SOARING100

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SOARING 100: By Simine and Jim Short

It is tough to say thanks to the many people and organizations who helped in designing, creating and then executing this wonderful event! Reading the many entries on the web and hearing comments during the event, it was a success, particularly in safety, visitor experience, attendance, visual and audio impact, personal satisfaction and relations, fun and much more. We relayed the Wright Brother's story and tradition but we also created new interest and appreciation of where and how motorless flight has grown since that memorable day on October 24, 1911.

A rough estimate indicated that more than 10,000 people came to Wright Brothers National Memorial and Jockey's Ridge State Park. Fifteen sailplanes were invited to participate in the Flying Showcase of Soaring History: a just-restored Grunau Baby (1930s), a Schweizer TG-2 (1943), Schweizer 1-21 (1947), Schweizer 1-23 (1948), Schweizer 1-26 (1955), an Olympia IIb (1948), Schleicher Ka-6E (1963), Glasflugel Libelle 201B (1968), Schleicher ASW-20 (1978), Schleicher ASK-21 (1979), Schempp-Hirth Duo Discus (1994), Schleicher ASG-29 (2000), DG Flugzeugbau DG 808B motor-glider (2000) and the new Phoenix motor-glider. Launched by a Piper Pawnee furnished by Bermuda High Soaring, each glider took off from the First Flight Airstrip and landed like clockwork on the "holy" ground (the now-grassy area that covers the Wright brothers' 1903 flight pattern). The visiting public was spellbound seeing the gliders land and then line up for display with docents explaining what soaring was all about.

The Pavilion at the Wright Brothers National Memorial housed a static display of sailplanes, which included a Baby Bowlus (1938), a Schweizer 1-26 (1954), HpH 304C (2001), and a colorful and historically significant array of hang gliders.

The original vision was to introduce the beauty of the sport as it had evolved from Orville Wright's 9' 45" soaring flight. Talking with the SSA and others, this was possibly the largest concentration of soaring enthusiasts and the interested public in one place in the United States since World War II. SOARING 100 introduced the thought of motorless flight to many people and hopefully will bring in newcomers to the various sports of soaring!

Nick Mirales is wire-wrapping the last fittings on Jimmy Dayton's Wright 1911 glider replica or "flying facsimile", with Gary van Tassel's PW-5 and several historically significant hang gliders in the background.

Photo by Simine Short

"They taught us to fly" - The Barnaby Soaring Plaque at Kitty Hawk

By: Simine Short

Walking down the sideway on the south side of the visitor center of the Wright Brothers National Memorial, one passes a bronze bas-relief with the title "They taught us to fly," showing the images of Wilbur and Orville Wright and their 1901, 1902, and 1911 gliders. The Soaring Society of America presented this plaque to the Wright Brothers National Memorial on the 60th anniversary of the Wrights' first sustained, controlled, powered flight. It was designed and created by Ralph S. Barnaby in 1963.

Ralph Stanton Barnaby (1893-1986) had a special love for flying; he built his first glider in 1909 and won 3rd place in the Octave Chanute Silver Cup for the longest flight (114 feet). At the age of seventeen, Barnaby met the Wright brothers and in later years developed "a special friendship" with Orville Wright. Barnaby was a member of the "first-generation" of flight whose aeronautical career spanned over seventy-five years of aviation history. He was ten years old when the Wright brothers flew at Kitty Hawk in 1903 and seventy-six years old when Neil Armstrong set foot on the moon in 1969.

In 1917 Barnaby joined the US Navy and learned to fly powered planes, but his love remained with motorless flight. In August 1929, he established a new American soaring duration record (15 minutes 6 seconds), breaking Orville's 9 minute 45 second record of October 1911. He was the first to be launched in a *Prüfling* glider from the belly of the U.S. Navy dirigible *Los Angeles*, proving that an aircraft could be launched from a large airship and flown to a conventional safe landing. Recognized as America's first glider pilot, Barnaby received the National Aeronautic Association license No. 1, signed by Orville Wright, on May 26, 1930.

After retiring from the Navy in the late 1940s, Barnaby became the Aviation Curator for the Franklin Institute in Philadelphia, PA, that holds a large portion of the Wright Brothers papers. He was elected Honorary Vice President of the Soaring Society of America and the National Soaring Museum; he helped create both organizations. In his spare time, Barnaby continued his other interests as a writer, artist and sculptor. In the early 1960s he designed and then sculpted the bronze bas-relief to honor the Wright brothers and their gliders in the development of powered flight.

Wind, sand and salt air weathered this plaque over the next five decades. During the summer of 2011 the National Park Service agreed to have the plaque restored to its original beauty, as its contribution for the SOARING 100 festivity. The plaque was rededicated in a brief ceremony on Saturday afternoon, October 22, 2011, with Al Tyler, Chairman of the Soaring Society, helping Joshua Boles, Wright Brothers National Memorial, unveil the just restored plaque. Featured Speaker

photo by Simine Short

was Bernald Smith, who related stories about Capt. Barnaby and retold of his "Two-horsepower Glider Launch" which occurred in 1929 at Cape Cod. In Barnaby's words,

"it became evident to some of us...that the horses weren't far enough apart to let the glider go between them. Once you get the cords stretched, there's no stopping. So, everyone started screaming when the glider started to move. The glider hold-back was let go. The boys riding the horses looked back and there was this glider bearing down on them. They both dove off the horses into the sand and the glider went sailing through, between and just high enough to clip each horse on the back of the head.

I will say this for the young lady pilot, she was unperturbed and landed the glider with no great difficulty. But the two horses ran off in opposite directions, stretching the shock cord between them. The further they went, the slower they were going.... Finally it got to a point where they were just pawing the ground and not going anywhere. At this point the shock cord broke. Have you ever seen a horse turn somersaults? Two of them going end over end! Finally, they got up, shook themselves off, and lit out. That was the end of operations because it took the rest of the day to find them."

The plaque did not attract much attention in the past few years, it was hard to see and read. But starting that weekend, people walking by actually turned around and took pictures of the plaque. The memory of Ralph Barnaby and his contributions to the sport of soaring is kept alive.

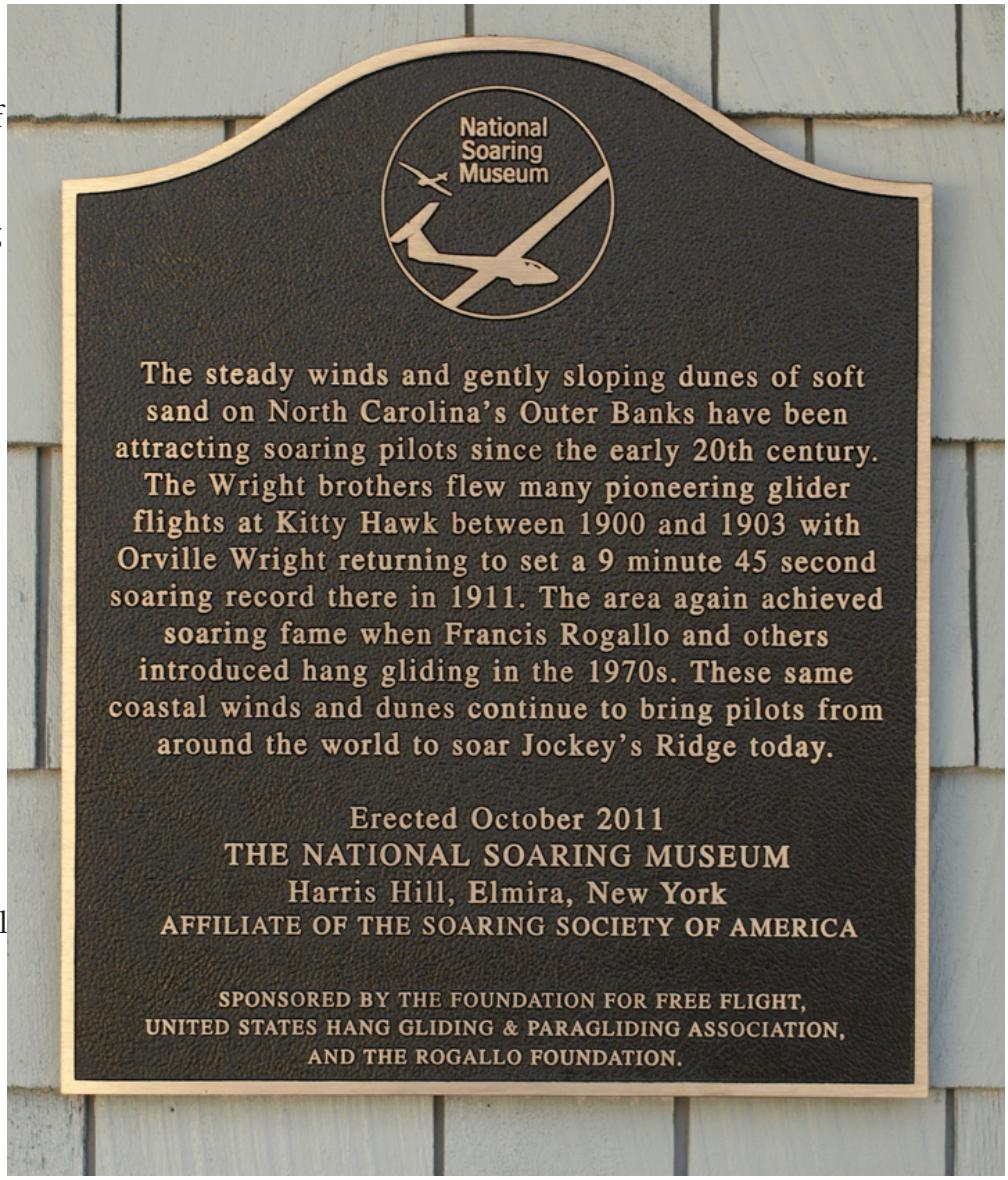
National Landmark of Soaring No. 16 - dedicated at the Outer Banks, NC

By Simine Short

Modern soaring, the sport with which we are all so familiar, turned one hundred years old. Soaring, often defined as flying without a motor for more than five minutes above a point of release, now includes several sky sports that evolved from the famous 9 minute 45 second flight of Orville Wright on October 24, 1911. The live dunes at Jockey's Ridge State Park, Nags Head, NC about five miles south of Wright Brothers National Memorial, still attract pilots of all ages all year long to experience many of the various forms of soaring.

Kick-off for soaring's centennial celebration on the weekend of 21-24 October, 2011, was the dedication of National Landmark of Soaring No. 16, honoring the Wright brothers and their early glider flying, as well as the later development of hang gliding by Francis Rogallo, who dreamt of creating a craft that would make flight more affordable and available to everyone. His flexible wing design appeared to be the solution. After retiring from NASA, he and his wife Gertrude moved to North Carolina's Outer Banks where he built and flew hang gliders utilizing his flexible wing design. He too enjoyed the flying along the dunes that fostered the new sport of soaring with hang gliders.

Friday, 21 October 2011, was a beautiful fall day with just a slight breeze. In mid-morning several gliders were set up around the Jockey's Ridge State Park Visitor Center. The goal was to show the visiting public the various aspects of motorless flying. Several historic and vintage hang gliders provided a colorful background, including a bright red glider that was owned and flown by Francis Rogallo. Gary Van Tassel's white and freshly waxed PW-5 sailplane glistened in the sunshine. Park visitors admired this full size sailplane that was so different to what is normally seen at and above Jockey's Ridge. The most eye-catching exhibit however was an as yet uncovered 1911 Wright Glider replica that its builder, Jim Dayton, called a "flying facsimile," Jim was an accomplished aircraft mechanic and innovative restorer who loved flying gliders. For his 1911 replica he conceived modern, look-alike controls that could be operated by today's pilots, the natural way. He intended to flight test this aircraft thoroughly at his home base in Maryland prior to flying it on the exact anniversary date at Jockey's Ridge. Unfortunately he lost his life in a glider accident last July, but the



The National Landmark of Soaring No. 16 plaque. Photo by Simine Short

Dayton family and friends stood behind the project and completed the glider assembly for display during the Landmark event n Jim Dayton's memory.

Part of every Landmark dedication was a mail-carrying glider flight with the United States Postal Service participating. Nags Head postmaster Bill Downing liked the idea of promoting the soaring activity and, at the same time, drawing attention to his post office. Shortly after 1 p.m., he and Harbinger postmaster Gene Garrison arrived at Jockey's Ridge State Park with a supply of stamps and their cash box. They had their temporary post office to be open for one hour only, not knowing how many people would be interested in buying a stamp or an envelope to receive the pictorial postmark. As soon as the table was set up the first customers appeared and a waiting line soon stretched from the "post office" to the parking lot. Many people expressed an interest in the special envelope that was to be delivered by glider mail (or "air-mail") to the mainland. The interest by the local community was astounding, and the temporary station remained open for more than two hours to take care of all the lined up customers.

At 2:45 p.m., Bill Downing and Bruce Weaver, a director of the United States Hang Gliding & Paragliding Association and manager of the Kitty Hawk Kites Hang Gliding School, walked with the accumulated mail to the dunes. By now the wind had practically died, but the souvenir mail had to be flown in by glider! Walking to the dunes, one could hear and see a motor-glider making lazy circles in the sky, sometimes with, other times without, its engine running. Woodward Cannon performed a perfect glider flight demonstration right above everyone's heads flying his DG808B. In the meantime, Bruce Weaver had his Pulse 11m hang glider in position for take off, but the wind had died down to almost nothing. Using all his skills he did become airborne and the souvenir mail was flown!

Spectators then rushed back to the visitor center for the next Landmark event, as Jim Short, Chair of SOARING 100, was to present his introductory talk, "A Landmark for the Sports of Soaring", discussing how sporting soaring flight has grown, from the beginnings of Otto Lilienthal, Octave Chanute and the Wright brothers to today's model soaring, hang gliders, paragliders, and modern sailplanes.

At 4:00 p.m., more than 300 visitors gathered for the Landmark of Soaring Dedication Ceremony, staged on the deck between the Jockey's Ridge

Art Greenfield discusses the NAA's Air Sports Organizations, with (L to R) John Harris (First Flight Foundation), Rich Hass (USHPA), Al Tyler (SSA) and Bliss Teague (AMA) standing by. Photo by Nic Nelson

Visitor Center and the Hang Gliding School. John Harris, president of the First Flight Foundation and the Rogallo Foundation, was the Master of Ceremonies. Two members of the Kitty Hawk Life Saving Station provided ceremonial support and acted as Color Guard and Karen Lowry sang "*America the Beautiful*," Debo Cox, Jockey's Ridge State Park Superintendent welcomed everyone. Warren Judge, Dare County Commissioner and Bob Oakes, Mayor of Nags Head followed with brief remarks. Art Greenfield, Director of Contests and Records of the National Aeronautic Association, addressed the crowd next, reflecting briefly on the history of the NAA and Orville Wright's involvement. He then listed some of the outstanding records set during 2011 and introduced the leadership of the three NAA Air Sport organizations, the SSA (Al Tyler), USHPA (Rich Hass) and AMA (Bliss Teague). Simine Short gave a brief review of the National Soaring Museum's Landmark program and why the NSM Board of Trustees had selected the dunes of Jockey's Ridge as a National Landmark of Soaring. She also discussed some of the previous fifteen Landmarks that extend across the United States - or from sea to shining sea. Then Ed Funk, President of the NSM, unveiled the Landmark plaque with the help of Hass and Debo Cox. They then officially accepted responsibility for the plaque that was mounted prominently on the freshly painted outside wall of the Hang Gliding School. The Landmark ceremony concluded with Karen Lowry singing the National Anthem after which the two crew members of the Life Saving Station retired the flag.

The crowd in attendance at the ceremony. Photo by Wolf Elber

The Landmark plaque was unveiled by Rich Hass (USHPA), Ed Funk (NSM) and Debo Cox (JRSP), with John Harris reading the text to the audience. Photo: Bernd Lukasch

People from all walks of life, representing the various sports of motorless flying, attended the Landmark Dedication. Locals and visitors may have wondered what this SOARING 100 celebration and the Landmark were all about, but we may have triggered a certain curiosity to fly models, or maybe fly a hang glider or take a ride in a sailplane. Motorless flying is above all else fun, and many may wonder what new developments in the sport the next 100 years will bring.

40th Ralph S. Barnaby Lecture October 22, 2011
Delivered by Darrell Collins at the Wright Brothers National Memorial

It is an honor to address this 40th Ralph Barnaby Lecture.

This lecture is dedicated to Paul E. Garber, who as a small boy witnessed the Wright brothers flights at Fort Meyer, VA in 1909 and for many years after the December 17th ceremony ended, I assisted him in hanging the portrait of the newly elected honorees on the wall of the First Flight Shrine that now bears his name. And to Ralph Barnaby who broke Orville's 1911 soaring record in America in 1929. Ralph Barnaby left his mark on aviation and his hand prints on Wright Brothers National Memorial.

Both of these men I will refer to as "the first generation of Flight".

At the time these two men were born only the sky was the limit and by the time they passed away mankind was reaching for the stars. As we are beginning the second century for flight, reaching for the stars will be the greatest challenge for generations to come.

The world has changed profoundly since 1903. Flight is now second nature to hundreds of millions of people, to the point where it is almost impossible for us to imagine the world without it. The fundamental principles discovered and developed by the Wright brothers at this site laid the foundation for the first generation of flight, to travel from Kitty Hawk to the moon in the lifetime of a human being.

As we watch the milestones slip by one might say, "We have inherited a legacy of greatness."

In a letter to Octave Chanute, dated May 13, 1900, Wilbur Wright wrote "for some years I have been afflicted with the belief that flight is possible to man. My disease has increased in severity and I feel that it will soon cost me an increased amount of money if not my life."

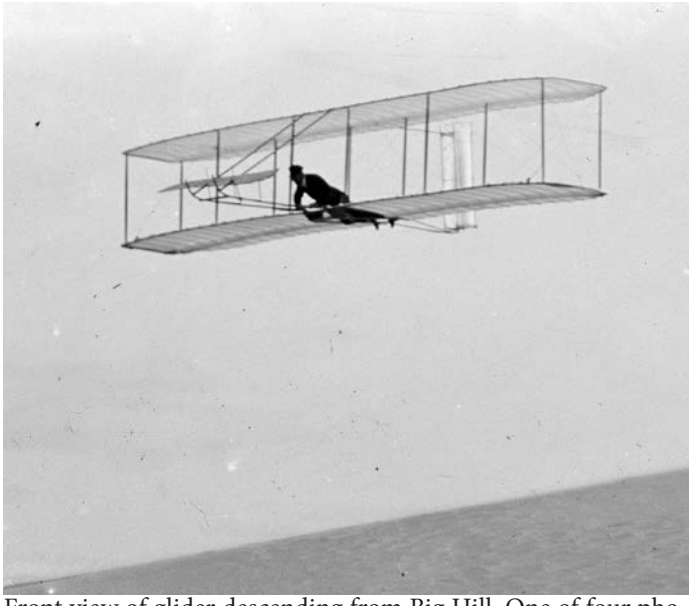
On the cold and windy morning of December 17, 1903 the dream came true. Wilbur and Orville Wright made the world's first successful powered flight in a heavier-than-air machine.

Five years after this historic event, at a banquet held in his honor on the evening of November 5, 1908, in Paris, France, Wilbur Wright spoke these words to the members of the Aero Club of France: "It is not really necessary to look too far into the future. We see enough already to be certain that it will be magnificent." This prediction is much truer for us today than it was in Wilbur Wright's lifetime. Four years after that speech in Paris, at the age of forty-five, Wilbur Wright passed to the great beyond.

The brothers began their experiments in Dayton, Ohio in 1899, with a five-foot kite, controlling it from the ground. They were testing a system of control they called "wing warping." They soon realized that the weather conditions in Dayton were not suitable for extensive glider experiments. That year they wrote the National Weather Bureau in Washington, DC, requesting a list of places in America where the winds were constant. Kitty Hawk, North Carolina was on that list. They wrote a letter to the Kitty Hawk Weather Station. Somehow that letter ended up in the postman's hands, whose name was William Tate.

William Tate is the man who influenced the Wright brothers to come to Kitty Hawk by a letter he wrote back to them in September 1900.

In that letter he described that there were no trees or grass, just deep soft sand. There were four



Front view of glider descending from Big Hill. One of four photographs taken on October 27, 1903, when Wilbur and Orville Wright each made two glides. With the knowledge gained flying the gliders, the brothers succeeded eight weeks later in achieving sustained, controlled, powered flight.
Wright Brothers papers, Manuscript Division, Library of Congress (LC-DIG-ppprs-00625).

giant sand dunes known as Kill Devil Hills of Kitty Hawk to launch their glider off. The only way to get to Kitty Hawk was by sailboat. Not too many people lived there, so at Kitty Hawk the Wright brothers would find the privacy, secrecy, and isolation they sought. They they also found at Kitty Hawk something they would not find anywhere else, southern hospitality!

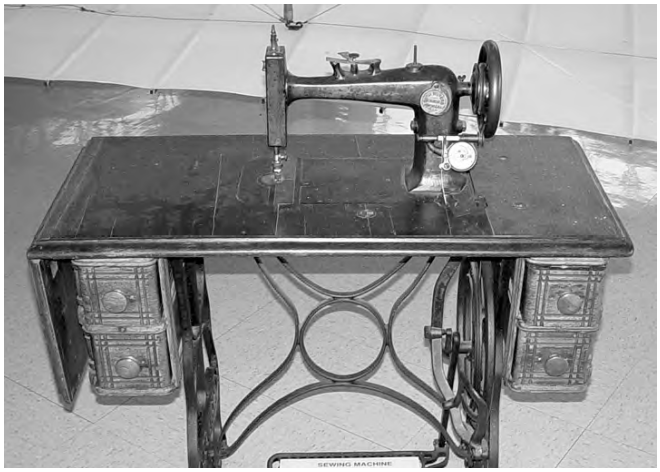
Now southern hospitality played a very important part in the Wright brothers' success. Over in the main museum we have on display a symbol of that southern hospitality. Ladies, it is a 1899 Kenwood sewing machine. It was ordered from a Sears and Roebuck catalog for $2.00. Addie Tate, William Tate's wife, let Wilbur Wright use her sewing machine to sew the covering cloth on the first glider they brought to Kitty Hawk in September of 1900. That first glider wasn't covered with this cheap cotton material you see on the Flyer. That first glider was covered in imported French Sateen. The local ladies who lived on the Outer Banks at that time had never seen such high quality cloth in their lives and they expressed openly to the Wright brothers, "why are you wasting this cloth on a flying machine?" So when the brothers were finished with the glider they gave the cloth to Addie Tate and with that same sewing machine she made two dresses for her two daughters. The next year, 1901, when the Wright brothers returned to Kitty Hawk the little girls were running around in the dresses.

I have worked at the Wright Brothers National Memorial for thirty-two years. I was born and raised on the Outer Banks of North Carolina and my family has been here for over 149 years. About twenty-two years ago I did an oral taped history interview with one of the Tate daughters. I will never forget her, Pauline Tate Woodard, she was no longer a little girl, she was now 93 years old and her mind was as sharp as a tack. She described the dresses to me completely, because her mother also taught her and her sister to sew on that same sewing machine. So then I asked, "do you still have the dress?" She said, "no honey, we wore them out."

For the next three years the Wright brothers would experiment at Kitty Hawk with gliders and they would solve two problems of flight, lift and control. Control would be the key to human flight, without control man would never fly. With the glider of 1902 the Wright brothers developed the control system of modern airplanes, Roll, Pitch, and the good old southern word, Yaw!

You see before the Wright brothers came along, no one did anything fundamentally right, and now 108 years after the Wright brothers invented the airplane no one has done anything fundamentally different.

So it should be noted at this point in this program,



The 1899 Kenwood sewing machine, owned by Addie Tate, William Tate's wife. She letWilbur Wright use her sewing machine to sew the covering cloth on the first glider the brothers brought to Kitty Hawk in September of 1900. Wright Brothers National Memorial Collection

as we honor the Wright brothers 100 years after Orville's world soaring record, that airplanes and gliders are not the only man made flying machines that utilize roll, pitch, and yaw as control. You see audience, everything that flies, a rocket, missiles, satellites, and helicopters, the Space Shuttle on take-off and re-entry. This is the immortal legacy of the Wright brothers, 108 years after their first powered flights at Kitty Hawk.

One fact still remains; the Wright brothers' 1902 glider was the first machine in the history of the world to possess the modern roll, pitch and yaw! The Wright brothers would fly the glider off the sand dunes that year on one thousand successful glides. The glider's weight was 112 pounds and about 250 pounds with the pilot. They would fly the machine into winds as high as 36 miles per hour. They knew you could fly without a motor but not without knowledge and skill. The brothers ac-

Dunes of Kill Devil Hill. Note the bowl-shaped indentation, created by the wind. *WrightBrothers papers, Manuscript Division, Library of Congress (LC-DIG-ppprs-00569).*

quired so much knowledge and skill in their 1902 glider that they could turn the glider into the wind and hover, just like a bird, over a given point for 10 to 15 seconds. They had perfect control. The glider was hand launched. Two local fellows, one on each wing tip, would take the glider to the top of the giant sand dune; the pilot would lie prone on the low wing of the glider, then the local fellows would run the glider down the hill into the wind and let her go! You can imagine in 1902 the Wright brothers were having a ball, I don't know about the local fellows! Because on days when the wind was blowing right the brothers have logged in their glider 100 glides in one day. Now can you imagine running up and down a 120-foot dune with a 250-pound glider one thousand times? I don't know where you' all are from, but that's what we on the Outer Banks of North Carolina call southern hospitality!

Let's talk about how they controlled the machine in flight. The pitch of their machine was controlled by the forward elevator. The modern term for the forward elevator is the canard. Canard is a French word that has two meanings. When the news of the Wright brothers' flights in 1903 reached Europe, the French read the reports in magazines and newspapers; they threw it to the ground and called it a canard, a hoax or fabrication of the facts. It also means duck! So if you ever go to a fancy French restaurant and your can't read the menu throw it on the floor and order a roasted canard! If they have a duck they'll bring it to you. Probably the most famous airplane that returned back to this configuration was the machine that flew around the world 25 years ago this year on one tank of gas. The flight was one of the greatest milestones in the history of aviation, the "Voyager".

Finally the French realized they did not invent the airplane and it took them almost one hundred years to realize that too! So what they did, they named the parts of the airplane! The fuselage means body, aileron small wing and the empennage tail feathers. The rudder on the tail section of the machine controlled the yaw and the roll on the machine was controlled by wing warping, the forerunner of the modern hinged aileron. Roll was the key to solving the problem of control. At the turn of the twentieth century just about everyone in the world thought that is was very, very dangerous to roll an airplane or glider, almost impossible to recover from and in many cases deadly. No one in the world would intentionally roll an airplane or a glider except...Who do you think would do that in an airplane or a glider? The Wright brothers! Please remember where you are at! And roll is the trademark of the Wright brothers' invention. Because as some of us here might know, roll is the motion that makes an airplane turn!

The control developed by the Wright brothers in 1902 has withstood the test of time and has proven to be the fundamental principle around which everything has evolved in the past 108 years. Armed with this knowledge and being true engineers they were now ready to build a powered machine.

Orville Wright soaring in October 1911 over the dunes of Kill Devil. Wright Brothers papers, Manuscript Division, Library of Congress (LC-DIG-ppprs-00692).

On the cold and windy morning of December 17, 1903 the Wright brothers made four successful powered flights. At 10:35 am Orville Wright would fly 120 feet in 12 seconds. 12 seconds to the Stars!

Most of us could walk or run that in far less than 12 seconds. The other day a man clocked his son running that distance in 7 seconds, Super Boy, faster than an airplane. But yet and still that short first flight was the dawning of a new era in the history of mankind. And life as many of your fathers knew it would never be the same again.

They would take turns after the first flight: Wilbur made the second flight and he went 175 feet in 12 seconds. Third was Orville again, flying over 200 feet in 15 seconds. Do you see what they were doing? They were learning how to fly! This is sort of like the first time you learned to ride a bicycle. Probably your father, mother, sister, brother, friend were helping you that day. They propped you up, got you going and suddenly let you go. If you were like me you probably fell down a few times. But you do realize, there was nothing wrong with your bicycle! You had no skill; the Wright brothers had no skill that morning and who was going to show them how to do it? This was a crash course in flying that day!

The fourth and last flight of the day was done by Wilbur Wright. He flew 852 feet, Wilbur stayed in the air for 59 seconds. Do you think he held his breath the whole time? He never told. But on these cold dark winter evenings when the wind starts to blow outside real hard, you can hear the fellows hollering "Go Wilbur Go!" At the end of the last flight they forgot to tie the machine down and a gust of wind caught it and completely tore it all apart. The Kitty Hawk Flyer would never fly again.

A great American hero, Neil Armstrong once wrote "that history is like a mirror; it can only look back, but there is great value in pausing to look back, for only with a great appreciation of where we have been can we only hope to understand where we are heading."

We have inherited a legacy of greatness.

The year before Orville Wright died, Chuck Yeager broke the sound barrier in the Bell X-I. We should always remember the year of 1969. Only sixty six years after the first flight at Kitty Hawk, Neil Armstrong would be the first man to set foot on the moon. April 1981, before we celebrated our 80th anniversary, America would have the first flight of the fastest soaring machine in the world, the Space Shuttle Columbia.

Wilbur Wright in prone position on glider just after landing, its skid marks visible behind it and, in the foreground, skid marks from a previous landing; Kitty Hawk, North Carolina. *Wright Brothers papers, Manuscript Division, Library of Congress (LC-DIGppprs-00570).*

All of this happened in the lifetime of our parents and our grandparents, who can all attest to these great achievements because what we all here at SOARING 100 should know is that these inventions were "conceived by Genius, Achieved by Dauntless Resolution and Unconquerable Faith." If the next 108 years are half as glorious as the past, it will surely be something for our children to behold.

Thank you.

Darrell Collins, Historian at the Wright Brothers National Memorial in Kill Devil Hills, North Carolina, delivered the 40th Ralph S. Barnaby Lecture on Saturday, October 22, 2011.

Collins has worked with the National Park Service in the division of interpretation and education for thirty -two years. He has served the majority of that time at the Wright Brothers National Memorial.

Collins is a popular speaker on the aviation lecture circuit, and has authored and consulted on numerous works about early aviation and the Wright Brothers. He was the 2003 recipient of the Paul Tissandier Diploma for his career of service to aeronautics and airports. His family has lived on the Outer Banks of North Carolina for 149 years.

The National Soaring Museum initiated the Barnaby Lectures in 1973, as addresses attuned to historic and noteworthy achievements in motorless flight. They are named in memory of soaring pioneer Ralph S. Barnaby, who held U.S. Glider Pilot Certificate No. 1, signed by his friend Orville Wright. He helped form the Soaring Society of America in 1932 and died in 1986 at the age of 93, leaving the Museum an extensive collection of books, papers, and artifacts, as well as a substantial financial bequest.

Zanonia:
The Seed That Became A Championship Sailplane

John Robinson in Zanonia doing "nipups" at Torrey Pines Gliderport for newsreels. Photo by James R. Spurgeon

Millennia before men invented their flying machines, nature was faced with the problem of designing a flying seed for survival. Mother Nature solved it in a most innovative, elegant manner with the Zanonia seed.

In the March-April, 1953, issue of SOARING magazine,[1] the late aerodynamicist, sailplane designer, and delta wing platform expert, Dr. Alexander M. Lippisch, explained it this way: "The Zanonia is a vine (cucumber family) that grows in the tropic jungles of Indonesia. Since there is no wind to propagate these seeds, the only way to disperse them over a wide area is to make them into little (all wing) gliders. From the height of these trees that these vines climb (150 feet) a large area can be covered."

When analyzed, it was found that these seeds are surrounded by a very thin tissue in front of the center, which forms the wing. The seeds are carried in the fruit. When the fruit opens they fall out and begin to glide down, often carried long distances by thermals that develop in the moist jungle environment. Dr. Lippisch said that further aeronautical investigation showed that the delta wing Zanonia was so constructed that the swept-back wing twisted its tips upward, giving "wash-out"[2] to the wing tips. The tissue of the wing being very flexible, the inherent stability of the seed is produced by the load in flight (wing aeroelasticity - variations due to airloads).

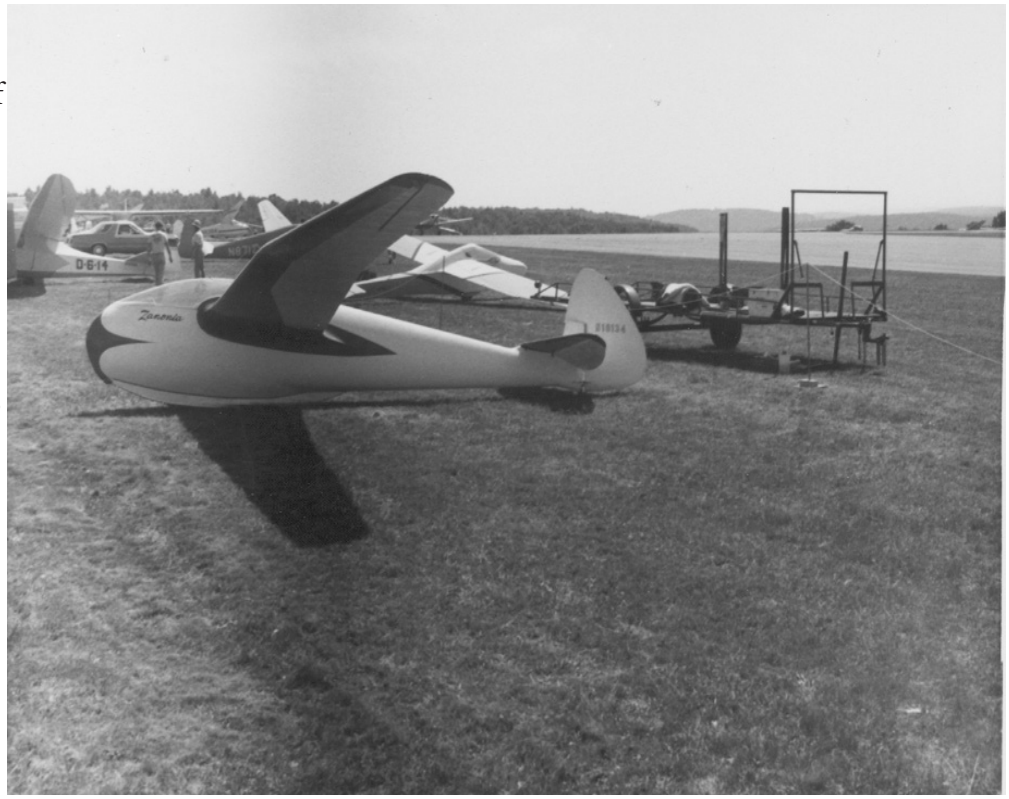
Paul Gibson wrote extensively in his 1976 SOARING story, THE ZANONIA.[3] Earlier known as the RS-1, it was built in 1937 by Harland Ross for movie actor Harvey Stephens, hence RS for Ross Stephens-1. It was later named Zanonia by championship pilot and owner, John Robinson.

Ross's objective for the RS-1 was to create a small glider for low cost, maneuverability, ease of ground handling, and still possessing a low sink rate. It was one of America's first gliders designed for cross-country speed. Zanonia was to be an excellent climber, thermaling best at 45-50 mph in steep banks.[3] The junction of the wing and fuselage had been carefully filleted by designer Ross.

In a hand written resume by Harland Ross from the NSM archives he said, "Flying Zanonia I placed fifth in the Eighth National Soaring Contest at Elmira. I won the second award of $500 in the

Warren E. Eaton design competition at the same contest. Made Silver C, and the best distance of any American pilot in 1937, by flying Zanonia 120 miles from Elmira to Milford, PA."

From Gibson, "The 46 foot wing has an aspect ratio of 17.[4] Wing area, including the part covered by the fuselage - 125 sq. ft. The empty weight was originally 370 lbs; but age and repairs have increased it to 392 lbs, with an all up wing loading of close to 5 lbs per sq. ft." Zanonia was equipped with a unique spoiler system. Each of the top surface spoilers is activated independently by pushing the heel of the corresponding rudder pedal. Robinson used this technique to enter thermals rapidly by popping the spoiler briefly on the wing toward which the turn is to be made.



John Robinson, a championship sailplane pilot named his RS-1 after the Indonesian jungle vine's glider like seed, the Zanonia.

"After some damage the first year," Gibson wrote, "and a rebuilding by Woody Brown with help from Ross, Brown flew it briefly before selling it to John Robinson." With the renamed RS-1, Robinson proceeded to fly Zanonia to National Championships in 1940, 1941, and 1946. Planned L/D was 23 or 24 but with Robinson's extensive sealing and clean-up Zanonia's glide ratio was boosted to 28.8 at 47 mph.

Robinson had the distinction of earning International Diamond Badge #1 and became the first pilot in the world to be awarded all three Diamonds: Distance - 325 mi., Wichita Falls TX to Barstow TX. New Years Day, 1949, on a flight originating in Bishop, Robinson and Zanonia climbed 33,500 feet, to a world record flight for absolute altitude.

The ship passed through several owners in the 1950s after Robinson sold it in 1951. Zanonia faced an uncertain future after a disastrous Arkansas landing resulted in a cracked right wing and broken aft fuselage.

In the 1976 article, then owner Paul Gibson said, "As a glider for local soaring, the Zanonia is a gentle, sturdy and most enjoyable machine and is capable of many more years of active service (1976)...Still the question of retirement for this magnificent old glider must someday be faced and it seems appropriate to commence thinking about how and when retirement should be accomplished."[5]

The restored Zanonia, on loan from Dale Busque of Andover CT, will be the centerpiece focus and logotype graphic for the 2012 International Vintage Sailplane Meet. This renowned sailplane will be on display at the National Soaring Museum during the Meet to be held at Elmira's Harris Hill, June 30th to July 7th.

Notes:
1 - "The Seed that Became a Tree" pg 3

2- Wash-out - Decrease of the angle of incidence toward the wingtip. In his case, a means of obtaining longitudinal stability of swept-back wings.

3- The Zanonia, by Paul Gibson, SOARING December 1976 pg 24-26.

4- Aspect Ratio: Ratio between the glider's span and the mean chord of the wings.

5- Ibid 3, page 26.

Some Mythology and Folklore of Flight

With their gift of flight, birds in ancient and primitive cultures around the globe are represented as the spirits, the heaven-bound souls and the messengers to humankind. They were considered both as heavenly and demonic. There were avians that helped and worked for the good of man, and those that intended and projected evil.

Here are some birds of mythology and their cultural association:

- Thunderbird - North American Indians
- Roc - In Arabian legends, an enormous bird of fabulous size and strength.
- Phoenix - Symbol of rebirth (Originally Arabian)
- Peacock - The bird of Juno, the ancient Roman Queen of heaven, wife of Jupiter, the protectress of women and marriage. Juno is identified with the Greek goddess Hera.
- Owl - Minerva's bird, the goddess of wisdom and the arts.
- Dove - Associated with Venus, the goddess of gardens and spring; also identifies with exceptionally beautiful women.
-Falcon - Sacred to Egyptians as the form assumed by Ra and Horus
-Ibis - Toth used this guise to escape Typhon, the mother and son of Typhoeus
-Stormy Petrel - Protected by sailors as representing the souls of dead seamen.
- Robin - From traditional Christian tales.
-Stork- Held sacred in Sweden.
-Swan - An Irish myth in which Rionnuala, daughter of Lir, was changed into a swan.
- Bird of Paradise - From several Far East myths.
-Hummingbird- The Quetzal was revered among the Aztec/Toltec/Nahua, representing Quetzalcoatl, the feathered sepent god

The Phœnix.

From classical music we have:

-The Swan of Tuonela - Jan Sibelius
-The White Peacock - Charles Tomlinson Griffes
-The Firebird- Igor Stravinsky

A depiction of Icarus falling into the Agean Sea

In myth:

In Greek legend, Icarus and Daedalus plotted to escape King Minos and the island of Crete with wings made of wax and feathers. Daedalus warned his son Icarus against bold movements. Icarus yielded to the excitement of flight, and disregarded the warnings of his father. He flew too close to the sun, whereupon the wax began to melt and his wings soon collapsed. Icarus fell into the Aegean Sea and drowned.

In an illustrated booklet, "A Flight Through Time", Robert Papini wrote that Zulu Kings were hailed as birds of prey. Shaka was depicted as a swooping hawk that took from vanquished rivals, and was praised as the bird that eats other birds. Native army commanders were said to wear vulture feathers so they would become as mad as vultures and fight to the death like them.

The Legend of the Siberian Buryats

Even though the gods supposedly created humankind without sickness and death, people were experiencing evil, calamity and bad luck through evil spirits. Being aware of the peoples' sufferings, the gods sent an eagle to assist and protect. It became the first shaman. The people did not understand the shaman's ways, so the eagle returned to the heavens. Then, the gods directed the eagle to return back to the "middle-world" and give its shaman nature to the first human it met. The eagle returned to earth and saw a woman sleeping under a tree. The eagle transmitted his essence to the woman and she became pregnant. Though she was married, separated, and later reunited with her husband, she gave birth to the first human shaman.

The Wind River Shoshone Sun Dance

Chief of the Shoshone guiding spirits is Our Father, located in the sky, associated with the sun and worshiped in the Sun Dance. The Dance is basically a form of thanksgiving in which the Supreme Being is being thanked for the past year and is asked to insure a healthy and bountiful year to come. Additionally, there were many atmospheric spirits such as thunder, lightning, wind and associated birds. After many generations an eagle appeared to a young man in a nightly dream. The eagle had been sent by Our Father to instruct the people on a way to cure the sick by faith and prayer. The eagle had been chosen as God's messenger because it was thought to be superior to all birds, soaring high above the sky, a symbol of purity, a leader of all birds and standing in an intimate relationship to the Supreme Being himself.

Visions continued to be part of the ceremony. Dancing for days, weakened by fasting, thirst, and tiredness, Shoshoni Sun Dancers fell into unconsciousness, or deep sleep. While in that trance-like condition, they were said to have received powerful visions.

The Dance of the Eagle

There once was a starving Eskimo hunter who killed an eagle for food. The hunter regretted killing such a beautiful bird. Stuffing it, he put it in a place of honor. Later, this hunter was lost in a blizzard and was rescued by people who took him to their village. They were the family of the eagle that he had killed. Because he honored the eagle he was taught the secret Dance of the Eagle. Eventually he returned to his village, and there taught villagers the Dance of the Eagle. Every year they performed this dance exactly as they learned it. From that time forward, they always had enough food, and never hunted the eagle again.

The Jicarilla Apache Creation Legend

In this legend, Black Hactcin, the world creator, held out his hand and a drop of rain fell into his palm. It became mud after it was mixed with earth. Next he fashioned a bird from the mud. "Let me see how you are going to use these wings to fly," he said. Taking the bird he whirled it around in a clockwise direction, and he became dizzy. At that point there appeared hawks, eagles, and all other sorts of smaller birds. When he regained reality he found that all these birds really existed and the first bird, made from mud, fell out of the sky.

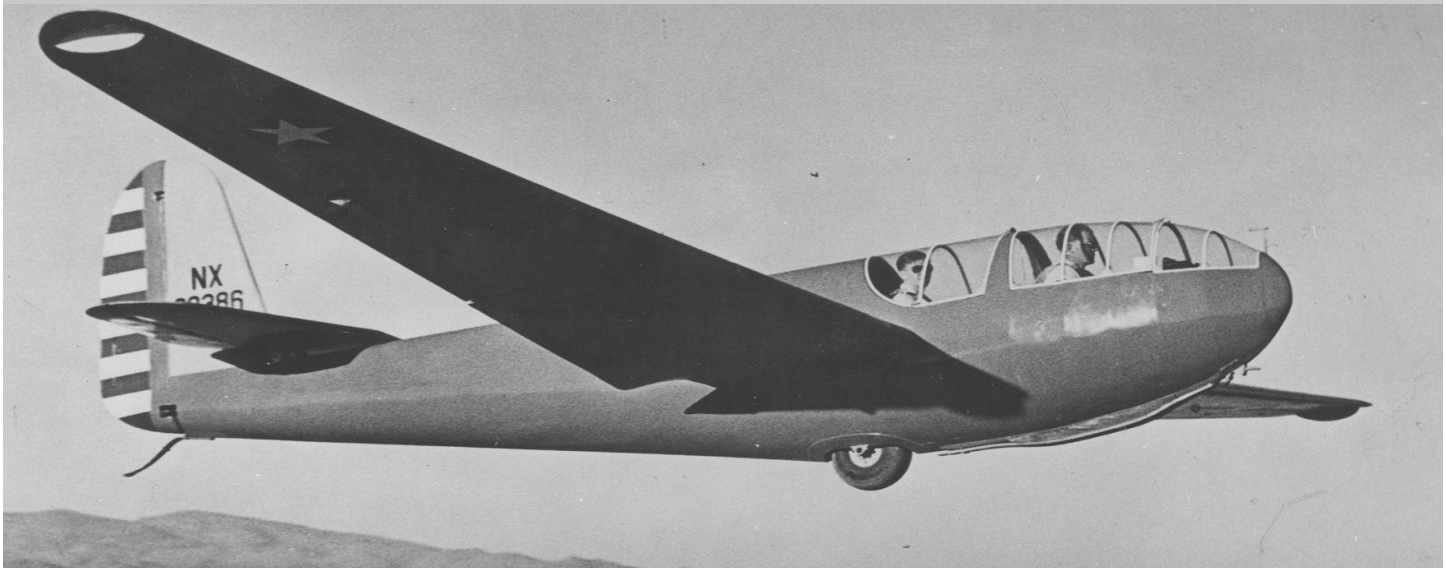
Shaman

In some societies the shaman, or medicine man, and the eagle are the contacts between the gods and human kind. The shaman born of an Eagle father (an emissary of the Creator of Light) attempts to turn into a bird and fly to the Upper and Lower Worlds as a representative of those on earth.

The shaman's ability to fly, or the enactment of flight, indicates "a sublime metaphysical reality that appears to be a common feature of mystical experiences everywhere."[1]

Notes:
1- The Sun; Fire & Shamans http://home].gte.net/SHAMAN.htm

The Two-Place Bowlus That Time Forgot



William Hawley Bowlus designed and built numerous popular gliders and sailplanes. However, the Bowlus Model BA-102 is almost lost to the recall and lore of Bowlus enthusiasts. The civilian Bowlus Model BA-102 was pressed into U.S. Army service and redesignated as the Bowlus XTG-12, urgently needed as a two-place military training plane.

If pilots were to be available to fly the boxy World War II cargo and assault gliders then in the production pipeline, a massive glider pilot training program was called for. Back in 1941, the Army was looking for pre-war, two-place sailplane trainers that could easily be modified to fill that need. These included the Frankfort Cinema (TG-1), the Schweizer SGS 2-8 and the SGS 2-12 (TG-2 and TG-3A respectively), the Laister-Kauffmann "Yankee Doodle" (TG-4), and the Briegleb BG-8 (XTG 13).

In those hectic wartime days, designers were urged to utilize wooden construction wherever possible to conserve scarce strategic materials.

The mid-wing BA-102 was a clean and simple design with attention paid to minimizing compound curves for ease of construction. Peter Bowers in his INTERESTING GLIDERS column (SOARING-November-December, 1957, page 23) reported, "The wing position was true mid-wing, with the seating position ahead of the wing spar, that was unusual for a two - place ship." Better vision for the rear occupant was afforded by this arrangement. The plywood fuselage was of monocoque construction. The wingspan was 44 feet 8 inches, length 19 feet, 4 inches and the empty weight was 450 pounds. The L/D (glide ratio) was 20:1.

With only three prototype XTG-12s completed, the Army abruptly cancelled orders for additional sailplane types in favor of de-engined Cubs, Taylorcrafts and Aeroncas. With their diminished performance characteristics they more nearly resembled the bulky gliders that these pilots would be flying in combat. The collected previously desperately needed two-placers were then declared surplus.

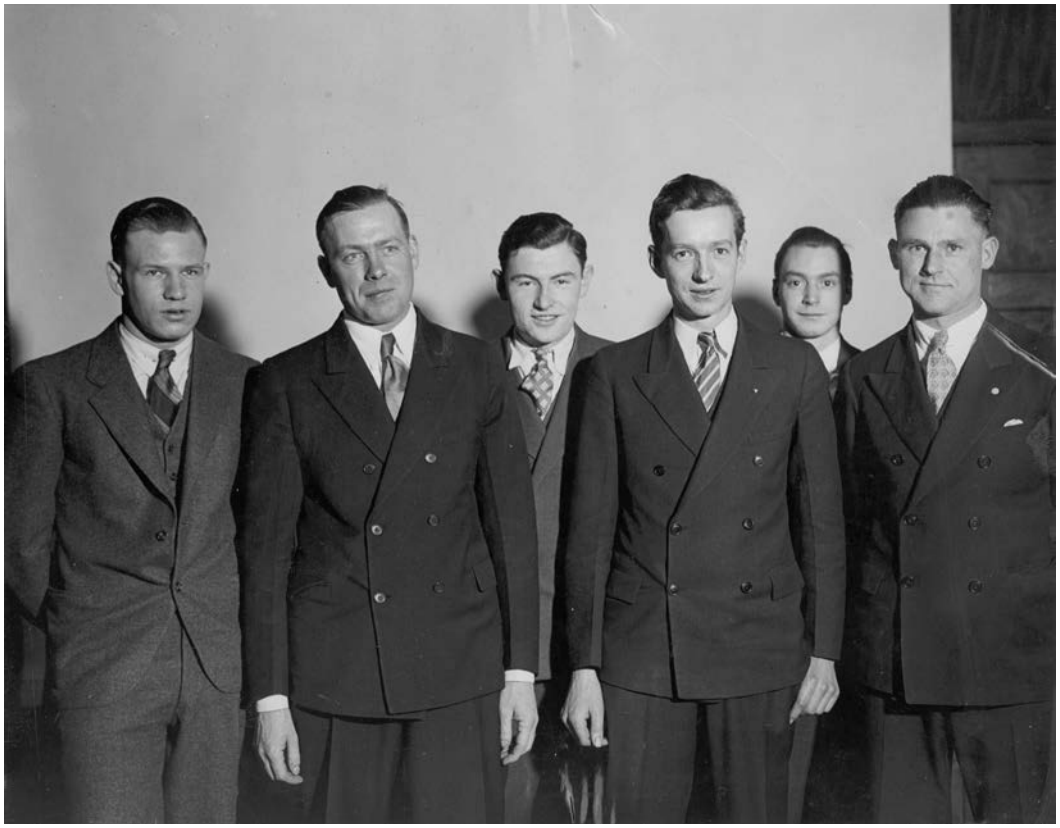
Performances of other Bowlus models such as the Bowlus-Dupont Albatross, the Baby Albatross, the Paper Wing and the ill-fated XCG-16 Troop Carrier, are conjectured and discussed throughout the sailplane community. Little is said about the XTG-12. Few, other than ex-WWII glidermen ever heard of it. Post war, one was tied down and left to rot at El Mirage and finally was burned for the sake of safely.

Raul Blacksten, in his "WW II Training Gliders" compendium, refers to this ship as the XBM-5 and says that the XBM-5 was only one of several Bowlus designs contributed to the war effort.

What happened to the BA 102/XTG-12/XBM-5? Peter Bowers said "Gus Briegleb got one of his BG-8/TG-13s back. For many postwar years it was part of his El Mirage glider operation. No mention of the Bowlus BA-102 shows in postwar CAA glider listings."

The cancellation of the trainer contracts and the flying wing type cargo/troop carrying Bowlus XCG-16, led to the designer/builder's financial downfall and bankruptcy. Blacksten wrote, "He had to buy back his own tools from the court."

The Orange "Y" Glider Club - 1933



Jack Streeter, Frank Apgar, Amel Conets, Les Barton, Jack Van Pelt of the Y Flying Club.
Gus Scheurer of the Aero Club Albatross.

American youth of the 1930s had caught a serious case of Lindberghitis, none more so than the air-minded boys of the Orange, New Jersey, YMCA Glider Club. Since most of them were too young and could not afford to take power plane lessons anyway, gliders were the only answer. A faded newspaper clipping said that the club had eleven active members. They owned two gliders, the first of which they built themselves.

The fragile clipping (no date) continued that it all began with members building model airplanes. At the suggestion of the Orange YMCA Boy's Work Director, and with the enthusiasm and confidence of youth, the group coalesced around a project to form a glider club and build a real, full-sized, man-carrying glider. They bought a Mead Primary kit for $79. The amount was raised from dues and contributions of several dollars from each participant. The project involved several months of patient cutting, sanding (by hand in those days), fitting, and fastening, with such tools as were available in the cramped workshop in the rear of the YMCA building. The completed little ship went on public display in the main lobby of the YMCA before flight testing. With the depressed times of the 1930s, the boys couldn't afford a flight instructor, so they taught themselves to fly.

At first, each member sat in the little primary for a few minutes at a time. He learned how the ailerons, elevator, and rudder worked, and to windjam to maintain stability in a light breeze. The next step was to attach a length of rope to the glider, and auto-tow it slowly enough so that the glider would not rise up off the ground. Next, a little faster, with the student holding the glider two or three feet off the ground. He now had full aileron, rudder, and elevator authority. The final step was increasing the towing speed to lift-off. Before he knew it, the fledgling airman was aloft with a hundred or more feet of altitude. The pilot would then release and after an exhilarating flight of maybe 15 or 20 seconds, would glide to a bouncy landing, ending with everything (hopefully) intact.

Club officers were Frank Apgar, president,

The Y Flying Club

Above: Jack Streeter in the Y Secondry at Lyons V.A. Hospital in background.

Y Mead at Lyons, N.J.

Leslie Barton, v.p., and Emil Kaunitz, treasurer. The other active members were Eugene Gwyer, John Streeter, John Van Pelt, Edward Roger, Jay Warner, Norbert Sander, and George and Kenneth Hannah.

Another newspaper article said that the club members flew from a field at Millington, NJ. There they had made more than 1,000 hops, some reaching an altitude of 500 feet. The article indicated that the Y members all started out building models and that some of them were still interested in that hobby.

After several months the club was able to buy another glider. It was originally designed as a primary (that is for learning purposes). Then with increasing confidence, they rebuilt it into a secondary glider, a higher performance ship, capable of more advanced performance. Several years later the expanded Y Glider Club, no longer connected in an organizational sense with the YMCA, was instrumental in developing Schley Field, two miles southwest of Liberty Corners, NJ. It was literally carved out of the forest by the devoted labors of the Y Flying Club and Aero Club Albatross, under the "determined and inspiring leadership of Gus Scheurer". Scheurer was then a director of the Soaring Society of America[1] and later, in 1975, inducted into the U.S. Soaring Hall of Fame.

In 1938, Schley Field was established as a real soaring site when it was chosen by the Associated Glider Clubs of New Jersey for their annual meet.

Winch towing was used exclusively at Schley Field. "It was one of the first places in America where it was proven to be a practical method of glider launching," the Soaring article continued. "Credit to Gus Scheurer who has done so much to develop winch launching. It has become the accepted method at most centers of gliding and soaring activity, for those who have passed the initial stages of instruction."

Notes:

1- Soaring - October 1938, pg. 9

The Zögling Primary Glider

The Zögling Primary training glider in the National Soaring Museum's glider and sailplane collection is one of the oldest in the country, and by some estimates, the world. It languished in obscure storage at the Henry Ford Museum in Dearborn, Michigan and was offered to the NSM in 2005.

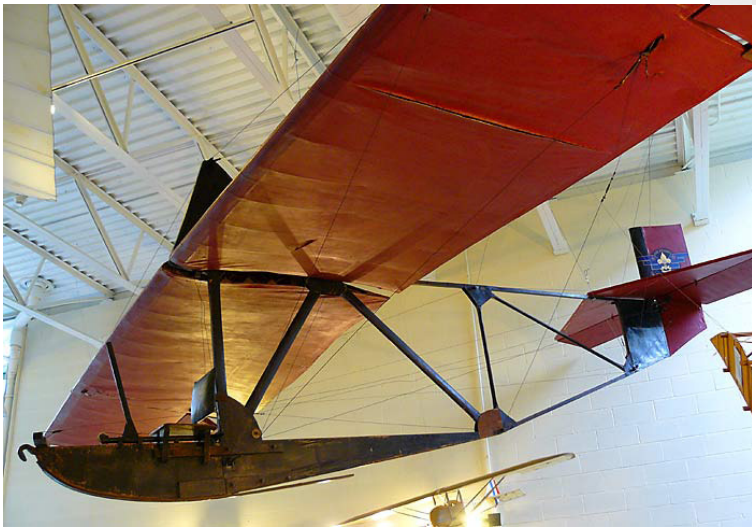
The Zögling was designed by Alexander Lippisch, and built at the Wasserkuppe School in Germany. Due to the harsh terms imposed by the WWI Armistice and restrictions on German Aviation in the 1920's, interest shifted to gliding and soaring. The Zögling primary design was changed in many details over the years and was produced in quantity by Schleicher and Fieseler, with a great many being built and modified by amateurs and clubs all over the world. It was a popular and durable start for the fledgling airman.

Two Zögling Primaries, a two seater and a high performance Darmstadt[1] sailplane came to the United States in 1928. They were part of a German expedition invited to Truro on Cape Cod, at the behest of J.C. Penny Jr. (son of the founder). He was providing funds for the American Motorless Aviation Corporation, which was about to conduct this country's first organized gliding demonstration over the Cape's sand dunes. The two-seater and Darmstadt[1] were wrecked. The two Zöglings were purchased by William Scripps and taken to Lake Orion, Michigan, where one cracked up. The surviving Zögling was purchased by the Air Scouts (note rudder insignia) and was donated to the Edison Institute (later to become the Henry Ford Museum). In 2005 it was donated to the National Soaring Museum.

The ex-Air Scouts, ex-Ford Museum, now NSM Zögling was de-rigged, and Jack and Dody Wyman trailered it to Elmira. The Wyman glider caravan arrived in time to meet the deadline for an upcoming Vintage Sailplane Meet. With the help of the Wymans, Joe Feather, VSA's Raul Blacksten, and passing kibitzers, the venerable 77 year old primary with small fabric rents in the wings was reassembled and rewired. Thereafter the Zögling was displayed, ever so carefully suspended in the Museum's Johnson Gallery, positioned next to its other historic glider and saiplane progeny.

1- The wrecked Darmstad was salvaged, rebuilt as the Chanute and flown by Jack O'Meara in the Early 1930s.

Right: Unloading German glider containers at Southwell fleet, Cape Cod, Mass. 1928-29
Below: The NSM's Zögling displayed in the main gallery



Specs:

Span..... 34 feet 10 inches
Length..... 17 feet 9 inches
Max. width of surface..... 5 feet 3 inches
Wing Area..... 161.2 square feet
Empty wieght..... 190 pounds
Flying speed..... ~41 ft p. second
Glide ratio..... 8:1 (est.)
Construction: single seater, high plane with steel wire stiffening, open stayed trelliswork body of simple construction.

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Anyone is invited to contribute material and photographs with identification about historical soaring activities, renovation of old sailplanes, soaring pioneers, unusual uses of sailplanes, etc. Manuscripts are subject to whatever revisions, additions, or deletions are necessary to make the material conform to the space limitations and standards of the NSM. Material that is to be returned must be accompanied by a self-addressed stamped envelope. No compensation other than credit will be given.

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