

[admin@pacificcoastairmuseum.org](mailto:admin@pacificcoastairmuseum.org). You can pay in person at the Gift Shop with cash, check, or credit card, or over the phone with a credit card. 🌟

## School Daze at the Pacific Coast Air Museum

By Connie Reyerse



One of our expert docents explains jet propulsion to a group of Boy Scouts.

The months of February and March have seen a growth in activity that has been consistent for some time now. Specifically, the increase of youth in the region has meant that more young people are coming to visit the aircraft on display at our museum. We here at PCAM have had the privilege of hosting several school field trips for kids ranging from elementary schools to high schools and from the Cub Scouts and Boy Scouts. The draw has been the same: our close encounters with the display aircraft, and the rare opportunity to actually sit in the cockpit of a jet fighter or helicopter.

At the end of February, the Boy Scouts of Troop 58 camped out on the PCAM grounds, where they enjoyed a two-night stay in the rather frigid temperatures of the Santa Rosa Late Winter. Yet they enjoyed their time exposed to the aviation artifacts of the museum and the airport. Their trip was both adventurous and educational.

The Pacific Coast Air Museum regularly hosts school field trips, scouting troops, and other youth groups. If you or someone you know is involved with an organization that takes young people to new and exciting places, to provide a fun and educational experience, let them know about us! We're an affordable place for a field trip, and we have many dedicated docents who flew the kinds of planes you'll see here and who just love to talk about them! Contact me, Connie Reyerse (Director of Museum Operations) at [admin@pacificcoastairmuseum.org](mailto:admin@pacificcoastairmuseum.org) or 707-575-7900. ✪

The months of February and March have seen a growth in activity that has been consistent for some time now. Specifically, the increase

## Hot Dog Thursday April 7: First of the Season!



Paul Heck and the rest of the Hot Dog Thursday Crew are gearing up for the first Hot Dog Thursday in 2016, to be held on the PCAM grounds on Thursday April 7.

\$5.00 (\$4.00 for members) gets you admission, a large hot dog, chips, and soda or water. Hot Dog Thursday is an important fundraiser for the Museum, and also a fun social event. Last year, as in previous years, many people from the surrounding businesses walked or drove over to enjoy a 'dog and the warm sunshine.



And we always have an airplane or two open for climb-aboard to keep the kids (and curious adults) occupied. We also set up shade awnings so there is plenty of shaded space in addition to our covered patio. Come on out!

We are grateful to these sponsors whose generosity makes the April Hot Dog Thursday possible:

- Accent Printing and Design: [www.accentprinting.com](http://www.accentprinting.com)
- Burgess Lumber: [www.burgesslumber.com](http://www.burgesslumber.com)
- Task Mortgage & Investments: [www.taskmortgage.com](http://www.taskmortgage.com)
- PropJet Aviation: [www.propjetaviation.com](http://www.propjetaviation.com) ✪



## Flight Wing News

By Lynn Hunt, Flight Wing Director

“Engine run-up complete. Pre-take-off checklist: Flaps 1/3, Fuel on mains, crossfeed off...” The mighty Grumman C-1A stands poised at the runway edge, ready for its first flight in many months. The flagship of PCAM’s Flight Wing has been responding nicely to the loving touches of a dedicated crew. But airplanes don’t like to sit and she has been sitting awhile. “Rudder boost on...cowl flaps and oil doors open...” We’ve been running the engines regularly and trying to keep everything exercised. We’ve had a dozen work parties. The troops keep showing up. David Cooper, Henry Grainger, Mike Joyce and the organizer, Chris Brown have been re-

lentless in their pursuit, chasing one little problem after another. But this is one complicated airplane with an intense electrical system and a ridiculously complex hydraulic system and she won’t come along quietly.

“Boost pumps on...trim set...” But everything seems in working order.

Time to call the tower. We switch over to tower and make the call. Nothing. No response. We try again on ground... no problem there. Back to tower... nothing. We could probably go out using ground or even light signals but the radio is clearly not happy so it’s a long, slow taxi back to the hangar. I’m reminded of an old pilot’s yarn: “got time to spare, go by air”.



Chris Brown, organizer of the effort to get the C-1A back in the air, and his recalcitrant charge.



Henry Grainger inspects the C-1A landing gear.

Done in by a radio problem. I imagine the director of a large orchestra trying to get all of his musicians lined up and playing the same sheet of music. Such it is with a big, complicated airplane like the C-1A. We had everything playing until the radio let us down. We will get it fixed and we will be back out there. If any of our aircraft deserve to fly, the C-1A should be at the top. She’s the only flying veteran that the Museum owns. Watch for her and be patient. She’s worth it. When you see and hear her airborne, you’ll understand.

## Flight Wing Reminders

### Pilot Refresher Course April 9th

This will be our first annual refresher course offered by the Flight Wing. Four hours of informative and useful material will be presented. It is open to and intended for all pilots. It is highly recommended that you be present if you plan to fly Flight Wing aircraft. The course is free but we request a \$25.00 donation.

### First Flight Wing Meeting

Wednesday, April 27th starting at 5:00 p.m. at the Flight Wing hangar. We start serving food around 5:00 p.m. so get there when you can.

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## Flight Wing Rides Day

Saturday, April 16th. We will be offering rides to all PCAM volunteers in the Stinson, BD-4 and possibly the C-1A. We will need boots on the ground to help with escorts, loading and passenger safety so come on out and go flying!



Chris Brown (left) and \_\_\_\_\_ (right) on one of the many C-1A work days.

## Sponsorship Opportunities

The Flight Wing is actively looking for sponsors to help keep these planes in the air, so we can educate and inspire all generations, honor veterans, and preserve these assets. If you or someone you know has a business whose logo ought to be on one or more of these planes, come talk to us! ★

## Why I Chose the Flight Wing for My Senior Project

By Jason Allen

I chose this project because I have always admired the mystique of aircraft since I was a young child. When I was younger, I would always build with LEGOS, and some of those creations would be aircraft. I always loved going to the Wings Over Wine Country Air Show at the Santa Rosa Airport. I loved looking at and learning about the various planes they had, whether they were fighter planes or small passenger planes. In my older years, I began to build model aircraft. I would build Mitsubishi Zero Fighters, F4U Corsairs and other model planes. I loved doing this, so it only seemed natural that I would attempt to find a senior project that mirrored something that I loved doing. This is why I decided to volunteer at the Pacific Coast Air Museum's Flight Wing and help restore aircraft to flying condition.

The way I heard that I could work with the Museum was from an old friend named Ben Cullen. He has since graduated, but he told me that if I was serious about airplanes, I should call Lynn Hunt. After getting in contact with Lynn and having a short interview, I had my senior project. I helped the Pacific Coast Air Museum restore a Cessna 170 to flying condition, and I will continue to help the Museum for years to come. ★

## April in Aviation History...

On April 10, 1959, the prototype YT-38 made its first takeoff. This was the beginning of over half a century's service by the remarkable Northrop T-38 Talon trainer, which has been a mainstay of the U.S. Air Force training program ever since. If ours is the best air force in the world, then you can thank the Talon and its designers for helping make it so. Pilots say the Talon is wonderful to fly, and very forgiving... maybe too forgiving, since it can be hard to transition from the sweet flying Talon to more demanding combat aircraft. Talons have also been used for many years as chase and observation planes in the space program and the X-planes programs. The Pacific Coast Air Museum has T-38 Talon #23659 in its collection. ★



## In Case You Missed It: March 16 Member Meeting Guest Speaker... Author Bill Yenne on Area 51 Black Jets

By Peter Loughlin

Our guest speaker at our March 16 member meeting was author Bill Yenne, who spoke to us about the secret or *black project* aircraft developed at “a place that doesn’t exist... officially.” This of course is Area 51, America’s favorite non-existent test site that is 100% real to everyone except the CIA, the Department of Defense, and the United States Air Force. To be precise, they will admit that there is a facility at that location, but they don’t call it Area 51 and they don’t admit that anything unusual happens there. Air Force pilots call it Dreamland because even they are not supposed to know about it.

The Area 51 base facility is next to Groom dry lake in the southern part of Nevada, about 80 air miles north-northwest of Las Vegas. Area 51 is in the Nellis Air Force Base bomb and gunnery range, adjacent to the Nevada nuclear test site. If you go to Google Maps, switch to satellite mode and look for a dry lake with what looks like runways etched across it and extending to the south. That’s it, or not it, depending on which branch of the military you favor.

Area 51 is where most of the more interesting, and many of the unknown advanced U.S. Air Force aircraft are tested. This generally includes ultra-secret “black” projects, many of which later became public knowledge including the U-2, SR-71, Tacit Blue, and drones. The wide expanses of the Nevada desert and generally clear weather provide the perfect location for such secretive testing. And the Nellis range itself is the size of New England (if you leave off Maine) so there is plenty of space to fly secret aircraft far from overly observant aircraft buffs, military analysts, and foreign spies.



One of the seminal moments in “black” aircraft history: the prototype Lockheed A-12 takes flight for the first time at Area 51. Later, this and the other A-12s were actually painted black.

### How It All Began: Spy Planes

Back in the 1950s, legendary Lockheed designer Clarence “Kelly” Johnson and the Lockheed Skunk Works were approached by the CIA to design a reconnaissance plane that could fly higher than Soviet interceptors. Lockheed was based in the middle of Burbank, California. You can’t test fly the most secret plane on the planet over Burbank, so they traveled all around the American west to find a secluded spot. They found Groom Lake, and set up shop on its shores. Desert dry lakes make great runways because they are hard and flat and stretch for miles in each direction.

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The A-12 was fast. Here’s the prototype, getting a ticket on its way from the factory in Burbank to Area 51. Actually, the big box contains a large piece of the A-12, and the California Highway Patrol stopped the truck when its oversize load impeded traffic.

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The result of this project was the CIA's Aquatone, which Lockheed called Angel. Many were built, and accomplished hundreds of surveillance missions during the early Cold War without the American public knowing about it. Then on May 1, 1960, CIA pilot Francis Gary Powers was shot down in one by a Soviet surface-to-air missile (SAM). At that point, the whole world became aware of it under its public designation U-2.

The CIA requested an airplane that could fly higher and faster than Soviet fighters and SAMs. Lockheed was engaged for this program (called "Oxcart") and they developed the A-12. This time they built it in complete secrecy there in Burbank. But what do you do with a 100-foot-long secret airplane when it comes time to test fly it? You knock it down into a few large pieces, put them in giant crates, and ship them to your favorite secret airbase in Nevada. That's what they did, and it worked great, except that the California Highway Patrol stopped the truck for carrying too large a load.

The A-12 prototype was reassembled and tested at Area 51. Fifteen A-12s were operationally based at Area 51 and deployed all around the world. An interesting offshoot of the A-12 program was Tagboard. The Tagboard program involved an A-12 mother ship (designated M-21) which carried an autonomous daughter reconnaissance drone (D-21). The project failed, and resulted in the destruction of at least one A-12. Later, they had more success dropping the D-21 from a B-52 bomber. The Pacific Coast Air Museum has a genuine D-21 drone in its collection.

Later, the YF-12 (a Mach-3 interceptor based on the A-12) and the incomparable SR-71 were tested and flown from Area 51 for the U.S. Air Force. The SR-71 went on to fame and fortune but the YF-12 program was discontinued.

## Other Aircraft

### F-110B?

Ever seen an F-110B? How about an F-113 or F-116? These are the designations given to captured Soviet aircraft which are or were flown out of Area 51 for



A USAF F-110B. Actually, this is a Soviet MiG-21 flown by the 4477<sup>th</sup> "Red Hats" Squadron for testing and evaluation, and to train other American and allied pilots.

testing, evaluation, and training. The American fighter-style "F" designations give our pilots something official to record in their flight logs. The 4477<sup>th</sup> "Red Hats" Test Squadron out of Area 51 flew or flies these planes against U.S. and allied pilots during Red Flag training exercises. What better way to learn how to beat a MiG than to actually fly against one?

### F-117 Nighthawk "Stealth Fighter"

Most of us know the Nighthawk stealth fighter. Its designation is F-117, which picks up after the captured Soviet fighter designations leave off. The Nighthawk was famously developed and tested at Area 51, and later at the Tonopah test range, generating a plentitude of UFO sightings in the 1980s.

### A-12

No, not the Lockheed A-12. We mean the A-12 Avenger II or "Flying Dorito." This A-12 was a developmental attack aircraft for the U.S. Navy. It officially did exist, but officially never flew. But this being Area 51 and

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An artist's conception of the A-12 Avenger II or "Flying Dorito".



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all, it's no surprise that many people claim it actually did fly. It never made it into production.

### **Aurora**

If you know the difference between an elevator and an aileron, you likely have heard of Aurora. This is the hypersonic successor to the SR-71. It has supposedly been flying out of Area 51 for twenty years or so. Some photos of odd contrails and wedge-shaped aircraft have made it to the Web, but (the Internet being what it is) many are likely faked and the Air Force denies Aurora's existence. The mystique around Aurora is impressive, and adds to the overall mystique of Area 51 itself.

### **Alien Spacecraft**

There are no alien spacecraft at Area 51. There is no Area 51. Please stop asking.

### **Tacit Blue**

This "milk carton with wings" was a test bed for stealth and command/control technology that first flew in 1982. Discoveries from this program made possible other programs like the F-117, B-2, and eventually the F-22 Raptor.

### **Bird of Prey**

The McDonnell-Douglas (now Boeing) Bird of Prey was a stealth demonstrator. It first flew in 1996 and was retired in 1999.

## **UFO Culture and the Mystique of Area 51**

Rumors and speculation abound regarding the possibility that the Department of Defense keeps captured alien spacecraft and even the aliens themselves at Area 51. During the '80s and '90s the public roads and public lands bordering Area 51 were often peopled by UFO spotters, but this trend has declined in the last decade or two. Bill described a recent trip up Nevada State Route 375, "The Extraterrestrial Highway", which is the nearest major public road to Area 51. There is a small roadside diner called the Little A'Le'Inn in the town of Rachel Nevada, where UFO researchers, black aircraft spotters, and other curious folks like to refresh themselves between rounds of sky watching. And of course there is the unmarked gravel access road to Area 51. This road is a tourist attraction of sorts, because of the infamous "use of deadly force is authorized" signs that used to mark it. That language has been softened a bit, but they're still very serious about keeping you out.



The Bird of Prey was named after Klingon ships from the Star Trek series. Only one Bird of Prey was built, as a test bed for stealth technology.



One of many artists' conceptions of what Aurora might look like.

### **True Secrecy**

The public likes to smirk at the idea of truly secret projects. Alien conspiracy theorists base elaborate stories on bits of "leaked" evidence. And every once in a while a black project comes to light before its time. But think about this: Tacit Blue and Bird of Prey actually did remain secret until the Air Force deliberately revealed them. No articles were written in Aviation Week, no military journals discussed them, and no photos of them materialized on the Internet. They remained secret

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throughout their development, test flights, and retirement. This begs the question: What other amazing, exotic aircraft have flown and are still flying without the curious eyes of the aviation world ever beholding them? The truth is out there, and it lies on the shore of Groom Lake.

We would like to thank Bill for his very engaging presentation. His talk was based on information in his recent book *Area 51 - Black Jets: A history of the Aircraft Developed at Groom Lake, America's Secret Aviation Base*. This book is available through Amazon.com, Barnesandnoble.com, and other booksellers.

### About Bill Yenne

Bill Yenne has written histories of America's great aircraft manufacturers, including Convair, Lockheed, and McDonnell Douglas, and has been praised for his recently-updated *The Story of the Boeing Company*. He has also written histories of the US Air Force and the Strategic Air Command. Early in his career, Mr. Yenne worked with the legendary US Air Force commander, General Curtis E. LeMay, to produce the recently re-released *Superfortress: The B 29 and American Airpower in World War II*, which *Publisher's Weekly* describes as "An eloquent tribute." His dual biography of Dick Bong and Tommy McGuire, *Aces High: The Heroic Story of the Two Top-Scoring American Aces of World War II*, was described by pilot and best-selling author Dan Roam as "The greatest flying story of all time." Mr. Yenne has contributed to encyclopedias of both world wars, and has appeared in documentaries airing on the History Channel, the National Geographic Channel, the Smithsonian Channel, and ARD German Television. His book signings have been covered by C-SPAN. Bill Yenne makes his home in San Francisco, where he currently has several new projects in the works. ★



Bill Yenne during his presentation.

### April 20 Guest Speakers:

#### Brian Fies and Corry Kanzenberg: Cartoons at War

Brian Fies and Corry Kanzenberg will join us at our April Members Meeting to talk about **Cartoons at War**. Hear about how comic strips, comic books and cartoons entertained and educated Americans at home and abroad during WWII.



Brian will give a brief history of comic strips and comic books leading up to the War, as well comics on the frontlines which offered education and cheap entertainment for our soldiers.



He also covers the entertainment, education and propaganda aspects of comics on the Home Front. Some notables he will discuss are Walt Disney, cartoonist Milton Caniff (Terry and the Pirates), Bill Mauldin and Dr. Seuss. Corry will tell us about Charles Schulz's wartime experience in Europe, including sketches he did there, and how it affected his later work on "Peanuts."

#### About Brian and Corry

Brian Fies is a local award-winning cartoonist who has authored two graphic novels and several webcomics. He has advised the USS Hornet Museum on their recent "Comics at War" exhibition. Corry Kanzenberg is curator of the Charles M. Schulz Museum and Research Center in Santa Rosa, where she organizes exhibits on the life and art of Charles M. Schulz, creator of Peanuts. Corry's previous curator roles include the Norman Rockwell Museum in Stockbridge, Massachusetts, and the National Scouting Museum of the Boy Scouts of America in Irving, Texas.

#### Time and Location:

Wednesday, March 16, 2016, 7:00 p.m.

Columbia Distributing, formerly  
Mesa Beverage Company, Inc.

3200 N. Laughlin Road. Santa Rosa, CA ★

## Capsizing on the Road of Aviation

By Peter Loughlin

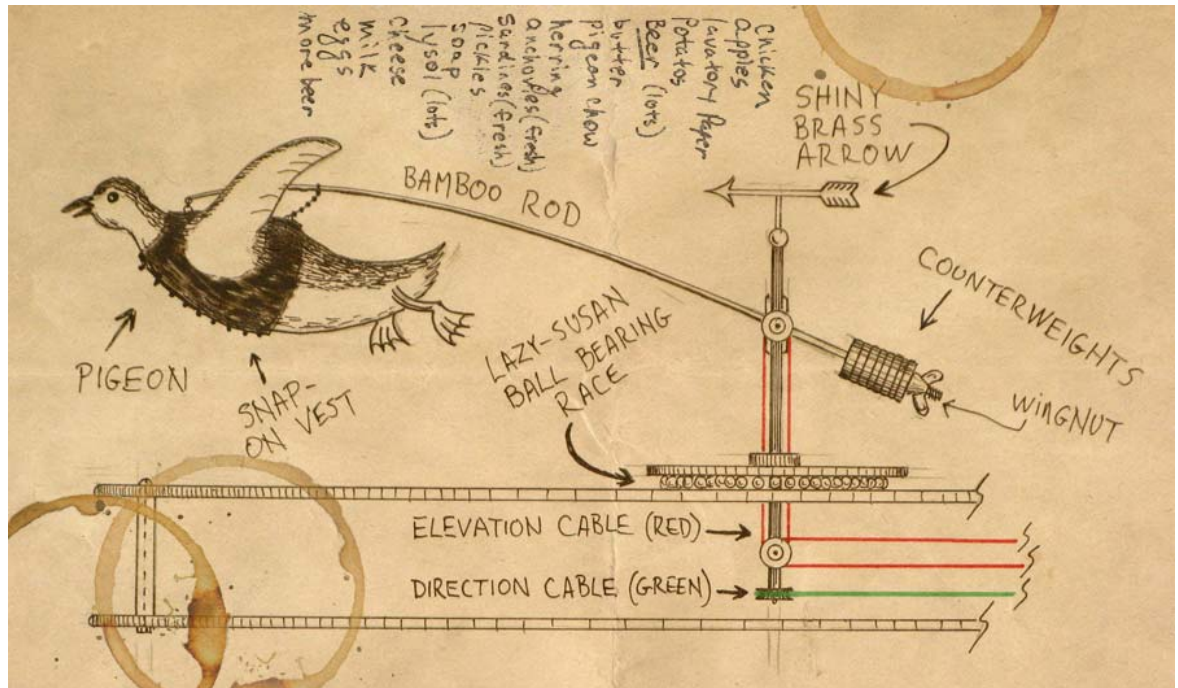
It's often the less successful adventures and ideas that are most interesting. During World War II, there were many advances in aviation that made their mark on history, such as radar, radio navigation, and jet propulsion. Many others were fanciful dreams that never really saw fruition... the bat bomb (yes folks, look it up), the Hughes H-4 Hercules flying boat, the Nazi jet cop-ter thingy, and so forth.

One that has slipped from the pages of history was the Pigeon-Powered Direction Finder or PiPoDirF (later shortened to PDF), a zoologically-based navigation device created by the U.S. Department of Aeronautics and tested from 1943 through 1947.

The PDF consisted of a lightweight rod about three feet long attached to a swivel with jeweled bearings and precise counterbalances. It could swing freely from side to side and up and down. The far end had a little vest-like harness that held a pigeon. The vest allowed free movement of the bird's wings so it could fly, or at least try to. Picture a fishing rod with a big fluffy lure flopping about at the tip and you'll have the general idea. Spare pigeons were kept in pigeon holes close at hand so the navigator could swap them out whenever one became fatigued.

The goal was to exploit the bird's legendary homing capabilities. Several test planes were equipped with this device and a bunch of pigeons that had been hatched and raised at the home airfield. When the plane took off, the harnessed bird would attempt to fly home, and by means of the rod and swivel it could point in any

direction and its bearing could be ascertained. With the Mark I, all the navigator had to do was to watch which way the bird was pointing and relay directions to the pilot. It worked best on inbound flights when the pigeon was pointing towards home. Finding the way outbound was another matter altogether.



An early conceptual drawing of the PDF Mark II. Actually, we think that pigeon looks a whole lot more like a penguin, which may in part explain why the project went south.

This worked better in theory than in practice. The panicked birds, frightened at the loud noise, cold thin air, and alien odors of an airplane, did not always plot a beeline for home. Their courses tended to be somewhat erratic, but some tests showed accuracy to within 270 degrees.

The Mark II saw some improvement in relaying the measurements to the pilot, with the central swivel connected to a compass on the instrument panel through a series of fine cables and pulleys with Swiss-watch precision.

The Mark III saw a shorter rod for a more compact device, and the entire thing was encased in a hermetically sealed plexiglass hemisphere. This version could

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be hoisted up into the navigator's astrodome, so the pigeon could see the stars. One would think that the plexiglass hemisphere was for greater environmental control and the comfort of the birds. "Nope," said Arlo "Greasy" Grisman (Major, USAF, ret.) veteran navigator and test technician during the Mark II and Mark III trials. "You ever been cooped up in a plane with a bunch of frightened pigeons? Just try it and you'll know why it was hermetically sealed."

One Navy test crew had mixed reviews, blaming the device for throwing them off course during a flight between Rio De Janeiro and Pensacola. On the other hand, they praised it as a ready source of protein during the week they spent in the Galapagos Islands before search and rescue teams found them.



The Topeka Mars, equipped with a Pigeon Direction Finder navigational aid, takes off from the Alameda Naval Air Base.

After the war, the not-so-legendary Topeka Mars flying boat (see the April 2015 edition of the Straight Scoop) was equipped with a PDF Mark IV. Flying from Alameda Naval Air Station, the Topeka Mars successfully made it to its destination at the San Diego Naval Base after an elapsed flight time of thirty three hours and forty seven minutes, during which it covered 6,272 nautical miles. On the way, it flew over the Farrallone islands, Crescent City, Pocatello, and parts of Kansas (apparently, the plane's homing instincts were stronger than the pigeons'). They made a stopover in Seattle for rest and fuel. Then a long stretch due south-west took it to San Diego. Of course,

San Diego is actually south-**east** of Seattle, but the navigator maintained that they needed practice finding the half-way-point to Hawaii anyway.

The project was cancelled soon after, because it was apparent that highly accurate satellite navigation would be available within thirty or forty years, and it seemed faster and safer to wait for that than to work the bugs out of the PDF. Our military and civilian pilots did quite well in the meantime with LORAN, RDF, ADF, dead reckoning, flying the Iron Compass, throwing a dart at the chart, and other navigation aids.

If anyone knows where the Pacific Coast Air Museum can get a hold of one of these rare devices, let us know! We'd love to get one so we can trade it for something of actual value. Please contact April Phuyler at the Museum. 🌟

## Ugliest Airplane Ever?

This is no April Fool's joke but an actual aircraft. Maybe it's unfair to judge an airplane on its looks. After all, this Convair NC-131H Total Flight Simu-



lator was very successful, as were lots of other ugly aircraft. But this one... This one just might take the cake. It looks like one airplane eating (or perhaps mating with) another airplane. And yes, this is all one aircraft, and not one superimposed on another. But considering the old saying "If it looks right, it is right" and taking into account aviators' general love of aesthetic beauty, it seemed right during this season to toss it out at you. If you have a favorite ugly airplane, send an email to [pcam-news@loughlinmarketing.com](mailto:pcam-news@loughlinmarketing.com) and maybe we'll feature it in a future issue. 🌟

## Kunde Family Wines Celebrates a Big Birthday at PCAM

By Connie Reyerse

The Pacific Coast Air Museum had the privilege of hosting the 60th birthday party for Jeff Kunde, Chairman of the Board and 4th veneration Wine-grower at Kunde Family Wines.

The event, held on March 20, celebrated Jeff Kunde's birthday with a WW II dress-up party. The party began for Mr. Kunde when he was flown over the Charles M. Schulz-



Sonoma County Airport and the PCAM field in a P-51 piloted by Dan Vance. Upon the completion of his flight over the Wine Country, the P-51 taxied to a location near PCAM where Mr. Kunde was greeted by two of his sons. They then took him to the museum grounds, which had been prepped for the party.

The Kunde Party was set up near our F-14 Tomcat, EA-6B Prowler, and A-6 Intruder, which provided the background for the event throughout the evening. Mr. Kunde is an avid World War II history buff, and his moving speech to those in attendance emphasized his great appreciation for "The Greatest Generation" and how much he felt that their sacrifices provided for the freedom and lives we have today.

The party was catered, and good food and wine were available for all the guests. They also enjoyed wonderful music and dancing throughout the evening.

I was approached by several of the Kunde event staff who expressed their pleasure with the PCAM supporting staff, and the amazing PCAM grounds which provided the venue for a highly successful evening.

It should be noted that PCAM provides opportunities for local businesses to host their own parties on our grounds. Our staff will work with the caterers and event support staff in coordinating their events. The uniqueness of our aircraft display as a wonderful background for events has proven to be a hit throughout many corporate events.

In closing I would like to thank the following for their hard work in supporting this event:

Tony Bassignani, Bruce Tinkham, Dave Watson, Jim Fisher, Rick Elwood, Alan Chensvold, Ron Stout, and Dave Sandine. 🇺🇸

**Job Opportunity**

**Airline Customer Service Agent/Ground Service Agent at the Charles M. Schulz - Sonoma County Airport**

Join our team providing "OUTSTANDING CUSTOMER SERVICE" in a fun and unique environment at the airport!

This part-time (2 days a week) position is for a new contract supporting a large national airline's new scheduled passenger flights to Santa Rosa.

Learn more about the physical requirements, training and job details at [www.sonomajetcenter.com/aboutus](http://www.sonomajetcenter.com/aboutus).

To apply, email [jobs@sonomajetcenter.com](mailto:jobs@sonomajetcenter.com) or stop by Sonoma Jet Center at 6000 Flightline Drive in Santa Rosa, CA. ★

**Air Show Flashback**

These of course are the Canadian Forces Snowbirds performing at the 2015 Air Show. Thanks to photographer and PCAM member/volunteer John Nelson for providing this striking shot.



© John Nelson

**The Pacific Coast Air Museum's Platinum Sponsors**

The Pacific Coast Air Museum thanks its Platinum Level Sponsors, whose contributions help make our museum the thriving community resource it is! If you would like to find out about sponsorship opportunities with the Pacific Coast Air Museum, contact Roger Olson, Director of Business Development, 707-396-3425 or [rogerolson427@gmail.com](mailto:rogerolson427@gmail.com) ★





## The Pacific Coast Air Museum

### Location

One Air Museum Way, Santa Rosa, CA, 95403  
[www.pacificcoastairmuseum.org](http://www.pacificcoastairmuseum.org)  
707-575-7900

At the Charles M. Schulz-Sonoma County Airport, north of Santa Rosa. Hwy 101 north to Airport Blvd. and go west. Turn left on North Laughlin Rd, right on Becker Blvd. then right on Air Museum Way.



### Hours

Wednesday, Thursday, Friday, Saturday and Sunday.  
10:00 a.m. - 4:00 p.m. Closed on major holidays.

### Open Cockpit Weekends

One or more aircraft are open for close examination the third weekend of each month (weather permitting) and you can even climb aboard some of them! For more info phone 707-575-7900 or visit [www.pacificcoastairmuseum.org](http://www.pacificcoastairmuseum.org).

### Member Meetings

Normally held on the third Wednesday of each month, 7:00 p.m. at Columbia Distributing, formerly Mesa Beverage, 3200 N. Laughlin Road, Santa Rosa, CA

### “Straight Scoop” Newsletter

The museum newsletter, “Straight Scoop” is published monthly and is available online on the museum’s web site. Members are encouraged to submit articles for possible publication. Deadline: the 26th of the month prior to publication. All articles in the newsletter are covered by copyright. If you wish to submit articles or use any of the content, please contact [Peter Loughlin](mailto:Peter Loughlin), Editor: [pcam-news@loughlinmarketing.com](mailto:pcam-news@loughlinmarketing.com), 707-575-7900.

### Membership Renewals

\$50 per year individual; \$100 per year for families. Send renewals to the museum, address below.

### Address Corrections

Please send to Pacific Coast Air Museum, One Air Museum Way, Santa Rosa, CA 95403

Visit our web site at [www.pacificcoastairmuseum.org](http://www.pacificcoastairmuseum.org) or call 707-575-7900 for more information.

Read the “Red Baron Flyer,” the quarterly newsletter of the Charles M. Schulz-Sonoma County Airport: <http://www.sonomacountyairport.org/red-baron-flyer>

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**Vol. Coordinator: Air Show**  
Position Open

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Norma Nation 707-525-9845

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Peter Loughlin 707-704-6498

**Web Administrator**  
Peter Loughlin 707-704-6498

**PCAM YouTube Video Channel**  
<http://www.youtube.com/user/PCAMvideos>



# STRAIGHT SCOOP

## April 2016

*Open Cockpit*  
*April 16-17, 2016*  
**Top Gun Weekend**  
*F-14A Tomcat, F-16N Viper,*  
*F-5E Tiger II*

### REMEMBER THESE DATES

April 7, 2016	11:30 a.m. - 1:00 p.m.	Hot Dog Thursday — first of the season!
April 20, 2016	6:00 p.m. - 7:00 p.m.	Air Show Meeting at Columbia Distributing, formerly Mesa Beverage
April 20, 2016	7:00 p.m. - 9:00 p.m.	PCAM Member Meeting at Columbia Distributing, formerly Mesa Beverage
May 5, 2016	11:30 a.m. - 1:00 p.m.	Hot Dog Thursday
May 13, 2016	7:00 a.m. - 6:00 p.m.	Bus Tour: Computer History Museum, Mountain View
May 18, 2016	7:00 p.m. - 9:00 p.m.	PCAM Member Meeting at Columbia Distributing, formerly Mesa Beverage
June 2, 2016	11:30 a.m. - 1:00 p.m.	Hot Dog Thursday
June 15, 2016	7:00 p.m. - 9:00 p.m.	PCAM Member Meeting at Columbia Distributing, formerly Mesa Beverage
June 18, 2016	9:00 a.m. - 5:00 p.m.	Mustang Roundup & Muscle Car Show: Ford Mustangs and P-51s displayed together!

**Pacific Coast Air Museum**  
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**Santa Rosa, CA 95403**  
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**[www.pacificcoastairmuseum.org](http://www.pacificcoastairmuseum.org)**