MEMBER APPRECIATION MONTH

JOIN US IN FEBRUARY AS WE CELEBRATE THE WONDERFUL SUPPORT OF OUR MEMBERS!

FEB. 2 Membership Breakfast 8:30 am*
Are you curious about what is happening at Evergreen or what is just around the corner? Come to the membership breakfast where we will answer all of your questions while you enjoy a delicious breakfast!

FEB. 3, 10, 17, & 24 Membership Waterpark Days
Enjoy a lower discounted price for members. $15/person good for as many guests as membership allows.

FEB. 9 Gun Room/Restoration Area Tours*
10:00 am (Members Only)
11:30 am (Members Only)
1:00 pm (Members Only)
Would you like to see where all of the restoration of our aircraft takes place and see even more of our gun collection? Stop by for a special tour of our operation across Highway 18 from the Museum.

FEB. 16 Movie and Wine Tasting*
Bring a date to our movie and wine tasting night at the Evergreen Theater.
5:30 pm : Evergreen Theater Mezzanine; Members Only FREE
6:30 pm : Movie “Memphis Belle” • Evergreen Theater

FEB. 23 The Paper Airplane Guy*
John Collins is coming back to Evergreen and this time as a world record holder for distance with a Paper Airplane!
8:00 am : Aviation Museum Members Only show and light breakfast
10:00 am : General public show FREE with museum admission
1:00 pm : General public show FREE with museum admission

* Reservations required for most events due to limited space. Please visit our website for details reservations@sprucegoose.org | EvergreenMuseum.org | 503.434.4185
Our Mission -

To inspire and educate
To promote and preserve aviation and space history
To honor the patriotic service of our veterans

Is your Birthday missing from the list???
Send an email to Katha Lilley
tooticket@live.com

2- Marlene Lee
3- Alexander Dondaville
3- Jack Dowty
3- Steve Thomson
3- Roger Weeks
4- Wesley Lawson
4- John Persha
4- Sylvia Morley
5- Jack Burock
5- George Heimos
6- Bruce Bothwell
6- Dick Johnson
8- Terry Dickerson
8- Dee Hemmendinger
9- Hal Augee
9- Edward Shellenbarger
11- Erich Hintz
11- Loren Otto
11- Lois Berry
12- Rod Church
12- John Holliday
12- Ed Onstott
13- CM Stordahl
14- Dwayne Cole
14- Robert Ames
16- Michael Bell
18- Nick (Walter) Majure
18- Marlene Wood
19- Elinore Henderson
20- Lee Danielson
20- Mary Lou Lunde
21- Michael Eastes
22- Myron Cline
23- Matthew Lowry
23- Dick Wood
24- Dave Reitz
24- James Winters
25- David Hatfield
25- Ray Mader
26- Vivian Peterson
27- Wayne Swanson
28- Ron Toxler
28- Larry Smith
31- Jim Hermans

ALL YOU NEED IS LOVE.
BUT A LITTLE CHOCOLATE
NOW AND THEN
DOESN’T HURT.
CHARLES M. SCHULTZ
How many of you know that in 1910, mighty Martin Marietta got its start in an abandoned California church? That’s where Glenn L. Martin with his amazing mother, Minta Martin, and their mechanic Roy Beal constructed a fragile bi-plane that Glenn taught himself to fly.

Needing more space Martin moved to a vacant apricot cannery in Santa Ana. He was a showman, traveling the county fair and air meet circuit as an exhibitionist aviator. From his exhibition proceeds, Glenn was able to pay his factory workers and purchase the necessary wood, linen, and wire. His mother, Minta, and two men ran the factory while he risked his neck and gadded about the country. One of his workers was 22-year old Donald Douglas who was the entire engineering department. A Santa Monica youngster named Larry Bell who later founded Bell Aircraft, which today is Bell Helicopter Textron, ran the shop.

Another part of Glenn Martin’s business was a flying school with several planes based at Griffith Park and a seaplane operation on the edge of Watts where his instructors taught a rich young man named Bill Boeing to fly. Later Boeing bought one of Glenn Martin’s seaplanes and had it shipped back to his home in Seattle. At the same time, Bill Boeing hired away Glenn’s personal mechanic. Later, after Boeing’s seaplane crashed in Puget Sound, he placed an order to Martin for replacement parts. Still chafing from having his best mechanic “swiped,” (a trick he later often used himself), Martin decided to take his sweet time and allowed Bill Boeing to “stew” for a while. Bill Boeing wasn’t known to be a patient man and began fabricating his own aircraft parts -- an activity that morphed into constructing entire airplanes and eventually the Boeing Company we know today.

A former small shipyard nick-named “Red Barn” became Boeing Aircraft’s first home. Soon, a couple of airplanes were being built inside, each of them having a remarkable resemblance to Glenn Martin’s airplanes…that, interestingly, had its own remarkable resemblance to Glenn Curtiss’ airplanes.

A few years later, when the Great Depression intervened and Boeing couldn’t sell enough airplanes to pay the bills, he diversified into custom-built speedboats and furniture for his wealthy friends. After WW I, a bunch of sharpies from Wall Street gained control of the Wright Brothers Co. in Dayton and the Martin Company in L.A. and “stuck” them together as the Wright-Martin Company.

It has often been told how Douglas Aircraft started operations in 1920 in a barbershop’s backroom on L.A.’s Pico Blvd. Interestingly, the barbershop is still operating. The Lockheed Company built the first of their famous Vegas in 1927 inside a building currently used by Victory Cleaners at 1040 Sycamore in Hollywood.

In 1922, Claude Ryan, a 24-year-old military reserve pilot, was getting his hair cut in San Diego, when the barber mentioned that the “town’s aviator” was in jail for smuggling Chinese illegals up from Mexico. Claude found out that if he replaced the pilot “sitting in the pokey,” he would be able to lease the town’s airfield for $50 a month -- BUT he also needed to agree to fly North and East – BUT not South!

Northrop’s original location was an obscure Southern California hotel. It was available because the police had raided the hotel and found that its steady residents were money-minded gals entertaining transitory male hotel guests.

Source: Denham S. Scott, North American Aviation Retiree’s Bulletin

Continued in the March 2013 issue of Flightplan

BOB OSBORN

Questions, comments: osbornrlawrence@frontier.com
ROSCOE TURNER

Who are your heroes of the 20th century?

When asked a question like that, my head spins because the last century produced so many people who, because of their experiments and through their work during their time in the service, had a profound impact on our lives.

The name Roscoe Turner may not be one of the first names that comes to mind if at all, but he went on to make his mark in aviation. As a young boy in a family of pilots, I saw plenty of aviation publications. One contained a picture of an aviator holding a lion cub while standing next to an airplane. I asked my grandfather if he knew who this man was. He gave a short chuckle, "That's Roscoe Turner", then he went on to explain, "Oh, he is just an actor, a showman." The pilot was wearing a German uniform. My new mission was to find out why Roscoe Turner was famous for more than his picture holding a lion cub.

Roscoe was born September 29, 1895, lived an exciting life, and died on June 23, 1970. Roscoe became interested in aircraft in 1913. When America entered World War I, he applied for flight training but was turned down because he did not have a college education. Because of his background with automobiles, he was given driver duties in the Army. As the need for pilots grew, the education requirements were lowered; and he was trained as a balloon observer. However, he trained privately to receive his aircraft pilot rating.

Roscoe was discharged as a First Lieutenant in 1919; with his discharge pay, he purchased a surplus aircraft and spent the 1920's barnstorming. He also worked for a time as a stunt pilot for the movies. His Sikorsky S-29 stood in for a German bomber in Howard Hughes movie Hell's Angels.

There was the connection -- the pilot holding the lion cub was the actor in a German uniform.

As an air racer Roscoe had multiple company sponsorships in this pre-NASCAR era, but he is probably best known for his endorsement of the Gilmore Oil Company. who provided him with a lion cub named “Gilmore” for publicity; complete with a cub-sized parachute, Turner would frequently take “Gilmore” on tour with him.

Roscoe also had an eye for business. His Nevada Airlines would fly wealthy passengers throughout the Reno, Nevada, area. He was granted the title of Colonel in the Nevada National Guard by the Governor of Nevada for his efforts.

During Turner's air racing career, he set the east to west transcontinental airspeed record at 12 hours and 33 minutes, from New York to Burbank, California, on November 14, 1930, two hours and 17 minutes faster than the previous year's winner Frank Hawks. He also won the Bendix Trophy in 1933 and the Thompson trophy in 1934, 1938, and 1939. He retired from racing after the 1939 Thompson race stating that, at age 44, he was too old to race.

Turner established a flying school during World War II, ultimately training some 3,000 pilots. He was also associated with the Porterfield Airplane Company in Kansas City, Missouri. For a time, Porterfield aircraft were marketed as Porterfield-Turners.

Later in life, Turner founded the Roscoe Turner Aeronautical Corp. a large fixed-base operator in Indianapolis, Indiana. In 1947, the Civil Aeronautics Board granted authority to operate Turner Airlines, later named Lake Central Airlines. He was also an honorary official with the Indianapolis 500 car race for many years.

In 1952, Roscoe Turner was awarded the Distinguished Flying Cross by the US Congress for his contributions to aviation. That same year Gilmore the lion died. His body was stuffed, mounted, and put on display in the Turner home. Currently, Gilmore is owned by the Smithsonian Institution who keeps him preserved in cold storage.

Roscoe was inducted into the Motorsports Hall of Fame of America in 1991. The official name of CRX, the airport in Turner's native Corinth, Mississippi, is known as “Roscoe Turner Airport”. The aircraft with which Turner won the 1938 and 1939 Thompson Trophy, the Laird-Turner RT-14 Meteor, is on display at the Udvar-Hazy annex of the National Air and Space Museum, Washington D.C.

Of course, after doing a little research I came away with a completely different opinion than that of my grandfather, and I now have another hero to add to my book of famous aviators.

References:


External links: Roscoe the Lion-hearted
In 1938 Boeing began flight tests of its Models 307 and 314, with the hope of getting back into the commercial transport business. The Stratoliner – Model 307, 1st flight December 31, 1938, Introduced 1940, Retired 1975.

Adapted from the B-17C, the Stratoliner shared the same wing, tail, rudder, landing gear, and engines. Boeing advertised the ability of the Stratoliner to cruise at 20,000 feet, carrying passengers in a luxurious pressurized cabin “over the weather.” Famous International airlines from North and South America to Europe flocked to see and buy this awesome new bird. One was KLM, the Royal Dutch carrier.

Boeing flight test personnel took their KLM visitors for an extensive familiarization flight that ended in a tragic crash, killing all on board. What went wrong? Boeing had never had a similar crash of any previous design. Yes, the Prototype B-17 had also crashed, but that was clearly pilot error in trying to takeoff with control gust locks engaged. This crash site was more remote and the event more disturbing.

Boeing went back to the drawing board, reviewing and scrutinizing every study and test performed on either the B-17 or the Stratoliner. There it was all the time! Wind tunnel tests on both showed that under a certain set of conditions, the airplanes would not properly recover from a stall. The tests had failed to alert Boeing engineers because this particular problem had never been previously observed in flight tests, and so it was thought the phenomenon was a characteristic of the test facility and not the aircraft design.

The fix to both the Stratoliner and B-17 was easy enough. The leading edge of the vertical fin was extended forward in a swoosh, giving the ten surviving Stratoliners and the Boeing B-17D, E, F & Gs, the B-29, and KC-97 their distinctive “Boeing Look.” But nothing would fix Boeing’s relations with KLM who bought Douglas airplanes until the 747 in 1970.

The Boeing Clipper – Model 314, 1st flight June 7, 1938, Introduced 1939, Retired 1946.

The Boeing Clipper was conceived in the mind of Wellwood Beale; the preliminary design was developed on the Beale family dining room table. Mr. Beale used the basic XB-15 wing. Not to take anything away from Mr. Beale’s success, but a great deal of additional work was required to refine the Clipper’s design.

It had been years since Boeing had built a seaplane and never one so large. Several problems stemmed from the use of the XB-15 wing, a low-wing design, in this high wing application. During taxi tests the 314 hull wallowed. The wallowing was largely corrected with the addition of sponsons at the waterline on the port and starboard sides of the hull, just below the wing. Shaped like stubby wings, the sponsons clearly shortened the takeoff run and were thought to also add to the overall range of the clipper.

Still the high winged Clipper was overly stable and continued to lack good handling qualities on the water and in the air. The final aero-dynamic fixes involved providing additional verticals to the stabilizer, creating a three-tail configuration similar to that of the Lockheed Constellation. These verticals were added so late in the design evolution that they are missing from photos in many PR articles.

The service life of the Boeing Clippers and all other large flying boats was far too brief due to increasing debris in most of the world’s harbors. Takeoffs and landings became a particular hazard. Furthermore, the efforts to defeat the Axis had produced numerous airfields worldwide which together with the development of large land-based aircraft, such as the DC-4 and L-1049, provided a safer and more flexible means of air transport.

Earl Scott
Recently I read about the death of Charles Durning, a character actor whom I have long admired. In reading his obituary, I was amazed at his service record and thought you might be interested in reading about this amazing man.  

Ann Trombley

CHARLES DURNING – HE BARELY SURVIVED WWII

Durning’s rugged early life provided ample material on which to base his later portrayals. He was born into an Irish family of 10 children in 1923, in Highland Falls, N.Y., a town near West Point. His father was unable to work, having lost a leg and been gassed during World War I, so his mother supported the family by washing the uniforms of West Point cadets.

The younger Durning himself would barely survive World War II. He was among the first wave of U.S. soldiers to land at Normandy during the D-Day invasion and the only member of his Army unit to survive. He killed several Germans and was wounded in the leg. Later he was bayoneted by a young German soldier whom he killed with a rock. He was captured in the Battle of the Bulge and survived a massacre of prisoners.

In later years, he refused to discuss the military service for which he was awarded the Silver Star and three Purple Hearts. He died on Christmas Eve, 2012, at age 89 and is buried at Arlington National Cemetery.

Last April Jacqueline Kirouac and her finance, Adam Robarts, visited the Evergreen Aviation Museum. They were very impressed with the Museum, especially their tour of the B-17 with Friday Docent Melba Smith.

Deciding “to elope” in December, they wanted to be married on the flight deck of the Spruce Goose. So they drove down from Vancouver, B.C. with no witnesses or relatives with them. They found out that Melba had been their guide on the B-17 and asked her to be one of their witnesses. Of course, Melba accepted the honor. Judge John Collins in McMinnville was asked to perform the ceremony; RJ Studio took the pictures. Thursday Docent Ron Hilsinger was asked to be the second witness and took them on a tour of the Goose after the ceremony. A delightful young couple.

By the way, the bride is a commercial pilot.

Melba Smith
JACK HIGGINBOTHAM, Friday Docent

Jack was an Air Force brat, born in Kansas City in 1958. You could say he was “well-traveled”, having lived on 6 bases prior to high school graduation. While his family was in Texas at Reese AFB, Jack decided that he wanted to go to the Air Force Academy. He became an Eagle Scout, played on his high school football team, had perfect grades all 4 years, and did the expected community service. He was ready! He passed everything except his physical, failing the vision test. So what could he do? His high school girlfriend said “What about nuclear engineering?” He made his choice, selecting Kansas State University, well known for their nuclear engineering department. Kansas State had such an outstanding program in Jack’s selected field that he completed his BS, MA, and Ph.D there.

During his undergraduate studies (about the time of the Three Mile Island disaster), Jack had the opportunity to study that problem. He discovered that the design scenario for the water reactor was incorrect and subsequently redesigned the reactor to meet the Regulatory Commission’s specifications for all water reactors in the United States. By the time he had concluded his Master’s Degree, he was married to Deb, and was the proud father of a baby girl, Samantha, and had taken the position as the nuclear-reactor supervisor for the University.

Throughout his years at KSU, Jack had enjoyed a productive relationship within the nuclear power industry. By 1987, he had reached a cross road in his life. He and Deb enjoyed a little son, Jonathan, to keep Samantha company. His education completed, now he had to determine whether he joined academia or industry. His decision was monumental….become a partner within the nuclear industry or remain in academics, training other students in the field. He enjoyed two wonderful offers. Go to Louisiana, become a partner with the nuclear industry to work on a BWR-6 reactor at St. Francis Hill…..or….go to Oregon State University and become a professor in nuclear energy. Jack and Deb went to look at both opportunities. Picture this: The welcome in Louisiana was wonderful!

The salary and future seemed almost perfect…but…there also was …heat..humidity..bugs. So they were off to Oregon! It was Homecoming for the Beavers sooo, “no room at the inn”. The university arranged for them to enjoy the luxury of the Inn at Otter Crest! The setting was perfect! They went to supper at a little restaurant beside the beach. Jack’s back was to the window, the setting sun streaming through! Deb looked up and said, “If you blow this interview…I’m getting a divorce”!

The story is complete. They moved to Monmouth, Oregon, in 1987. They raised their children, and Jack became the director for the NASA SPACE GRANT PROGRAM, for the state of Oregon. Evergreen is a partner in the project and subsequently Jack met Larry Wood, EASM’s Executive Director. Part of what Jack does for NASA is to promote the excitement of space and teach science and engineering to the students in Oregon. It’s a perfect fit.

Why is Jack a docent at the Evergreen museums? He wants to introduce these concepts to the public…creating the enthusiasm that the programs offer. Where better to accomplish this than at our own Evergreen Air and Space Museums!

Lynn Gelinas
# Launch Pad

<table>
<thead>
<tr>
<th>DATE PLANNED</th>
<th>LAUNCHER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>SOYUZ Frengat Upper Stage</td>
<td>Arianespace rocket will launch six 2nd-generation Globalstar mobile communications satellites. Arianespace to oversee the commercial launch.</td>
</tr>
<tr>
<td>7</td>
<td>ARIANE 5 ECA Rocket</td>
<td>ESA Arianespace to launch the Amazonas 3 and Azerspace comm satellites. Amazonas 3 will provide telecomm services and broadband connectivity in Europe and the Americas for Hispasat, Madrid. Azerspace, (Afri sat 1a) to provide comm services over Azerbaijan, Central Asia, Europe and Africa for the Azerbaijan comm ministry.</td>
</tr>
<tr>
<td>11</td>
<td>SOYUZ</td>
<td>Russian rocket to launch 50th Progress cargo delivery ship to the ISS.</td>
</tr>
<tr>
<td>11</td>
<td>ATLAS 5 (AV-035) Centaur Upper Stage</td>
<td>launch the Landsat Data Continuity Mission for NASA, the U.S. Geological Survey, to obtain Earth observation data to be used in agriculture, education, business, science, and government. The data constitutes the longest record of the Earth's continental surfaces as seen from space. The rocket will fly in the 401 vehicle configuration with a four-meter fairing, no solid rocket boosters and a single-engine Centaur upper stage.</td>
</tr>
<tr>
<td>TBD</td>
<td>PROTON Breeze M Upper Stage</td>
<td>Satmex 8 satellite to provide video distribution, broadband, cellular backhaul and distance learning services in the Americas.</td>
</tr>
<tr>
<td>TBD</td>
<td>PROTON Breeze M Upper Stage</td>
<td>Deploy the Anik G1 satellite to provide Ku-band direct-to-home tv broadcasting services to Canada; C-band and Ku-band programming to South and North America, and a commercial X-band payload for military users for Telesat of Canada.</td>
</tr>
</tbody>
</table>

---

**John Jennings**

---

### Some Facts About Valentines Day

- Alexander Graham Bell applied for his patent on the telephone, an "Improvement in Telegraphy", on Valentine's Day, 1876.
- Richard Cadbury invented the first Valentines Day candy box in the late 1800s.
So there I was, a few hundred feet from the end of the runway at Cunningham Field, with a pair of binoculars and a flare gun. Instructions- check to see that the landing gear of incoming aircraft was down. If not, fire the flare gun to warn the pilot. But it was 1956 and about a mile down the runway was the control tower with all its modern radio and radar equipment. What was I doing here? Just an added safety measure, I was assured.

But suppose there was no control tower with its state of the art equipment. When was it determined that someone needed to control aircraft departures and arrivals? Enter Archie League, a barnstorming pilot born in Poplar Bluff, Missouri, in 1907. He is generally acknowledged as the first air traffic controller and was hired by the City of St. Louis in 1929 to work at Lambert Field. He stood on the airfield and waved flags at planes to let pilots know when they could land, take off, and when they shouldn’t.

"It wasn't so complex," League told the *Washington Post* in 1973. "We had a red flag to tell planes we didn't want them to do what they were doing. And then we had a checkered flag to tell them it was OK."

Simplicity defined League's other equipment. In addition to the flags were a wheelbarrow, chair, umbrella, note pad, water and lunch. Pilots buzzed the umbrella with their planes to try and knock it over, recalled Charles Straub, another early St. Louis controller. League voiced a similar complaint in a 1974 article by the Associated Press.

"It took awhile to educate some pilots," he said diplomatically. "Several times my deck chair near the end of the runway was knocked over by planes that strayed from the proper path." His presence was a welcome sight to pilots, and he enjoyed his work. Note the accompanying picture showing a smiling, confident young man with his array of equipment.

League's contributions to aviation go well beyond barnstorming and waving flags. In 1936, the Federal Government began to take over responsibility for air traffic control. The following year, League joined the Bureau of Air Commerce, beginning a distinguished career that didn't end until his retirement in 1973. He was named assistant regional administrator in 1956 and transferred to Washington headquarters as chief of the Planning Division in 1958. After that he moved to Ft. Worth, Texas, as director of the Southwest Region. In 1965 he returned to Washington as Director of Air Traffic Services.

He ended his career as assistant administrator for appraisals from 1968-1973. His service at the FAA and its predecessor agencies was broken only during World War II when League flew for the Army Air Forces in the Pacific theater, earning the rank of Colonel. He died in 1986.

League is most honored by the National Air Traffic Controllers Association, which annually awards the Archie League Medal of Safety to "air traffic controllers who displayed extraordinary skill to ensure safety in critical situations."  

*Spencer Vail*

League with his umbrella and deck chair at Lambert Field.

Photo: National Archives
RESTORATION HAPPENINGS

Wow!! can you believe that we have already gone through 1/12 of 2013? -- but for me, I can't wait until spring is back with us.

The Christmas season brought a big THANK YOU from the Glenn Curtiss Aviation Museum for allowing us, during their recent visit, to assist them in gathering all the data and photos necessary so that they can restore their Curtiss Fledgling. They also in return gave us the cut-a-way version of the Curtiss Challenge engine which is on display next to our own Curtiss Fledgling. Our Restoration department also received a notice from the Brodhead Pietenpol Association in Oshkosh, Wisconsin, that we will be highlighted in an article in their newsletter (which receives international exposure). We have been told several times that our Pietenpol is one of the finest examples of the aircraft in existence anywhere. We are very proud of the work done on the artifacts sent across the street to the Museums.

Some of our projects are being held up for painting due to the weather. It is impossible to paint aircraft outside, but we will get there. The Grumman G-21 Goose is finally complete and on display in the Aviation Museum. This aircraft was a real challenge because we literally had to take parts of four different Grummans to make one airplane. The Gulfstream G-II (SST) is on temporary hold due to higher priority projects; it also is mostly an outside project.

The Cessna 206 has been brought in from the Executive hangar and is going through an assembly procedure. Other than that, not much to do with the aircraft, maybe some minor paint detailing. Waiting for the go-ahead to start restoring the interesting de Lackner HZ-1 Aero Cycle. Ours is the only one left of 12 in existence. The mounting stand for the cut-a-way Turbo Jet engine is almost complete and ready for display.

Our current hangar queen is the BT-13 and is also proving to be quite a challenge. When we first received it, we all thought that this is really going to be a snap project; but we soon found that old vintage aircraft and its manuals don't always agree with one another, so modification and engineering come into play. Though frustrating at times, it is still an interesting program.

Just received in the mail from Smithsonian Institution in Washington, D.C. a set of drawings for our Lilienthal Glider that we will soon begin restoring. At present we are trying to gather all the information and materials necessary to begin this "delicate" project. This glider is to be part of the "Early Story of Flight" that will be one of the exhibits in the Aviation Museum.

Quote of the Month
"For once you have tasted flight you will walk the earth with your eyes turned skyward for there you have been and there you will long to return"

Leonardo daVinci

THE ME 262 STORMBIRD

By Colin Heaton and Anne-Marie Lewis

The introduction of the Me 262 jet fighter was a potential game changer for the Germans in WWII, but production delays and a shortage of pilots minimized its impact on the war. Nevertheless, jet engines were the way of the future, and the Stormbird loomed large in the experiences of the WWII pilots who flew and fought the first jet fighter.

In The ME 262 Stormbird, Colin Heaton covers the iconic fighter in detail, often in the words of the men who flew it or fought it. From Willi Messerschmitt's original designs through the early technical difficulties and flight tests and eventual introduction of the aircraft into the war, Heaton covers the Stormbird's history in detail alongside fascinating anecdotes from many of Germany's top aces – and Allied airmen who went head to head with the futuristic jet while flying their prop driven aircraft.

Heaton also covers the political machinations involved in getting approval for the jet – Hitler was personally involved – as well as the infighting among the Luftwaffe’s senior officers, some of whom wanted the aircraft designed as fighter and others who wanted it designed as a bomber. The first Me 262 squadron, ultimately designated as JG-7, and Adolf Galland's squadron, JV-44, are covered extensively, along with the two-seated Me 262 night fighter. Heaton rounds out his narrative with the American perspective of Allied airmen who faced the 262, as well as the analysis of the Stormbird program and its post-war impact. The Me 262 is a definitive account of the state-of-the-art aircraft.

Friday Docent Wayne Swanson
ANY COPYING OF DOCUMENTS MUST BE AUTHORIZED BY A STAFF MEMBER OR DAY CAPTAIN TO AVOID UNNECESSARY EXPENSE. ANY PROJECT REQUIRING FUNDING IS DELAYED.

OVERALL ATTENDANCE AT THE EVERGREEN MUSEUM FACILITIES WAS GOOD. THE WATERPARK WILL NOW BE OPEN ONLY ON FRIDAYS (3 – 8 PM), SATURDAYS AND SUNDAYS (10 AM – 8 PM). HOLIDAY HOURS WILL BE ANNOUNCED; SUMMER HOURS WILL RESUME AFTER MEMORIAL DAY WEEKEND.

THE WINE BAR IN THE SPACE MUSEUM IS CLOSED. THE AREA WILL BE TURNED INTO A SELF-SERVE COFFEE AREA WITH FREE WiFi. TABLES AND CHAIRS WILL BE PROVIDED FOR VISITORS.

THE CHAPEL WILL NOT BE READY FOR OPENING IN JUNE. WORK IS PROGRESSING.

MEMBERSHIP DIRECTOR JEFF COOL REPORTED THAT MEMBERSHIP NUMBERS ARE UP FOR 2012. A NEW GUEST SERVICE CLASS WILL BE HELD FOR THOSE WHO MISSED THE LAST SESSIONS AND NEW VOLUNTEERS. TIMES AND DATES WILL BE ANNOUNCED.

VOLUNTEERS ARE TO BE REMINDED THAT THEY MAY BRING IN ONLY 4 GUESTS ONCE A WEEK.

DEVELOPMENT DIRECTOR STEVEN GUNTLI REPORTED A GOOD RESPONSE TO THE REQUEST FOR DONATIONS WHICH WERE MAILED TO THE MEMBERS. HE WAS HOPING FOR A BIGGER RESPONSE, BUT THIS WAS THE FIRST TIME IT HAS BEEN DONE. STEVEN IS ALSO PLANNING TO APPROACH CORPORATIONS ABOUT SPONSORING ACTIVITIES OR DISPLAYS AT THE MUSEUM. VOLUNTEERS ARE ASKED TO ENCOURAGE MEMBERS TO UPGRADE THEIR MEMBERSHIPS.

THE "MAP OF MIDWAY" WHICH IS SCHEDULED FOR FEBRUARY. VOLUNTEERS WILL BE NOTIFIED OF OPENING DATES.

PLEASE NOTE THAT "DAY USE ONLY" LOCKERS ARE FOR DAY USE. NO PADLOCKS SHOULD BE LEFT ON THOSE LOCKERS.

THERE ARE OTHER LOCKERS FOR PERMANENT USE WITH PADLOCKS.

THE SUBSTITUTE LIST USED BY THE WEEKEND DAY CAPTAINS NEEDS TO BE UPDATED. IF YOU WOULD LIKE TO BE INCLUDED OR TAKEN OFF THAT LIST, PLEASE LET RILEY SANDERS KNOW.

MORE VOLUNTEERS ARE NEEDED. IF YOU KNOW OF ANY WAY TO GET OUT MORE INFORMATION, PLEASE LET LARRY WOOD KNOW.

THE GOLF CARTS SHOULD BE PLUGGED IN ONLY WHEN NEEDED. JIM LILLEY

FEBRUARY TRAINING SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 5</td>
<td>Jim Cameron</td>
<td>Mig 21</td>
</tr>
<tr>
<td>Feb 12</td>
<td>Mac Daniels</td>
<td>Life in a space capsule</td>
</tr>
<tr>
<td>Feb 19</td>
<td>Elliott Abram</td>
<td>Curiosity’s power source</td>
</tr>
<tr>
<td>Feb 26</td>
<td>John Jennings</td>
<td>The Museum’s Rocket Engines</td>
</tr>
<tr>
<td>Mar 5</td>
<td>Lonnie Prather</td>
<td>To Be Announced</td>
</tr>
</tbody>
</table>

TRAINING CLASS TIME: 0930-1030. GUESTS ARE ALWAYS INVITED.

DVD COPIES OF PREVIOUS CLASSES ARE AVAILABLE FOR CHECKING OUT IN THE LUNAR LOUNGE. FOR A COPY OF THE COMPLETE LISTING OF CLASSES CONDUCTED, CONTACT ELLIOTT ABRAM AT SHELLBACK243@ME.COM OR CALL 503-476-5973 (CELL) 503-435-2856 (HOME).
KEPLER -- The Search for Exo-Planets

The centuries-old quest for other worlds like Earth has been rejuvenated by the intense excitement and popular interest surrounding the discovery of hundreds of planets orbiting other stars.

On March 6, 2009, a Delta II rocket launched the Kepler spacecraft from Cape Canaveral, Florida. The Kepler Mission, NASA Discovery mission #10, is designed to survey a portion of our region of the Milky Way Galaxy to discover Earth-size planets in or near the habitable zone and determine how many of the billions of stars in our galaxy have such planets. To date 2740 candidate planets have been discovered.

The launch vehicle placed Kepler in a heliocentric (Sun-centered) orbit, chosen to enable continuous observation of the target stars. This requires that Kepler’s field of view never be blocked. For a spacecraft in low-Earth orbit nearly half of the sky is blocked by the Earth and the obscured region is constantly changing as the Earth orbits the sun. The most energy efficient orbit beyond Earth’s orbit is a heliocentric Earth-trailing orbit with a period of 371 days providing the optimum approach to maintaining a stable trajectory and keeping the spacecraft within constant and reliable communications capability. An advantage of this orbit is that it has a very low-disturbing torque on the spacecraft, which creates a stable pointing attitude. The spacecraft must execute a 90-degree roll every 3 months to reposition the solar panels to face the Sun while keeping the instrument aimed at the target field of view. Not being in an Earth orbit means there is no torque due to gravity gradients, magnetic moments, or atmospheric drag. The largest external torque is that caused by light from the sun. This orbit also avoids the high-radiation dosage associated with Earth’s Van Allen radiation belt, but is subject to energized particles from cosmic rays and solar flares.

The Kepler spacecraft is 9 feet in diameter, 15.3-feet long, and weighs 2,320.1 lbs. Power is supplied to the spacecraft with 109.8 square feet of solar panels, producing 1,100 watts of electrical power. A 20 amp-hour lithium-ion battery is used to store electrical power when repositioning the solar array.

Of critical importance to the Kepler mission is pointing accuracy and stability. The spacecraft is three-axis stabilized and is held to better than 9 milliarcseconds with three sigma standard deviation (99.7%) over 15 minutes.

The Kepler spacecraft has one single-purpose instrument: a photometer -- a Schmidt telescope design with a 0.95-meter aperture and a 105 square degrees (about 12 degree diameter) field-of-view. It is pointed at and records data from just a single group of stars for the duration of the mission.

Next month we will discuss how the spacecraft is used and some of the latest findings.

John Jennings

More Facts About VALENTINES DAY

- About 8 billion candy hearts will be produced this year; that’s enough candy to stretch from Rome, Italy to Valentine, Arizona 20 times and back again.
- Men buy most of the millions of boxes of candy and bouquets of flowers given on Valentine’s Day.
- The Italian city of Verona, where Shakespeare’s lovers Romeo and Juliet lived, receives about 1,000 letters addressed to Juliet every Valentine’s Day.
- The oldest surviving love poem till date is written in a clay tablet from the times of the Sumerians around 3500 BC.