



Southwest Soaring

Quarterly Newsletter of the U.S. Southwest Soaring Museum
A 501 (c)(3) tax exempt organization

June 2005



Our Hummingbird motorglider at the Vintage Rally at Elmira, NY in July 2000.
See story on pages 4 and 5.

The **Gala Dinner, Dedication and Dance** as well as the **Vintage Sailplane Rally** will soon be here. We have arranged for a fabulous speaker. In addition, the catered dinner and dancing to a 15-piece orchestra should make for a memorable evening. See page 6 for details.

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Editorial

Plans for the June 10 **Gala** are falling into place. We are looking forward to a fantastic evening, a memorable event! This brings an end to a week of glider flying in a part of the country known for superb flying conditions. Now, if the weather will cooperate... See the related article and application on page 6.

Magazines! They have become overwhelming. We have been accepting any aviation-related magazines you care to donate. This has led to a severe lack of storage space. So while we will still accept glider-related magazines, please—no more others until further notice. I have gone through most of them and am keeping one of each issue of *Sport Aviation*, etc. And we are keeping any older than (usually) 1970 as they may be of value. However, we have many boxes of extra magazines stacked up next to the office in building #35. They are free for the taking or will eventually end up “recycled”. If you need to fill gaps in your *Soaring* collection, we have a good supply of older issues and will sell them for a nominal amount, maybe 25 cents each unless they are pretty old.

The Board has decided to hold a **Grand Opening and Open House** in the new museum building on Route 66 in conjunction with many other July 4 activities going on in Moriarty that day. The raffle drawings will be held during this open house. Thanks to all who have purchased tickets. I wish you all could win!

As George mentions in his **Museum Musings** column, Fernando Rueda of Houston, TX has completed a very nice exhibit honoring the Schweizer’s contributions to soaring. However, it is too delicate to ship and Fernando is unable to bring it to us. I’m asking a big favor of someone who may be coming this way from Houston—to let me know so that I can put you in touch with Fernando.

Does anyone have an address for **Jerry Mercer**, donor of our Genesis II?

Thanks to Kathy Taylor for her article on the **Hummingbird** motorglider, one of our most prized possessions. And also thanks to Toodie Marshall for sharing information about her father’s role as a designer of this fabulous bird, and the excitement of growing up in this environment.

Notice the **membership** numbers on some of your address labels. This is explained on page 7.

The **money** supply is getting very low. We barely have enough to finish the inside of the new building and this is with many, many hours of volunteer labor and cash contributions. Your memberships help a great deal. Any amount of cash would be helpful. Thanks to Fred Jensen for all the carpentry & sheetrock work, Dan Palmer for plumbing & painting, and Bob Alkov, George Taylor, Bob Leonard, Ellen Owen and George Applebay for many tasks. Until September, Lynn

Logo Contest

We had several excellent last-minute entries and made a selection at our April Board meeting. Curtis Randell of Taos, NM is the winner. Printing it in black & white doesn't do it justice. Visualize a yellow & red K-6 flying through a turquoise sky filled with beautiful, towering white cumulus!

Museum Musings

By George Applebay

We bring you the latest Southwest Soaring Museum musings in this second newsletter edited by Lynn Buckingham. Detailed information will be presented in the following pages.

The Southwest Antique and Classic Soaring Rally is June 5-11 for all gliders constructed prior to 1980. The big Gala Dinner, Dedication and Dance will be held in the new Number 3 building Friday, June 10 at 7 PM.

The latest donated gliders are Claude and Carson Gilmer's motorized Mosquito, John Sinclair's Bowlus Super Albatross replica and Al Santilli's KK-1e UTU. USSSM's hard-working model builder, Fernando Rueda, has just completed the Saga of Schweizer, a complete display of each model that Schweizer produced but in miniature.

I want to thank each of you that have renewed your membership, upgraded your membership to a higher level or made donations to USSSM. Your help and the museum volunteers have made possible the completion of the inside of the newest soaring museum building. Now please come visit your latest museum and help dedicate it to the young people of New Mexico, America and the world.

Getting to Know Your Board Members

Steve Hill, V.P.

By Steve Hill

Steve was born and raised in Albuquerque, New Mexico. Between the ages of 13 and 15 he and a friend built a hang glider from plans and taught themselves to fly it. In 1973 Steve was introduced to his neighbor, George Applebay, and began working after school and weekends at George's shop helping with the Mescalero project. He was

involved with the Zuni project from the beginning and worked for George throughout high school and college, gaining experience in all phases of sailplane construction. Thanks to this experience and to considerable encouragement from George, he earned his Mechanical Engineering Degree from the University of New Mexico in 1981.

After college, Steve worked on contract to Boeing in Seattle and Lockheed in Los Angeles. He worked on the design and structural testing phases of the B-2 Bomber project. He also spent some interesting time in the space electronics industry with Gulton Data Systems of Albuquerque.

Steve worked at DeVore Aviation in Albuquerque. He earned an STC for installation of logo lights on a Eurocopter EC-135 helicopter as well as bringing aircraft float production back on-line, as an example of his work for this company.

In 2000, Steve went full time into his composite racing propeller business. About 85% of all Formula One aircraft racing at Reno, Nevada use one of his carbon fiber props. In December 2003 he was honored by having Jon Sharp's Nemesis Formula One racing airplane admitted into the Udvar-Hazy wing of the Smithsonian Air and Space Museum with one of his propellers on the nose and his name listed as a crew member on the wheelpan. In 2004 he was named Crew Chief on the new Nemesis NXT Air Racing Team and participated in the design, construction, and testing of the new kit. (<http://www.nemesisnxt.com/> and <http://nemesisairracing.com/>) Steve is hoping to earn his A&P license in 2005.

Steve flew hang gliders all over the country from 1974 to 1994 and logged many hours above the Sandia Mountains in Albuquerque. He logged his first sailplane flight in 1978 and finally earned his Private Power Certificate in 2002 and flies a Bellanca Viking.

Steve has served on the Moriarty Airport Advisory Committee for the past 8 years and on the Moriarty Lodgers Tax Committee as a representative of the Soaring Museum.

Hummingbird

By Lynn Buckingham

As an introduction to Kathy's article, I would like to share a few facts and observations from Toodie Marshall's story on this exciting time in aviation history. Ms. Marshall's account of growing up in a family so involved in making aviation history is well worth reading and is available at the museum. Toodie Marshall is the daughter of Harry Perl.

Ted Nelson was born about 1908 in Eureka, CA. He owned Nelson Stud Welding Co., which became Nelson Aircraft Co. He was a very prolific inventor. In addition to the Hummingbird engine, Nelson developed a hospital bed in which the patient could be vertical or use it as a chair. Another of his inventions was the Nelson Flow meter for oxygen, still used today.

Harry Perl was born in 1910 in Ithaca, NY. As an adult, he moved to Los Angeles and worked as a commercial artist, designing many ornate lobbies such as in the Graumans Chinese Theatre, in the 1930s. Earning his Private Power license to fly in 1939, Perl became acquainted with Nelson, who later bought the Hawley Bowlus glider company. Perl began working for Nelson on the Hummingbird in 1948. Perl also designed his own sailplane, the "Perl Penetrator". It and a Hummingbird now reside in the National Soaring Museum in Elmira, NY. Perl and Nelson remained close friends until Perl's death in 1984.

Ted Nelson and His Hummingbird

By Kathy Taylor

Ted Nelson's own personal Hummingbird, N68582, was acquired by the Museum in 1999 and has made a number of appearances at recent vintage sailplane meets. We thought you would like to hear some background on this very remarkable machine, which has been called the first modern motor glider. Much of the following material is summarized from an article by Robert Lee Moore published in Soaring Magazine in December 1995. Additional information is drawn from Ted's own article in the May-June 1950 issue of Soaring.

Ted Nelson was long fascinated with the idea of self-launching gliders. He was a successful inventor, best known today for the Nelson Stud

Welder, used in building Liberty ship, and still used in the construction industry.

Ted also developed the lightweight two-cycle, four cylinder, 40-hp Nelson engine. Many of his engines were used in military drones and other applications. Shortly after World War II, he set out to develop a self-launching, high-performance, two-place sailplane. The first product was the Nelson Bumble Bee, a two-place side-by-side mahogany plywood sailplane, designed and built by Hawley Bowlus, using the Nelson engine. With an L/D of 18:1 and engine overheating problems, Ted decided to start over.

Enter Harry Perl, a highly-respected aeronautical engineer and long-time glider pilot who would be the project's aerodynamicist and design a new airframe. Don Mitchell, who was well trained in the aircraft industry and with a lot of glider experience, assisted in the engineering and design of the ship. They soon decided on a retractable engine. After experimenting with another side-by-side fuselage, they became convinced that a tandem design would produce less drag. It was the first aircraft to use the recently-developed NACA all-flying tail with servo trim tab. They gave it a steerable nose wheel, large main wheel, and advantageous CG arrangement that assures very positive taxiing and takeoff characteristics, even in a crosswind.

The mechanism for engine extension and retraction was elegant. One simply flipped a toggle switch and an electrohydraulic system opened the engine doors, ran up the engine, and closed the door without any further attention from the pilot – all in about 12 seconds. When the engine was stopped, engine compression caused the prop to stop in a vertical position. Flip the toggle switch in the opposite direction and the doors opened, the engine disappeared, and the doors closed, all automatically. Only recently have today's motor glider designers approached this degree of convenience and sophistication.

The wing of the Hummingbird also involved innovations. Ribs and spars were of aluminum alloy construction with magnesium skins. Contoured Styrofoam blocks were glued between the D-tube ribs to allow a thinner skin to be used and to prevent oil-canning. The result was a surprisingly light wing of 54 foot span. The completed Hummingbird was very rugged, with an

empty weight of 800 pounds and gross weight of 1200 pounds.

Six of the metal Hummingbirds were built and sold at an all-up price of \$7,000, a princely sum in those days. (Ted Nelson is said to have spent some \$500,000 on his motorglider projects).

Ted Nelson flew his personal Hummingbird till late in life (he died at age 83 in 1993), and introduced many prominent people to soaring. He loved wave flying and used the Hummingbird to fully explore wave conditions in the San Francisco Bay area, and also made expeditions to Bishop and Minden, Nevada. Ted's article in the November-December 1951 *Soaring Magazine* relates some of these adventures.

This article includes an account of the 1951 national contest at Grand Prairie, Texas, in which Harry Perl and Les Arnold flew the ship to ninth place.

Les Arnold flew his own Hummingbird in several national contests in the late 50's and did extremely well, setting both new national contest distance and out-and-return records. He flew these contests solo with an extra can of gas in the back seat. After landing at the end of the contest flight, he would self-launch and motor homeward. If fuel got low, he would land in a suitable area, pour the gas into the engine, and continue back to the contest site. During an entire contest he never had to dismantle the glider!

Of the six aircraft built, serial #82 (registration number N68582) was the last to fly and it is still in excellent condition. This Hummingbird was purchased from the Nelson family and returned to airworthy condition by Robert Lee Moore of Richland, Washington.

Bob Moore measured the glide ratio of N68582 and found it to be approximately 30:1, much higher than the often quoted 25:1, which he thinks was measured for the wooden prototype. Before coming to the museum it had been last flown in May of 1997 and had 1634 total airframe hours and 330 engine hours.



Three of the most noted designers of the '40s and '50s



Engine-up mode always draws a lot of attention



All packed and ready to return from Elmira, July 2000

SOUTHWEST SOARING MUSEUM GALA DINNER & DANCE

Registration for the Sailplane Rally and/or the Gala Dinner & Dance

Everyone is cordially invited to attend the Southwest Soaring Museum's formal Dedication and Gala Dinner and Dance. These events will be held in the large new museum building at 918 East Old Highway 66 in Moriarty at 7 PM Friday evening, June 10, 2005.

Many of the museum's gliders will be on display at this Dedication and Gala. A catered dinner will precede the program events. Dance music will be provided by the popular Dukes of Albuquerque, a 15-piece orchestra.

A man known to many of you, **Renard R. (Renny) Rozzoni**, will MC this event. He has been a very popular, professional MC at many events. Our featured speaker will be retired astronaut **Joseph F. Edwards** of Washington D.C. There is an article about him in the August 2004 issue of *AOPA* magazine, page 200. It will be a real treat to hear Joe Edwards! This has been arranged by a private individual and will not come out of museum funds. Please call Lynn Buckingham at 505 269-7822 or George Applebay at 505 328-1654 for additional information.

The above event will conclude an **Antique and Classic Sailplane Rally** (June 5-11) at the Moriarty Municipal Airport. All are welcome to visit the airport during this Rally and see these beautiful old birds in action.

In conjunction with the rally, if any attendees would care to take a break from soaring activities and go on some trips to places of interest in this part of New Mexico, I (Lynn Buckingham) will be available on Tuesday and Thursday to take you "wherever". We could spend a day going to some of the new museums and shopping in Old Town, Albuquerque and another similar day in Santa Fe. Or go to a national monument?? Up to you. Carol Roeske has also expressed an interest in leading a trip. This could be much fun! My cell phone is 505 269-7822 and home phone is 505 298-1239.

Cost will be \$50 per glider entered and \$50 each for the Gala (also a fund-raiser). \$25 of the Gala expense is tax-deductible. Please send payment with your registration to: Southwest Soaring Museum, PO Box 3626, Moriarty, NM 87035. Your tickets will be mailed to you. Or you may buy your tickets from the Moriarty Chamber of Commerce or from George or Lynn. The registration deadline for the Gala is Monday, June 6.

- Glider (make & model)

- Gala (how many)

Name _____

Address _____

Phone # and /or e-mail
address _____

Entrée preference (and how many) if attending the
Gala: Prime rib _____ Chicken _____

Membership

Since I have been so remiss in reminding you to renew, I have decided to do it on your address labels. If there is no expiration date, membership has already expired and we'd love to have you renew if you choose to. Numbers won't be reused. Two-digit numbers designate Life memberships. Of course, no renewal is necessary.

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Benefits of memberships include:

1. Free admission to museum facilities.
2. 10% discount on gift shop purchases.
3. Receive all USSSM mailings.
4. The satisfaction of knowing that you are helping to build a first-class museum.

Life members and major contributors and their minor children receive these benefits for life. Other members receive them for one year. Family, Supporting and Sustaining include minor children. Supporting and Sustaining accrue toward a Life membership.

Send check to: U.S. Southwest Soaring Museum
P.O. Box 3626
Moriarty, NM 87035

New_____ Renewal_____

Individual_____ \$35 Family_____ \$45 Student_____ \$20 Supporting_____ \$100 Sustaining_____ \$500
Life Member_____ \$1,000 Major Contributor_____ \$\$\$\$\$

Name_____

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