COMBAT AIR MUSEUM

Plane Talk

The Official Newsletter of the Combat Air Museum

Topeka Regional Airport Topeka, Kansas

August / September 2014 • Vol. 30, No. 4

The story behind the engine that powered the 1903 Wright Flyer

Our speaker for the June Membership Luncheon came to us from Warrensburg, Missouri. Fred Schieszer is a full time member of the faculty and staff of the Department of Aviation, University of Central Missouri (UCM). He is a professor and Undergraduate Program Coordinator for the Department. He retired nine years ago and is an emeritus faculty. Professor Schieszer has both military and civilian experience in aviation. He was in the United States Coast Guard and flew in both rotary and fixed wing aircraft. He has been a licensed pilot since 1967. He has worked as an aircraft accident investigator for many years and is a nationally recognized accident investigation consultant. During previous employment at UCM, he established an Aircraft Accident Investigation Laboratory at the University's Skyhaven Airport. He helped start an aircraft manufacturing business which was the first to introduce electronic "capacitance discharge" high energy ignition systems. Professor Schieszer holds a BS in Psychology, an MS in Aviation Safety, and an Ed.S in Industrial Education.

Professor Schieszer's topic for the luncheon focused on the engine used to power the 1903 Wright Flyer. His interest in the subject came after attending an Experimental Aircraft Association presentation in 2003.

Professor Schieszer introduced the audience to the late Charles Edward Taylor, the man who built the engine for the Wright Flyer. The Wright brothers initially hired Taylor to fix bicycles in The Wright Cycle Company in Dayton, Ohio. Taylor did this, and as the brothers became more involved with flying, Taylor generally ran the business. Professor Schieszer said that sometime in 1902-1903, Taylor figured out how to build an internal combustion engine. His first engine was handmade and produced about three horsepower.

This self-learned knowledge proved useful to the Wright brothers as they were having difficulty finding

Luncheon speaker Fred Schieszer of University of Central Missouri.

an engine that met their specifications to power the Flyer. They wanted an engine that produced at least 8 horsepower and weighed no more than 200 pounds. Professor Schieszer said there was nothing on the shelf in the US that met this power-to-weight ratio. Weight was the problem, and he said it would probably have taken a 600 pound engine to produce the desired horsepower. The brothers approached Taylor to build the engine, which he agreed to do.

Professor Schieszer said the shop equipment available

"Engine" con't. on Page 9

Inside This Issue

Combat Air Museum
Topeka Regional Airport
Hangars 602 & 604
7016 SE Forbes Avenue
Topeka, KS 66619-1444
Telephone (785) 862-3303
FAX (785) 862-3304
www.combatairmuseum.org
Provided by
Rossini Management Systems, Inc.
Email: office@combatairmuseum.com

Museum Hours
January 2 - February 28/29
Mon. - Sun. Noon - 4:30 P.M.
Last Entry Every Day is 3:30 P.M.
March 1 - December 31
Mon. - Sat. 9 A.M. - 4:30 P.M.
Last Entry Every Day is 3:30 P.M.
Closed New Year's Day, Easter,
Thanksgiving, Christmas Day

Newsletter Layout & Design
Toni Dixon
785-865-4221
Plane Talk, the official newsletter
of Combat Air Museum
of Topeka, Kansas,
is published bi-monthly.
Your comments are welcomed.

From the Chairman's Desk

Gene Howerter, Chairman, BOD

As summer approaches the half way point, by all accounts the Museum is on track to wind up the peak season in a normal position on all fronts. Most days at the Museum this summer have produced a very nice turnout of visitors, which is always good for many reasons. Most importantly our visitors provide the revenue which helps keep the Museum open. Additionally, it is always interesting to visit with people not only from Kansas and the Topeka area, but from various states and foreign countries.

As I have said before, one of the most fascinating things to many of us at the Museum is visiting with guests from all around the USA and various foreign countries. We are what we are, but it is very satisfying to hear many of our guests tell us how much they have enjoyed our Museum and what we have to offer. We are, for all practical purposes, a hands-on Museum, and visitors appreciate that aspect of our collection.

Having said that, I must say I keep thinking, "Why in the world did we wait so long to construct such a nice user friendly flight simulator?" We really owe our two members Russ Wiedle and Randy Hemm a big thumbs up for the magnificent work they did developing the simulator. It has really been a big hit with our visitors, some who have always wanted to experience the feeling of flying an airplane. Just to see the look on the faces of many youngsters, particularly in the "Young Aviators" education classes, other young visitors, and some "oldsters" is worth the effort. And I will add that our volunteers who supervise the people flying the trainer say their time spent and the experience are enjoyable, too.

On a personal note: I have been watching the news as Senator Bob Dole tours the state of Kansas at age 90+. For those who may not be aware, Senator Dole in past years was very instrumental in helping the Museum in many ways which I shall never forget. I would like to thank Bob for all of his past support. "A Big Thank You, Bob Dole, and you are always welcome to visit the Combat Air Museum."

I would also like to thank all of those who participated in this second year of Topeka Gives; a Fun Day of Giving. This year we had both members and friends of the Museum donate, and we saw a rather significant increase in donations over the first year which produced $380. The final tally for this year's event produced a total of $1,851! All of us send our thanks to all who heeded the call and showed up with their contributions for the Combat Air Museum. For those who donated this year and are not CAM members, we are sending a copy of our newsletter as our thanks for giving. Again, I thank you for your support.

Remember our August Membership Luncheon will be held at The Museum of the Kansas National Guard. All attending will get a VIP tour of that museum, if you wish to participate. As always, it is a covered dish luncheon.

The first of August we will be sending out letters to past sponsors of our Combat Air Museum Annual Fun Run. If you have never participated as a sponsor, sponsorships usually start at $100.00 to get your name on our beautiful T-shirt. However, keep in mind that as this fundraiser is what supports the Museum financially through the winter, for the most part, we would welcome any donation. If you know of any individual or businesses who would like to support us please give them this information or let us know and we can contact them. We thank all of those who have willingly supported this event in the past. Don't forget to come to the Museum September 27th and watch (or better yet, volunteer) as

the race starts at 8:00 am sharp. Also if you know someone (kids, grandkids, neighbors, etc.) who will support this event by walking or running, please invite them to register. We have brochures and online information at; www.combatairmuseum.org and www.active.com. For more information please contact the Museum.

Finally, we are only a few weeks away from the most awaited day of the 2014 year - the unveiling of the beautiful reproduction model of the USS ORISKANY on Tuesday, September 23rd. The final plans and preparations are taking place, at this time, for the September ORISKANY Association Reunion in Topeka at the Combat Air Museum.

Please visit the Museum when you can, and thanks to all for your support.

✈ ✈ ✈

Your membership is important to us.
Join the Combat Air Museum.

Visitors

During **May**
the Museum had
1190 visitors
from 39 states,
Washington, D.C., and
Australia
Canada
China
Czech Republic
Denmark
Germany
Great Britain
Mexico
Netherlands
Poland
South Africa

During **June**
we had
1136 visitors
from 36 states,
Washington, D.C. and
Australia
Belgium
Canada
Czech Republic
Denmark
Great Britain
Russia
Ukraine

✈ ✈ ✈

Calendar of Events

August
Monday - Thursday, August 4-7
Youth Aviation Education Class
Jean Wanner Education Conference Room
(JWECC)
9 am – 12:30 pm
$50 per student for the class session

Monday August 11
Membership Luncheon
NOTE: This luncheon will be held at the
Museum of the Kansas National Guard.
11:30 am
As always, bring a potluck dish.
Brigadier General Ed Gerhardt (RET) and
Lieutenant Colonel Doug Jacobs (RET)
will talk about the Museum
of the Kansas NationalGuard.

September
Tuesday, September 23
USS ORISKANY REUNION
Hangar 602
Afternoon and Evening

Saturday, September 27
CAM Winged Foot 5K/10K Run & 5K Walk
Hangar 602
8 am

There is no Membership Luncheon
in September.
The next luncheon will be
Monday, October 13.

✈ ✈ ✈

In Memoriam

Carol Ballantine
#3038
1930-2014
July 5, 2014
Topeka, Kansas
Ten-year member

Get ready for the 10th annual Winged Foot K/10K Run and 5K Walk

Saturday, September 27, 2014

Our 10th Anniversary Edition of the Winged Foot 5K/10K Run and 5K Walk takes place on Saturday, September 27, 2014. It does not seem like we have been doing this annual fall fundraiser for 10 years, but it is so. Preregistration brochures for the run/walk are currently available. Registration can also be done online. The forms can be downloaded for printing from our website: www.combatairmuseum.org. You may also register and pay for the event at www.active.com. Only preregistered entrants are guaranteed a T-shirt.

The preregistration fee is $20 (or $26 including a T-shirt). (Sunflower Striders members are entitled to a $2 discount). Registration the day of the event is $22. All registration fees cover free admission to the Museum. Race Packets will be available for pickup at the Museum on Friday, September 26 from 9 am – 3 pm.

The monies raised by the Winged Foot particularly help us through the winter months when heating costs rise during our months of lowest attendance.

Race day registration takes place from 6:45 am to 7:50 am. The race starts at 8 am. Awards will take place approximately 9 -9:15 am. The race start and finish line is on SE Forbes Avenue, on the west side of Hangar 602. The 5K walkers and runners make one circuit of the course, the 10K runners complete two circuits. Plenty of parking is available on the west side of SE Forbes Avenue.

We plan to feature the F-14 Tomcat on this year's T-shirt. The F11F Tiger Blue Angel, F4 Phantom and F9F Panther were featured in 2011, 2012, and 2013, respectively. To receive a T-shirt entrants must be preregistered and paid by the cutoff date of September 5. There is no guarantee of shirts after this date. Remember, an additional fee of $6 is charged for the T-shirt.

Medals will be awarded to the top three lady and male runners and walkers in each of 16 age group classes.

The CAM Winged Foot 5K/10K Run and 5K Walk is a benefit event for the Combat Air Museum. We are a 501(c)(3) not-for-profit organization. We receive no taxpayer subsidies or funding, and we must raise funds for our daily operations through fundraisers such as this. The monies raised by the Winged Foot particularly help us through the winter months when heating costs rise during our months of lowest attendance.

We encourage those of our members who can, to participate in the event. Make it a family outing. For those of us who will not participate in the runs or walk, there are certainly other ways we can support this fundraiser. Become a sponsor and get others to sponsor. This can be done as an individual, or a business, or other entity. Sponsorships are $100 and the name(s) of the sponsors are printed on the back of the T-shirt. Spread the word about the event. Encourage friends and family who enjoy fitness and recreational activities to participate. People do not have to be a competitive runner or walker to join in this event. They can make it a cardiovascular exercise/workout. Late September is a good time for this event. The weather is warm but without the heat and humidity of summer. Last year was the first time we had rain, but runners and walkers still came out, and seven age group records for women and men and a new 10K course record in the men's division were set.

We certainly need volunteers to put on this event. Folks are needed on race day at the registration tables, setting up mile posts and cones on the race course. There will be a water table to man at about the halfway point of the course, and we need course marshals to ensure runners and walkers turn at the appropriate places on the course. One person is needed at the south end of the course, at the turnaround cone. We use several volunteers at the finish line. Just come out and enjoy being a spectator and cheerleader and visit with participants.

Volunteers who work the registration table need to be at the Museum by 6:30 am. Other volunteers need to be here by 7:15 am. For additional information, contact Gene Howerter: chairman@combatairmuseum.com, 785-862-3303, or Deloris Zink: office@combatairmuseum.com, 785-862-3303.

✈ ✈ ✈

Focus is on the USS ORINSKANY with the arrival of the model and the upcoming reunion

On Sunday, July 13, 2014, **Dick Trupp** received a phone call from **Larry Todd**, a master modeler who has been working on a 1/96 scale model of the aircraft carrier USS ORISKANY for several years. Dick described the call as sounding a bit ominous, as Larry spaced out his comments. He told Dick he was calling about the ORISKANY, and just as Dick was thinking something really bad had happened to the model, Larry said, "It's finished."

Seven years 3 months, 14 days, and over 4,450 man-hours. Actually, it is the work Larry has been doing at Gardner, Kansas, that is done. Once the model comes to Topeka, he still has more to do.

A crew of volunteers will travel to Gardner on August 12 and load the hull with its new flight deck into a vehicle for transport back to Topeka. Upon arrival, we will place/install the model on its exhibit stand.

Then there will be a period of time when **Ted Nolde** installs the island superstructure (over 600 man hours to build) and **Darren Roberts** will install 43 model aircraft on the flight deck (over 200 man hours to build). **Jim Braun** will modify the exhibit stand to allow lighting in an area of the model's hangar deck, and to raise the entire base holding the hull. Once the model is in place, Larry and **Diane**, his wife, will apply a commercial paper mache mix to create a seascape around the ship, showing it underway, steaming through the ocean. Once it is applied and dries, it has to be painted. Dick is having a plaque made that will show dimensions and performance data of the carrier for the 1966 time frame. This will be placed next to the ship.

✈ ✈ ✈

On a whole different front, other volunteers have been working on the **USS ORISKANY Association Reunion** that will be taking place in Topeka September 21-24, 2014. The Reunion is being held here because of the ORISKANY model and through the dedicated efforts and campaigning by **Richard Painter** and **Bill Newman**, both former ORISKANY sailors. The schedule for the event is as follows:

Sunday September 21 – Attendees arrive at the Capitol Plaza Hotels and later assemble in the open court bar area.

Monday, September 22 – No organized activities planned. Free day to visit Topeka and area attractions. Dinner buffet at the Capitol Plaza Hotel

Tuesday, September 23 –

Morning: All participants and spouses tour the Kansas State Capitol Building. An ORISKANY Reunion meeting will take place in the Kansas House Chambers with invited speaker, Governor Sam Brownback.

Afternoon: Tour of the Combat Air Museum. Commissioning of the USS ORISKANY CVA-34 model.

Evening: Dinner buffet, music, and silent auction.

Wednesday, September 24 – Day tour to the Eisenhower Presidential Museum and Library, Abilene, Kansas. Dinner buffet at the Capitol Plaza Hotel.

A closer focus on **Tuesday, September 23** follows: Tours of Combat Air Museum for ORISKANY members will be given between 3 pm – 4:30 pm. The commissioning ceremony of the ORISKANY model begins at 5 pm in Hangar 602. CAM members are invited to attend the commissioning of the model. A color guard from the US Navy Junior ROTC at Shawnee Heights High School will present the colors followed by the National Anthem. There will be a few speakers making comments, followed by the unveiling of the model. A buffet dinner for the ORISKANY Association members follows, from 6 pm-8:45 pm.

✈ ✈ ✈

Sale of the O-47 makes space for new displays

After 13 years on the market, owner Bill Dempsay found a buyer for his North American O-47B aircraft that has been exhibited in Museum's collection since 1982. Mr. Pat Harker of Minneapolis, Minnesota, is the new owner. Mr. Harker and a few other folks visited CAM in early April and spent a couple of days going over the aircraft. He returned again on June 17, and the purchase had been made. Neither seller or buyer disclosed the particulars of the sale.

Gene Howerter visited with Mr. Harker for some time during the June visit. Mr. Harker was planning to bring a crew of people to Topeka to dismantle the O-47 and transport it back to Minnesota. Gene suggested he contact Worldwide Aircraft Recovery in Bellevue, Nebraska. Worldwide transported the CH-53 Sea Stallion, F9F-5 Panther, and MiG-21 for us. During a recent phone conversation, Mr. Harker told Gene Worldwide will do the dismantling and transport of the O-47.

When we get the word, we will tow the O-47 from Hangar 604 north to Hangar 612, location of the American Flight Museum. All work to prepare, dismantle, and load the O-47 will take place from that hangar.

Our file on the O-47 shows that the late Ervin Surritt requested the loan of the O-47 from Bill Dempsay in a letter dated November 10, 1980. At that time the aircraft

"O-47" con't. on Page 8

CAM volunteers keep projects moving

CH-53 Marine Exhibit

Tad Pritchett expanded the Marine exhibit inside the CH-53 Sea Stallion to include a second exhibit case. The second case features Viet Cong and North Vietnamese Army artifacts. Some of these had been in the larger case with the Marine mannequin. Others are new to the exhibit. The additional case cleaned up the overall exhibit as things were a bit crowded all together in the larger case. Placing the Viet Cong and North Vietnamese Army items in the new case also allowed Tad to put a few new US items in the larger exhibit. He has all the artifacts labeled and identified.

The second case is on wheels, and it had to be secured in some manner so it could not be rolled out of place, and yet still allow Tad to get to the rear sliding panels to work with the exhibit. He and **Danny San Romani** came up with a temporary security system by tying nylon line around three of the wheels and to stringers on the helicopter fuselage. Danny worked on the easy end. Tad was on the floor of the CH-53 for a while between the two cases, feeding the line around two wheels and tying it off to the helicopter. The system worked. The case had limited rolling movement, yet Tad could pivot it enough to work on the exhibit. **Don Dawson** later replaced the nylon line with a steel cable.

Wright Instrument Trainer

Phase I of doing repair and cleanup work on a Curtiss Wright Dehmel Flight Trainer is complete. **Don Dawson** is the principal worker on this project with assists from **Bob Crapser**. Data plate information for the World War II trainer includes Type P-3A and Trainer: Instrument Flying, 0-250 knots. It was built to train B-25 medium bomber pilots, but arranged so that it is a single seat trainer with instrumentation for single engine flight. It has been in the Museum for years, and for the past several years was against the west wall of Hangar 604. This was done purposely, as the trainer has an open area for an instructor, with all the instruments, knobs, switches, and recording devices exposed without protection. There are four opaque panels on the pilot section of trainer. Originally there were five but the door panel was replaced with a clear acrylic panel so visitors could look inside. The instructor station also has an original small, clear window at the left rear of the trainer through which to observe the pilot.

The instructor section separates from pilot section, and the instructor's console can roll around independently. Don and Danny rolled the pilot section and instructor's console into the workshop, and Don began his work. He removed the control yokepedestal, seat, and seat bracket from the trainer and began a thorough cleaning of the interior. He found that, for the most part, a thorough

cleaning was all he needed to do to the interior. There were a few rusty areas, and Don prepped and painted them.

A handful of instruments were missing from the panel, and Don and Bob figured out what they were. Bob replaced most with spares we held and built a couple of dummy instruments for ones we did not have.

The instructor's seat was in far better shape than the one inside the cockpit, so Don swapped these out. The seat bracket and control yoke pedestal cleaned up very well. Neither required any cosmetic restoration. Don added a wooden floor board under the seat area, and reinstalled the interior items. Several electrical cables had been rolled up and placed inside the trainer. For now, we have them stored.

With the work complete on the pilot section, Don and Danny rolled it out of the workshop and in an area behind the C-47's tail. As they checked things over, they found four latches on the forward exterior section of the trainer that needed to be secured so people would not open them. By doing so, the nose section of the trainer falls forward. They also found the exterior shell of the trainer was not affixed to its metal base. They found where bolts holes were to do this and installed the necessary bolts. After looking at what it would take to secure the four latches, Don felt it better to do the work inside the shop, so back in went the trainer. Don fixed the latches, and the trainer went back on exhibit. Then we found out from Bob that the front section has to slide forward in order to put gauges and instruments in the instrument panel. Don showed Bob what had to be undone to open the latches, and Bob later installed his last instrument to the panel and re-secured the latches.

Far left: Tad Pritchett's Vietnam exhibit inside the CH-53.
Above left: The Curtiss Wright trainer phase I.
Above right: Interior of the trainer.
Below: Dave Houser's Stearman scooter plane.

Phase II is cleaning and making any repairs needed to the instructor's console and station, and protecting the switches, knobs, dials, recording instruments, and other items on the station and console. Don is cutting out several clear acrylic panels to install over these items, using standoffs. He will also cover other openings in the console. There are a few light bulb covers and one switch missing that he will replace. When the work is complete, the station will be mounted to the rear of the pilot section. We plan to reconnect as many of the electrical cables as we can.

There is a yellow Property Identification sticker applied to the rear end of the instructor station. The date of the sticker is MAY 1965, and it has the acronym OCAMA on it. OCAMA stands for Oklahoma City Air Material Area. OCAMA was located at Tinker Air Force Base.

A smaller oval sticker by the trainer's data plate has a six-digit (inventory?) number and SCHILLING INSTITUE STATE OF KANSAS. The former Schilling Institute (1965-1969) was a two-year, State of Kansas, technical college, located at the former Schilling Air Force Base, Salina, Kansas. The school was renamed Kansas Technical Institute in 1969, then again to Kansas College of Technology in 1988, and merged with Kansas State University College of Technology and Aviation in 1991.

Bob commented that several existing gauges and instruments in the pilot's instrument panel were more modern than the World War II era. Many B-25J Mitchells were converted to various trainer versions after the war. Based on the trainer's instrumentation, we feel it may have been updated/modified to suit the TB-25N navigation trainer.

The US Air Force retired its last B-25 in 1959, and others continued to fly into the 1960s with Air National Guard units. Our trainer may have still been in use until the early 60s.

Scooter Plane

It has been a while since a new children's scooter plane has been put in the Gift Shop for sale, but **Dave Houser** is working to rectify that situation. A look at his workbench in Hangar 604 shows a yellow and blue biplane scooter nearing completion. Dave has put a fair amount of time into building the scooter, cutting the parts out of wood, sanding and painting the pieces, then doing the assembly work. He made several cylinder heads out of dowel rod to mount to the scooter's radial engine. The completed scooter will replicate a World War II Stearman primary trainer in the standard blue and yellow paint scheme of that era.

✈ ✈ ✈

"O-47," con't. from Page 5

was located at Bill's private grass airfield just south of Rantoul, Kansas. On a Sunday morning during May 1982, Museum volunteers pulled the O-47 from a muddy parking spot and loaded it onto a lowboy. The late "Doc" Stafford led a small caravan of volunteers and support vehicles on a 70-mile journey over secondary roads through three counties from Rantoul to Topeka. Mind you, the aircraft was not disassembled with the exception of wing tips and control surfaces, so it was quite a sight to see. Its overall wing span (with tips) is 47 feet 4 inches with a length of 33 feet 3 inches and height of 12 feet. It is not a small airplane. It took considerable planning, cooperation, and teamwork to move the lowboy and O-47 over roads with 24 foot widths. Apparently, there was a minor scratch to the underside of one wing during the transport.

For the next 32+ years CAM exhibited the O-47B in either Hangar 602 or Hangar 604. It went outside occasionally for airshows or other displays, but was otherwise kept inside.

The aircraft's US Army serial number is 39-098. It was one of 74 "B" versions built. Its military service included assignments to Robertson Field, Missouri; Adams Field, Arkansas; Salinas Field, California; and Esler Field, Louisiana. From 1947 until 1965, the aircraft operated out of Tulsa, Oklahoma, including doing aerial survey and aerial photography work. Bill Dempsay bought 39-098 in 1965. He flew the plane to Rantoul with the initial intentions of converting it to an aerial sprayer. He did not do this, but removed the control surfaces, and the plane sat pretty much in one spot for 17 years.

Four O-47s exist today. O-47A (37-279) is with the National Air and Space Museum, in storage at the Udvar-Hazy Center at Washington Dulles International Airport. O-47A (38-284) is under restoration at the Planes of Fame, Chino, California. O-47B (39-112) is on exhibit with the National Museum of the United States Air Force, Dayton, Ohio.

An Internet search shows that Mr. Harker owns or is at least associated with a North American P-51D Mustang Ridge Runner III, a North American B-25 Mitchell Lady Luck, a Vultee BT-13 Valiant, a Beech Baron, and most recently, a Boeing YL-15 Scout.

Knowing the O-47 is leaving, Danny San Romani began looking at re-spotting aircraft in Hangar 604 so that the Polish built MiG-17 (SBLim-6R), currently outside by the EC-12T Constellation, can be brought back inside. A number of chalk marks appeared on the floor of 604 as measurements were made. On July 16, **Don Dawson, Bob Crapser, Ralph Knehans,** and **Danny** swapped positions between the Bf-109 Messerschmitt mockup and the BT-13 Valiant.

The size and height of the O-47 allowed its left wing to overlap the right wing of the Bf-109 by 11 feet 8 inches. None of the other aircraft in the collection that have a footprint (wingspan and length) similar to the O-47 will do this. Moving the fuselage of the BT-13 to the Bf-109 spot eliminated the wing problem as the Valiant has no wings. By shuffling several exhibits around, we created room for the wingspan of the Bf-109 at the BT-13's former spot. The only two aircraft moved were the Bf-109 and BT-13, but this swap still took six hours.

The Bf-109 was first rolled outside the hangar. All items underneath the CH-54 were moved to one side of the helicopter or the other. Castors were then placed under the landing gear of the BT-13, and it was rolled tail first underneath the CH-54, between its main landing gear. Our first interference came up when we found the mast antenna of the BT-13 would not clear the bottom of the CH-54. Bob Crapser unbolted the antenna, lowered it into the fuselage, and the move proceeded. As the BT-13's tail neared the CH-54's loadmaster windows, the tail was swung to the northeast, and the crew rolled the plane from under the helicopter. The castors were removed, and the plane rolled outside.

The next step was bringing the Bf-109 back inside. As soon as it was in the hangar, the castors were put under its landing gear. The movement of the Bf-109 took much longer. At one point the replica pitot tube on the wing of the Bf-109 and a partial section of the real pitot tube on the F-86H Sabre were removed for clearance. The initial attempt to swing the 109 underneath the CH-54 and between its landing gear did not work. The crew pulled the 109 partially back out from underneath the CH-54 and repositioned it with its left wing to the north of the CH-54's left main landing gear and its tail to the south. The left wing root was as close to the CH-54's landing gear as possible. Then began an extremely slow pirouette of the Bf-109 around the CH-54's left landing gear. It was so slow, it hardly fit the definition of pirouette except for the direction of motion. Four pairs of eyes were constantly checking clearances all around the BF-109. There were many starts, stops, assessments, and adjustments. Slowly, but surely, the 109 swung around and through the main gear of the CH-54 and was finally positioned over the BT-13's spot. Within inches, the two aircraft have the same length. The movement was done. We left the castors under the Bf-109 wheels and one set under the tail wheel of the BT-13 for any further position adjustments, then closed the hangar doors and began putting equipment away and putting the exhibits, signs, and other items back into their respective places.

This was truly a team effort, and the four members involved each contributed their ideas and observations about the movements of the planes as well as the physical effort. The use of castors under the landing gear made the swap possible, as we could move the aircraft in any direction, in increments small and large. If we had not used the castors, the swap would have involved moving the O-47 and CH-54 out of the hangar to get them out of the way. Another helpful, and welcome, factor was the weather. We were in an abnormally cool week with low humidity and low dew point.

Bob put the BT-13 antenna mast and F-86 pitot tube back in place, and Danny did the same for the Bf-109 pitot tube. Bob also reconnected the power cable to the light in the Link Trainer that had to be temporarily moved. After things were rolled back into place around and under the CH-54, we called it a day.

The next morning, final positioning of the BT-13 and Bf-109 were made by Don and Danny, and they removed all castors from under the aircrafts' wheels. A week later, Bob relocated the power cable to light fixtures in the BT-13 cockpit. He also put new bulbs in the BT-13 and Link Trainer lights.

Once the O-47 is gone, the next phase of aircraft movements will occur. It starts with more chalk marks on the hangar floor. ✈

"Engine," con't. from Page 1

to Taylor included a 16 inch Putnam lathe, a band saw, and a drill press. With that size lathe, Taylor could manufacture an engine with a four inch stroke. Professor Schieszer said Taylor took a "slab'" of steel to build the crankshaft. There were no blueprints, no drawings, no tables of specifications or tolerances. The Wright brothers and Taylor developed sketches along the way, but that was it.

Taylor could not use the shop's band saw to cut out the crankshaft. Professor Schieszer said the blade was very wide and could not cut the necessary compound curves. It was good for straight cuts. Taylor drew the crankshaft's design directly on the block of steel using Prussian blue. He then used the drill press and chain-drilled the pattern of the crankshaft. Professor Schieszer said Taylor sat on the floor with the steel block between his legs and moved it around as he did the chain drilling.

Once the pattern was drilled, Taylor used a sledge hammer to beat the excess steel off the crankshaft. He then had to cut all the square edges of the main bearings to a smooth surface. He placed the crankcase in the lathe and had to center it. Professor Schieszer said there was no counterbalance, so the whole lathe had to shake and had to be bolted down. Taylor was cutting hard steel with hard steel cutting blades and went through many cutters.

A local Dayton foundry cast an aluminum crankcase for the engine. This may have been the first time this material was used in aircraft engine production. Professor Schieszer said it took Taylor 59 days to build the engine. He met and exceeded the Wright brothers' requirement for the power-to-weight ratio. The four cylinder, horizontal, inline engine produced 12 horsepower and weighed in at 165-170 pounds with all the accessories.

Professor Schieszer told us of his trip to see the shop where the engine was built. He was interested to see where and just how Charles Taylor built his engine.

"Engine" con't. on Page 10

Guest speaker for our next Membership Luncheon

The August Membership Luncheon will be at the Museum of the Kansas National Guard. Bring your potluck dish there and the meeting starts at 11:30 am.

Brigadier General Ed Gerhardt (RET) and Lieutenant Colonel Doug Jacobs (RET) will be our guest speakers. They will talk about the Museum of the Kansas National Guard, its holdings, and its plans for the future. If you have not been to the Museum, like CAM, it is located at the Topeka Regional Airport and Business Center. When you see a KC-135 Stratotanker on the east side of Topeka Boulevard, turn in there. You will drive east on SE Airport East Drive. The Museum building is to your left.

✈ ✈ ✈

Supporters

New Supporters

Loren Otis
Clint, Amy, Grant, & Ella Patty
Patsy Rush
George Upton

Renewing Supporters

Dale Anderson
David & Lucinda Bainum
Bruce Baker
Robert & Barbara Bunten
George Catt
William Cleaver
Ray & Cheryl Culp
Edward Dawson, Sr.
Kevin Drewelow
Michael, Wanda, Auna & Amari Dixon
Wayne Dodson
Adam Fast
Paul & Betty Frantz
Iris Gonzalez, Evan, Mike & Danny Cluff
Nikola, Marcie, Emily, Amanda & Ethen Jekic
Ralph Knehans
Raymond & Cheryl Kulp
David & Sharon Lybarger
Morris Mahan
Don & Becky Mathers
Larry Morgan
Gregg Moser
Rebecca Norburg
Herschel & Jacqueline Stroud
Larry & Diane Todd
Vic & Marjorie Van Camp
Dr. Rees, Kathy, Karsen, Morgan & Luke Webber
Mike & Carla Welch

✈ ✈ ✈

"Engine," con't. from Page 9

For anyone who wishes to see this building, you will not find it in Dayton, Ohio. You will need to travel to Greenfield Village in Dearborn, Michigan. The Village is part of a larger complex called The Henry Ford.

In 1936 Henry Ford purchased the Wright brothers' shop and homestead, and, as Professor Schieszer described it, moved the buildings brick by brick to Dearborn where they were rebuilt. Ford was creating a heritage village to honor great Americans. Charles Taylor was involved in the planning, moving, and restoration of the Wright home and the cycle shop. He helped finish the cycle shop as it was in 1903. He had some of the original equipment, and his son knew where the rest of it was located. Professor Schieszer added that Thomas Edison's Menlo Park laboratory was recreated in Greenfield Village in 1929.

Prior to traveling to Dearborn, Professor Schieszer contacted and communicated with staff at the Village about the purpose of his visit, and the docents at the cycle shop were ready to assist with his research.

He showed photos as he described the shop, its equipment and machinery, and how it all worked. One photo was of a bust of Charles Taylor, and he commented that Taylor was fifty years an aviation mechanic. The Federal Aviation Administration's Charles Taylor Master Mechanic Award is named in his honor, and there is the Charles Taylor Aviation Maintenance Science Department at Embry-Riddle Aeronautical University in Prescott, Arizona.

As he showed images of the building, Professor Schieszer told us that the two story brick front housed the bicycle shop. A wooden addition on the back of the brick structure housed the aircraft shop. The front shop consisted of two rooms where work was done on bicycles. His photos showed bicycles, bicycle parts, tools and shop equipment. The back, wooden section was all aircraft related items.

Initially, Professor Schieszer thought his viewing of the aircraft shop would all be from the visitor's side of a ¾ inch Plexiglas window. Then the docent let him behind the glass and he got to touch things. Professor Schieszer described how the lathe, drill press, and band saw in the aircraft shop operated. They were all run by a leather lathe (pulley belt) driven by a single natural gas engine that was mounted outside the shop. The pulleys were stepped to allow (speed) adjustment of the leather lathe.

Professor Schieszer then described the Taylor engine. It was a flat, four cylinder, inline engine with a water jacket. Springs opened and closed the intake valves and a camshaft on the underside of the engine operated the exhaust valves directly to the atmosphere. The engine had no fuel pump, carburetor, or spark plugs. It also did not have a throttle. It ran by a vaporization process. Gasoline was gravity fed from a small tank mounted on a strut below the upper wing. The fuel entered a tube-type opening next to the cast iron cylinders and mixed with incoming air. Heat from the crankcase caused the fuel-air mixture to vaporize and pass through the intake manifold into four combustion chambers mounted on the side of the engine.

Gene Howerter with Fred Schieszer.

Ignition took place by opening and closing two electrical contact points in each cylinder.

Professor Schieszer said hot water was used to start the vaporization process. He also said two 1.5 volt Blue Bell batteries, placed in series to generate 3 volts, were used to produce the initial spark to start the engine. Once the engine was running, a 20 pound flywheel drove a magneto to supply electric current.

He showed a cutaway of the Taylor engine, saying it was naturally aspirated and used pre-combustion chambers. Holes in the chambers were for exhaust. He pointed out that the fuel used in 1903 was more like kerosene than like today's gasoline. When people began building replica Wright Flyers for the 100th Anniversary of the first flight, they found the engines would not run on modern fuel – it was too good. Professor Schieszer said they had to dilute the fuel to get the right burn rate.

He told us that a spark will not jump a gap with 3 volts. As the two contact points in each cylinder closed they made an electrical connection. When they opened, the connection was broken and created the spark. When started, the engine ran at full speed. When the magneto took over, the batteries were disconnected, and the engine was self-sustained.

While showing a photo of the 16 inch lathe, Professor Schieszer talked about the feet/legs on the engine. He said they were there for the purpose of doing lathe work on the crankcase and not for mounting to the aircraft. Photos of the engine on the lower wing of the Flyer indicate that the legs were used for mounting the engine, but that was not their original purpose. Professor Schiesezer stated again the size of the Putnam lathe dictated the size of the engine's bore and stroke. Taylor made them as large as the lathe would allow, and by happenstance got 12 horsepower. The Professor said that was later increased to 18 horsepower.

Professor Schieszer said the engine had a “splash and spray” lubricating system. A water jacket partially cooled the engine. A small water reservoir replenished the water jacket as water evaporated. He also said the original cast aluminum engine block may be on exhibit at the museum at the Wright Brothers Monument in Kitty Hawk, North Carolina.

"Engine," con't. from Page 10

Professor Schieszer spoke some about other aspects of the Wright brothers and the Flyer. He said when they were first testing airfoils, they attached their test designs to the front of a bicycle then rode it down a hill to see which airfoils would create lift. The idea for the wing warping aspect of the Flyer occurred one day when one of the brothers was talking with a customer. He was holding an inner tube box and began twisting it in his hands as he was talking, and the idea popped into his head.

He said the propeller shaft was the most troublesome part of an engine due to harmonics and resonance. These can cause damaging vibrations and stress in a crankshaft. The two propellers on the Wright Flyer were counter-rotating and chain driven. He said the first propellers were about 70% efficient. In reading about propeller shafts and propellers, Professor Schieszer came across documents relating to a 1908 crash of a Wright "military Flyer" that seriously injured Orville Wright and killed US Army Lieutenant Thomas Selfridge. The document indicated that a guy wire broke and became entangled in a propeller. Professor Schieszer said that early propellers were held to the shaft with wood screws to keep them from rotating on the shaft, probably much like set screws. This caused many stress fractures in the propeller. He felt the propeller on the military Flyer came apart and cut the guy wire, causing the plane to crash. Afterward, Charles Taylor put a round hub with backing plates in the propellers.

Professor Schieszer answered several questions from the audience, and then Gene Howerter presented him with a Certificate of Appreciation.

✈ ✈ ✈

World War I exhibits commemorate 100th anniversary

In the From the Chairman's Desk article in the February/March 2014 issue of Plane Talk, Deputy Chairman Dave Murray wrote of the cooperative effort to commemorate the 100th anniversary of the First World War. At CAM, exhibits are in various stages of completion to cover the first year of the Great War (it was not called World War I at the time).

Tad Pritchett completed one exhibit just to the left of our Rowley-Curtiss JN-4D Jenny. The case holds some 25 artifacts of British, French, and German military equipment, documents, medals, and personal items, complete with signage. He has a second, larger exhibit in the planning that will be a diorama of the front line and trenches.

Stu Entz put together an exhibit in a case just to the right of the Jenny. This exhibit also consists of some 25 artifacts and depicts a radio operator's station at an airdrome. The operator's table is made of boards placed atop empty ammunition boxes. Stu also placed a mannequin in the rear seat of the Jenny, dressed in replica World War I flight gear. The basic mannequin is a male torso with a head. Stu built arms out of PVC pipe and hands out of heavy gauge wire. He used polyester fiberfill to bulk up the arms, hands and fingers. He also formed the flyer's hands so that the left one is resting on the rear windscreen and the right one is giving a "thumbs up" sign. Stu added signage for the exhibit.

A third exhibit is under construction. Dave Murray is preparing a case located along the east exterior wall of the Gift Shop near the stairs going to the Museum offices. Currently there are a few aircraft models and posters in this case.

Stu created a writeup that will tie all four exhibits together. Dave and Tad have reviewed and made preliminary comments on the first draft.

✈ ✈ ✈

Above: Tad Pritchett's World War I exhibit.
Below: Stu Entz's World War I exhibit.

2014 Events

August
4-7 - Youth Aviation Education Class
11 - Membership Luncheon
NOTE: The Membership Luncheon will be held at the Museum of the Kansas National Guard
Kansas National Guard Museum
with Big. Gen. Ed Gerhardt (Ret) and
Lt. Col. Doug Jacobs (Ret)

September
24 – USS ORISKANY Reunion; tour, evening buffet in Hangar 602
27 - 10th Annual Winged Foot 5K/10K Run

October
13 - Membership Luncheon
with Officers of the US Army
Command and General Staff College

November
27 - Museum Closed, Thanksgiving Day

December
8 - History of the Citizen
Potawatomie Nation
with Col. Jon Boursaw (Ret)
25 - Museum closed, Christmas Day

✈ ✈ ✈

Please make note of CAM's new mailing address

Combat Air Museum now has a new mailing address. A mailbox is located at the entrance to the parking lot to Hangar 602. The new address is:

Combat Air Museum
7016 SE Forbes Avenue
Topeka, Kansas 66619-1444

We are currently receiving mail at the new address and still some at the Post Office Box. We will close down the latter on July 31, 2104. The new address reflects the physical location for Hangar 602, and serves as our mail and shipping address.

We are changing our letterhead and other forms of correspondence accordingly. Please enter this new address in your personal records.

✈ ✈ ✈

Read about the exhibits commemorating the 100th anniversary of World War I on page 11.

Stu's pilot in the Jenny