NSM

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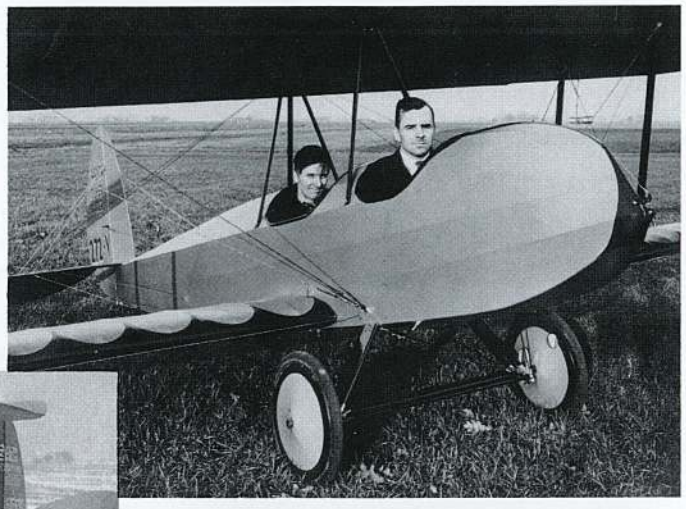
BIPLANE GLIDERS

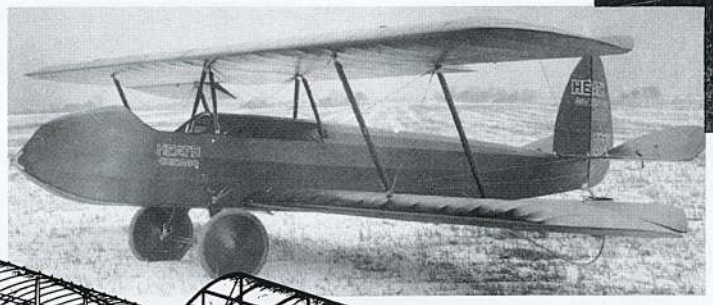
If the lift from a glider's single set of wings is good, wouldn't two sets of wings be better?

This aerodynamic query was posed recently to an NSM tour guide piloting an animated gaggle of fourth graders through the "what-keeps-a-glider-up" section of the Museum.

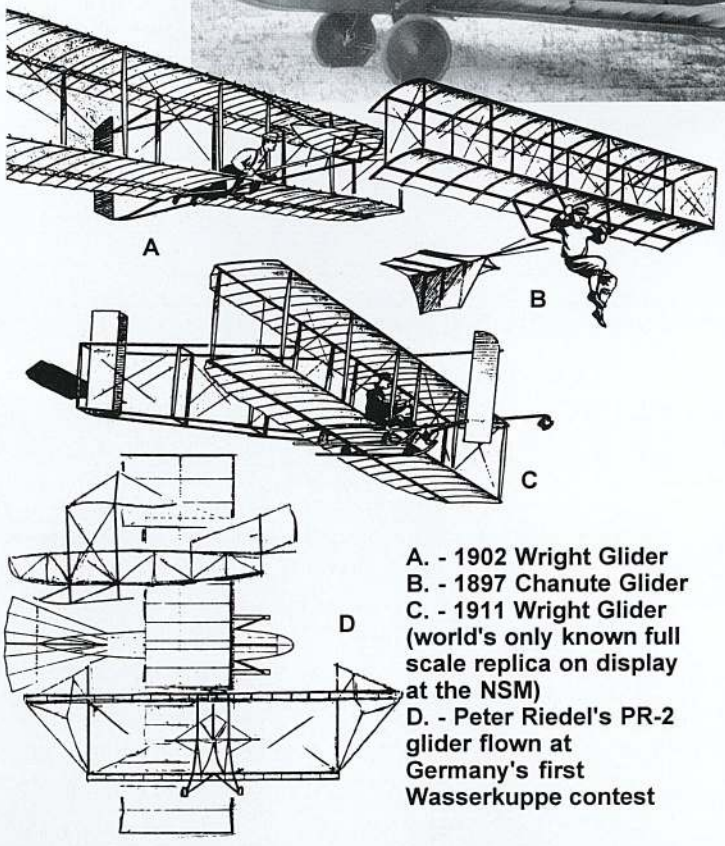
Many of the motorless flight pioneers did design and fly biplane gliders, the dimunitive 10-year-old girl was told.

Chanute, Lilienthal, the Wright Brothers, Herring, Curtiss, Fokker, Gallaudet, all built biplane gliders. Some even built triplanes and quadraplanes. While some of these ships were brilliantly successful, they were soon eclipsed by cleaner and stronger monoplane designs.





Ed Heath in the rear cockpit of his "Super Soarer" assembled from a 1930 "Parasol." Prototype Heath (left) was a single-place ship.



A. - 1902 Wright Glider
B. - 1897 Chanute Glider
C. - 1911 Wright Glider (world's only known full scale replica on display at the NSM)
D. - Peter Riedel's PR-2 glider flown at Germany's first Wasserkuppe contest

During a later discussion, NSM volunteer Bill Bruning, a retired Grumann aerospace engineer, pointed out that the early glider builders like Chanute and the Wrights relied on the box-like Pratt truss for strength and rigidity. Unsupported and unbraced wings, made of materials in use at that time, would not maintain their aerodynamic profile and sustain the stresses to which they would be subjected.

Later, with the evolution of the cantilevered wing (no external bracing), possibly the lift derived from an additional set of wings would be offset by the additional weight, "although I would want to do further research to substantiate it before being quoted," Bruning said.

Ernest Schweizer, co-founder of the Schweizer Aircraft Corp. (Hall of Fame 1955), pointed out that according to Bernoulli's Principle, as the biplane glider moved through the air, the lessened pressure on the top of the bottom wing would tend to cancel out the lift pressure to the bottom of the top wing.

The Wright Brothers utilized the biplane approach in all their glider designs, culminating in the record-breaking 1911 model. The NSM has the world's only known full-scale reproduction of this historic Orville Wright design (brother, Wilbur was not involved). The "1911" is one of the ships suspended in flying configuration over the NSM's main hall. Before Glenn H. Curtiss and the Aerial Experiment Association ventured into powered flight, they built and flew a hang-glider biplane from a Hammondsport, NY hillside.(1) Glider activity was already underway in Germany in 1911 when Orville Wright made his 1911 9-minute, 45-second glider flight over the Kitty Hawk dunes.

A group of air-minded boys started the Flugsport Verinigung Darmstadt, referred to as the FSV, the Darmstadt Sport Flying Club. The group began testing their flimsy FSV gliders made of bamboo cane, starched cotton shirt fabric and wire at the now famous Wasserkuppe in the Rhoen Mountains. The summit at that time was pastureland used by the Gersfeld Cattle Breeding Association (2). In 1912 Hans Gutermuth flew the FSV-12 swept-wing biplane glider a record distance of 2,800 feet. Altitudes of up to 160 feet were recorded. He and many other of the Darmstadt Club members did not survive WWI.

In 1920 gliding activity returned to the Wasserkuppe, and Willy Pelzner, with his biplane hang glider, in succeeding years turned in flights of 1,600 to 2,800 feet.

Pelzner's designs were reminiscent of the Chanute glider, except that Pelzner's wing and tail surfaces were covered with oiled paper glued to the undersides of the ribs. It was controlled by shifting the body to change the center of gravity. His later designs had left and right rudder control, which was activated by fore and aft movement of the pilot's right hand (3).

At that time, 14-year-old Peter Riedel, a German national who later immigrated to the United States, carried the parts of his P.R.2 biplane glider to the Wasserkuppe for assembly. Riedel described his first flight of the paper-covered skeleton of wings, fuselage and tail in the March 1974 **Soaring** (4). "Two men towed me into the wind like a kite, until the flight instructor shouted 'Let go!' Then there were a few seconds of free flight, ending in landing about 100 feet ahead of my launching team."

After an adventurous lifetime aviation career,(5) in his retirement Riedel built a P.R.-2 replica in 1973. Identical in every way except in the use of bicycle spokes for fuselage braces, the little glider made several flights behind a VW with a 170-foot rope. "It gave me great satisfaction to find that the little biplane handled so well," the Wasserkuppe veteran commented.

The renowned airplane builder Anthony Fokker, who designed and built outstanding WWI German monoplane, biplane and triplane

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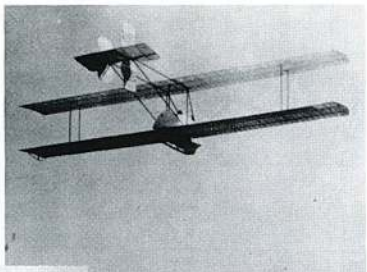
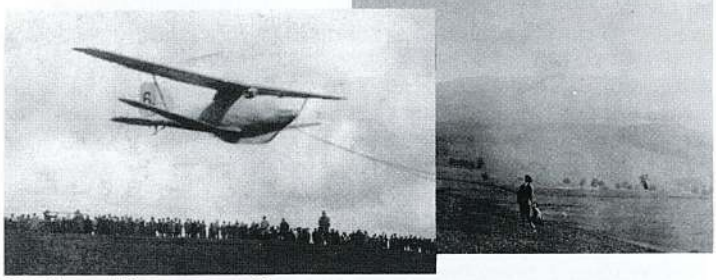
Right: Early Anthony Fokker Biplane Glider flown at the Wasserkuppe.

Below: "Kurpfalz Leberzahn" #6" at an early Wasserkuppe contest.





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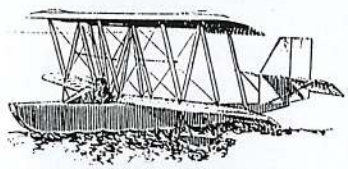
fighters, also flew his biplane glider designs at the Wasserkuppe in the early 20's.(6) Power plane construction was strictly limited in Germany following that conflict. Aero-historians point to those 1919 Versailles Peace Treaty strictures as being responsible for Germany's pre-eminence in motorless flight in succeeding decades.(7)

Several biplane designs bobbled along in the 20's and 30's.

In 1929, England's W. L. Manuel turned in many flights with his single seat two-winger tethered as a kite. With a 20-foot rope attached to the tailskid of a Gloster Grebe fighter, whose engine was turning at full power, the tiny glider was "flown" for about four minutes in the slipstream. Then the Grebe's engine would start to overheat.

Water gliders seemed to hold a particular fascination for designers in this era. Some designs are shown and described in "Henley's ABC's of Gliding and Sailgliding" by Victor W. Page, a 1930 volume of which is in the NSM's collection. The two-place Peel Biplane Glider Boat had a 31-foot wingspan and an advertised gliding angle of 15-to-1. (This ship as well as the Peel trans-Atlantic flight attempt was detailed in the Spring 1991, Vol. 13, No. 3, **NSM Journal**, "Across the Atlantic by Glider," pgs. 6-8).

The Lawrence Biplane Water Glider was featured in the April 1930 **Modern Mechanics and Inventions** and was described as "a simple machine that can be built by anyone capable of constructing a land glider." More accurately a sesqueplane, the one-place Lawrence featured a single step, 7-foot,4-inch wooden pontoon, covered "with doped linen to make it watertight". The upper wingspan was 28 feet with considerable dihedral and wingtip floats on the 19-foot, 6-inch lower span. The upper wing had 6-foot chord with a 5-degree incidence (The acute angle of the mean chord of the wing and the longitudinal axis of the aircraft). The lower wing had a 3-foot chord.



1930 Peel 2 place Glider Boat

1923 Curtiss "Flying Boat" glider

Probably the most successful kit-maker at that time was Chicago's Heath Airplane Company, (the same Ed Heath of Heathkit radio and electronics fame). The Heath Parasol kit (advertised as America's Most Popular Sport Plane) in knockdown form sold for $199, less its modified 23-hp Henderson motorcycle engine - "$975, FLYAWAY-CHICAGO, 70 miles an hour, in a direct line to your objective. No stop lights. No traffic jams. No cops or complimentary tickets," the slick promotional piece said.(8) It was the premier flier plane of the late '20's. Heath offered a dazzling array of airplane designs and kits: high-wing and low-wing monoplanes, biplanes, racers, along with small two-cylinder engines, converted motorcycle engines up to 12-cylinder radials. Then there was The Heath School of Aviation. The December 1927 **Popular Mechanics** ad said, "Learn to Fly in 5 Weeks--Let champion aviator, E. B. Heath, winner of the National Air Races at Spokane in 1926 and at Philadelphia in 1927, teach you how to fly." Ed, almost wearing his tiny 32-hp Bristol Cherub powered Heath, "Baby Bullet," sliced around the pylons at 140 mph. He was a tough competitor in those seat-of-the-pants open cockpit days.

Nor did he overlook motorless flight. In 1930 he assembled a biplane glider from major components of the "Parasol." Peter Bowers described the Heath "Super Soarer" in his "Interesting Gliders" feature appearing in the March-April 1957 **Soaring**.

The aerobatic "Super Soarer" utilized the 1928 model "Parasol" fuselage with an extra section added forward of the firewall for the pilot. Bowers said, "The prototype appears to have been a single seater, but the production model, plans for which were published in the 1932 **Modern Mechanics Flying and Glider Manuel**, (were for) a two-seater."

The upper wing was stock parasol, sans gas tank; the lower was the same span and chord shortened at the fuselage. Ailerons were fitted to both wings. Expanded tail surfaces were wood and steel tube construction. The same 2-wheel "Parasol" landing gear was used.

Bower comments that "aerodynamic knowledge, or lack of it at that time, was amazing." According to a magazine account, he had to loop right off the tow because otherwise the glider slowed right down to its glide speed of 25 mph, and (the Super Soarer) "couldn't be dived as fast as the 65 mph that the Standard could tow it! Also, the loop had to be entered down wind so that the wind would blow the tail over the top of the loop!" Later one of the Super Soarers claimed 2,000 loops.

Bowers speculated that Ed must have had structural limits in mind when the said that the ship couldn't be dived as fast as it could be towed, for it came apart on him while performing aerobatics at an air show, and the famous race pilot and designer lost his life.

There is some question concerning the advertised 18-to-1 glide angle of the Super Soarer. The best of the contemporaries (Grunau "Baby" and "Wolf" sailplanes) had glide ratios of only 17-to-1 and aspect ratios (length-to-width of wing) of 14. Bowers asks, "What, then, of a biplane with an equivalent monoplane aspect ratio (ratio between wing span and the mean chord of the wing) of about 3,

1934-38 New Jersey Soaring Association 2 place Sesquiplane - using wings and tail from Chet Decker's utility glider.

lots of (drag producing) wires and struts, a two-wheeled strutted landing gear and two open cockpits?"

"Whatever its performance," Bowers said, "...the Super Soarer has a secure place in American gliding history."

Another unique design was a 2-place sesquiplane, built in the 30's by members of the New Jersey Soaring Association. Felix Chardon, New Hope, PA, recalled an April 1937 **Soaring** (9) article by Pete Bonotaux, describing the distinctive ship. It was jointly designed and built by Chet Decker, Carlton Schaub and Ken

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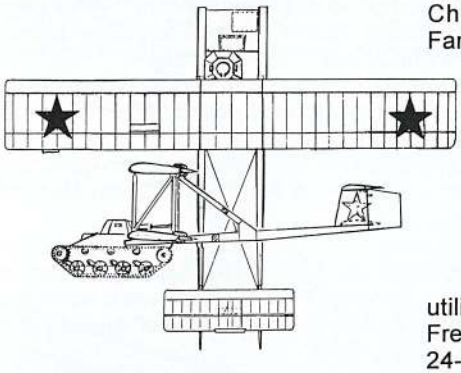
Fendiesen. The story, "Gliding and Soaring at Greenwood Lake," featured pictures of the 2-winger and related the New Jersey group's experiences towing off a frozen lake. "...This ship was our own design and construction," Bonotaux wrote. "It flew very well and allowed us to do a lot of training. It had tandem seats with dual controls and the rear cockpit was enclosed in a neat little cabin. The ship had an airplane type landing gear and tail skid, which taught us three-point landings." Chardon said that the sesquiplane's wings and tail were from Chet Decker's (Hall of Fame 1978) single-place utility glider. N.J.S.A.'s Fred Miller built the lower 24-foot wing. "It was a very successful glider and we flew it between 1934 and 1938," Chardon said.



The WWII Russian KT "Kryliatyi" - Winged Tank - (Redrawn from Col. Mrazaki's 'Fighting Gliders of World War II' - page 172.)

We must look to the Russian Oleg K. Antonov and his staff of engineers for probably the most bizarre application of the biplane glider platform, the "KT"(Kryliatyi Tank) or Winged Tank. Col. James E. Mrazek, (USA ret.), in his authoritative book, "Fighting Gliders of World War II" (10), detailed the evolution of this risky WWII flying oddity. "A new departure in transport glider design in several respects," Mrazek said. The "KT" was a biplane glider...and the fuselage was a 6-ton T-60 tank! It was supposed to be aero-towed and released behind enemy lines. The tank, with its gun traversed rearward, was set between the glider's twin booms, most of its weight being forward of the lower wing's leading edge. Mrazek wrote: "The system was so designed that the controls for the glider were inside the tank." Because of wartime metal shortages, the "KT's" frame was constructed of wood; the 49.2 ft. wings and the tail sections were fabric covered, all-up weight, w/ tank: 18,000 lbs.

Mrazek's research showed that the enormous "KT Winged Tank" was towed at 100 mph lift-off speed, by a four-engined TB-3 bomber. With the bomber's engines overheating, the "KT" was released early and glider pilot Sergei Anokin started the tank's engine and actuated the tank's treads. From Mrazek's book, (pg. 171): "At about 200 feet above the ground he accelerated the tread; they reached their maximum land speed just before the treads touched the ground. The system landed smoothly and Anokin brought it to a stop." Mrazek added that despite the successful test, no further flights took place owing to the demands for four-engine bomber/towplanes at the front.

There have been several attempts to resuscitate the biplane concept. In 1959, two brothers R. J. and K. Westmacott in Minety, Wilshire, England, designed and built a biplane glider from material on the family farm, at a total cost of five British pounds(including two for the wheels).

To the imaginative little fourth-grade miss with the questioning mind: biplanes just can't compete economically or aerodynamically with the 60-to-1 glide ratio of today's space age-designed monowinged sailplanes. But NSM docents are always gratified to hear children express their "whys and what-ifs" as they explore the technics and romance of motorless flight with us at NSM.

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(4) **Soaring**, March 1974. Turning the Clock Back, pgs. 1 & 9.
(5) **NSM Quarterly Journal**, Fall 1987, Vol. 10, No. 2; Hanna Reitsch On The Appalachian Ridge - The Most Exciting Flight I've Ever Had, pg. 3.
(6) **NSM Historical Journal**, Vol. 16, No. 1, 1994; Dr. Wolfgang Klemperer, 1893-1965, Recollections by his Son, Walter, pgs. 3 & 5.
(7) **Wings Like Eagles--The Story of Soaring in the United States**, by Paul A. Schweizer, pg.7.
(8) **The World of Sport Aviation, Popular Mechanics and The Experimental Aircraft Association** by Budd Davisson, pgs. 12, 14.
(9) **Soaring**, April 1937, Gliding and Soaring at Greenwood Lake by Pete Bonotaux, pgs. 6,7. Recollections and pictures from Felix Chardon's personal files.
(10) **Fighting Gliders of WWII** by Col. James E. Mrazek, USA(ret.), Gliders of the Soviet Union, pgs. 170-173.

SOARING INTO SPACE

by Bertha M. Ryan

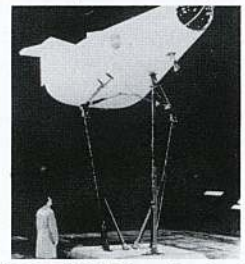
M2-F1 Lifting Body in flight, aero tow (NASA photo)

As we celebrated the 25th anniversary of the first landing on the moon by mankind, did you wonder if our sport of gliding and soaring has made any contribution to the effort in space? As you watch the space shuttle return from scientific activities in orbit around the earth, can you see the relationship of the unpowered descent to landing in California or Florida as it relates to landing a sailplane? There is a very definite relationship. It all began in the 1960's at Edwards, California, and had a very direct tie to soaring and soaring pilots.

There was an engineer named Dale Reed at NASA-Edwards who flew airplanes, was familiar with sailplanes and had a hobby of model building. At that time it was planned to return from space in capsules which descend to the sea under parachutes. Dale thought there must be a better way -- something more like flying an airplane or sailplane. He decided the best way to demonstrate his concept was to make a model and fly it behind a model tow plane.

Dale selected a wind tunnel shape, a blunted 26 degree cone, named the M2. This was a lifting body with a round bottom and flat top. He also constructed a model tow plane. Then he flew the combination in the halls of NASA -- naturally catching the eye of the Director, Paul Bikle. Paul was an internationally known sailplane pilot and appreciated the initiative shown by this engineer. He ordered the project to proceed to full scale, manned flight testing..

The effort continued along many fronts -- wind tunnel tests, simulations, designs, flight planning, etc. The simulation was one of the more interesting aspects. As far as was known, a simulation had never been made of an aircraft on tow. In order to check the technique the estimated aerodynamics of a Schweizer 1-26 were input to the computer for simulation. Pilots familiar with the 1-26 on tow "flew" the simulator and pronounced it realistic. Now the engineers could proceed with putting the M2 characteristics into the simulator.



M2-F1 Lifting Body in full scale (40 x 80) wind tunnel - NASA Ames Research Center - (NASA Photo)

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Meanwhile, the design of the lifting body was progressing. It had a wooden shell with an internal chromolly steel tube structure. Gus Briegleb was selected to construct this shell. The internal structure and instrumentation were assembled at NASA. The final design was 20 feet long, 10 feet high, 13 feet wide and weighed 1140 lb. with pilot. The L/D was approximately 3. Could such a low glide ratio aircraft be successfully flared and landed?

Finally the great day came -- it was time to mate the shell to the internal structure. There was still a great deal of work to be done before the first flight, as any homebuilder knows. It was especially necessary to do further wind tunnel testing for this flight vehicle that was so different from anything else ever flown. The aircraft with pilot on board was tested in the low speed, full scale wind tunnel at NASA - Ames. This may have been the first time an actual manned flight vehicle was tested (flown) in a wind tunnel. New, more accurate data were obtained, more analytical studies were performed and, most importantly, the simulator was updated with the latest aerodynamics.

The flight testing began with auto tows on the 10 mile long dry lake at Edwards Air Force Base. In this way, some of the handling qualities, take off and landing techniques could be checked out. But, what to use for a tow car? Requests for vehicles went through Congress and it was not known if they would accept the type of car needed for this program. Finally, it was decided that a Pontiac Catalina convertible with extra power and a roll over bar was required. Congress would never believe this sporty automobile was really needed by civil servants. So a request was made for a "lifting body power plant," approval was granted and the vehicle was purchased.

Everyone gathered on the dry lake for the first ground tows. The rope was attached between the Pontiac and the lifting body. The tow car started up and soon the lifting body was moving. There was a nose window in addition to the cockpit canopy and, as the speed increased, the pilot lifted the nose and shifted his view from over the nose to through the nose window. Slowly the speed increased and the pilot lifted the aircraft off the ground. It was really something to watch the Pontiac come roaring down the dry lake stirring up a minor dust storm -- then, eventually, the lifting body would show up looking somewhat like a flightless duck with its nose in the air. Then it would lift off the ground and fly for a short time before touching down safely.

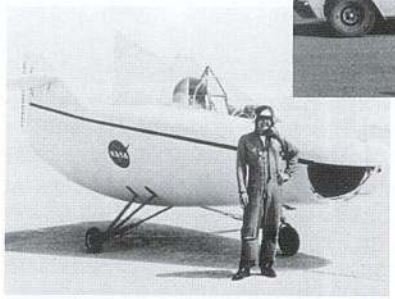
The M2-F1 Lifting Body familiarly known as the flying bathtub on ground tow at Edwards AFB, April 30, 1963 - (Bertha M. Ryan photo)

The next step was aero tow. NASA's R4D (Navy version of the C-47 or DC-3) was selected as the towplane. Once again everyone assembled on the dry lake one morning at dawn for the tow that would take this very unconventional, unpowered aircraft to altitude for the first time. The pilot was on board. The signal was given for takeoff and the towplane moved forward, gaining speed. As the tow line stretched, the M2 finally began to move. The lifting body took off normally, flew to approximately 10,000 feet, released and, after about four minutes, made a safe landing on the Edwards dry lake bed. Approach speed was 110 knots with touchdown at 80 knots. The concept was proven. A low lift to drag ratio aircraft could be safely flared and landed.

Tests continued to obtain data for this low speed phase of flight. More than 500 flights were made including more than 100 aero tows. These flights between August 1963 and August 1964 proved that pilot controlled flare with horizontal landing could be accomplished safely for flight vehicles of this type. Then the program phased into high speed and several heavy weight lifting bodies were constructed and, for the most part, flown successfully.

The lifting bodies flew for many years with comparatively few problems. Many of the design and operational techniques developed with the lifting body programs were transferred to the Shuttle project with the necessary modifications. More recently, the National AeroSpace Plane (NASP) design, which became the X-30, had a lifting body shape with a strong resemblance to the M2. Regretfully, the X-30 has been effectively cancelled due to mostly budgetary but some technical problems. You can be sure, however, that someday, in the next century, a flight vehicle of some type, flown by a pilot, with horizontal takeoff and landing, will soar into space. The design will be based on the building blocks from the lifting body flight test program of the 1960's as well as the vision of the engineer who first conceived the idea. Glider design, construction and operational techniques were an integral part of that vision.

Pontiac Catalina tow car and Lifting Body. National Aeronautics and Space Administration is lettered on the car door. (B. M. Ryan photo)



M2-F1 Lifting Body and pilot Milt Thompson (NASA photo)

Ms. Ryan, (U.S. Soaring Hall of Fame, 1972) was the second person assigned to the Lifting Body project and continued with the program from 1962 to 1967 as an aerodynamicist. In the late 80's and early 90's she worked with the NASP program as an aerothermodynamicist.

ON THE COVER

Ready to launch a Zoegling at Cape Cod, 1930. Pilot unidentified. Note: men holding tail section adding tension to tow line for bungee launch; pilot holding wing strap; wooden launching skids on sand under glider. (Photo: NSM Multi-Media Collection)

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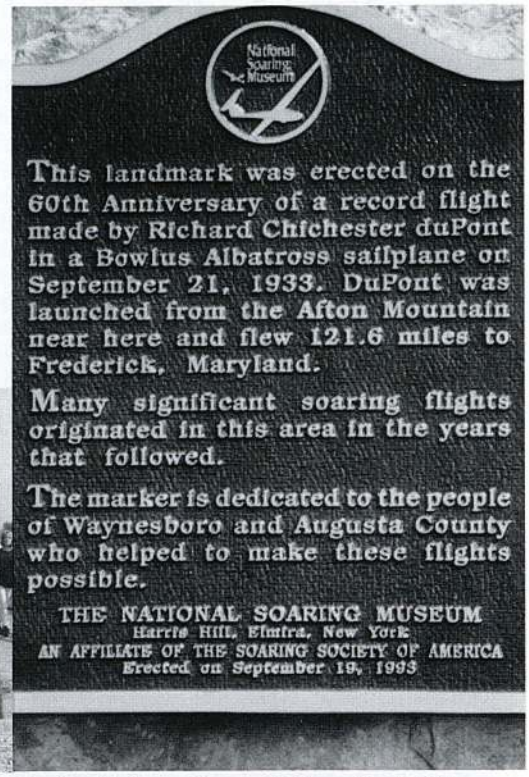
Richard C. duPont

RICHARD C. duPONT NATIONAL SOARING LANDMARK DEDICATION AT WAYNESBORO, VA



Left, then NSM President George Edwards, Mrs. Allaire duPont unveil landmark. Center, l. to r., George Edwards, NSM Executive Director Jim Swinnich, VSA President Linn Buell, current NSM President Jan Scott, Floyd Sweet, Paul A. Schweizer, Mrs. Simine Short. Right, Richard C. duPont Landmark.

The sixth National Soaring Landmark was dedicated at Waynesboro, VA., September 1993. It marked the 60th Anniversary of the 1933 duPont Soaring Expedition during which Richard Chichester duPont made a record flight of 121.6 miles from Afton Mountain, VA, to Frederick, MD. The monument also recalled, "Many significant soaring flights that originated in this area in the years that followed...The marker is dedicated to the people of Waynesboro and Augusta County who helped make these flights possible."

duPont's flight in a Bowlus Super Albatross (now on exhibit over the National Soaring Museum's central hall) was described in a 1933 report by Arthur Lewis Lawrence (1), who directed the expedition: "Between Sunday, September 17th (1933) and the following Friday, the 22nd, the members of the duPont Soaring Expedition participated in the most dramatic and exciting soaring adventure which has yet taken place in the United States."

The National Soaring Museum's National Landmark Program identifies and memorializes sites, individuals or historic events relating to the progress of motorless flight. The program, developed by the NSM's board of trustees in 1981, has established six such historic landmark sites to date.

The 1933 duPont Expedition reflected the trailblazing "by guess and by golly" exploratory outlook that characterized much of aviation at that time. The quest was to identify and test soarable areas as well to study weather conditions. The names of the participants read like a "Who's Who" of early American motorless flight.

Gus Haller (2) and Emerson Mehlhose, with the Haller Hawk sailplane, arrived early at Big Meadows, VA, in the Shenandoah Valley. They hunkered down in a local Civilian Conservation Corps (3) Camp, while a hurricane blew itself out. Meantime, delayed by 36 hours and with the prospect of clearing weather, the caravan with duPont and his Bowlus Senior Albatross, and Lawrence and (Rudy) Setz trailing the Franklin Utility, "Diana", left the Wilmington, DE, duPont Field for Washington, D.C. There, they hooked up with Don Hamilton, Ralph S. Barnaby and other members of the Washington Glider Club. The high-spirited airmen formed a serpentine chain trailing minimally protected gliders that bounced along behind overheating cars, chugging valiantly on up to the Shenandoah Park site in the Blue Ridge Mountains.

Lawrence had arranged to use one of the fairways of Waynesboro's Swannanoa Country Club for a take off and landing site. What a surprise when accommodations were offered at the club house. The "club house" was a large Italian marble villa! "And Richard (duPont) decided to billet the group there," Lawrence later wrote. "...Lavishly appointed even to marble bath tubs." He added, "The comfortable living we enjoyed was in marked contrast to the usual procedure on soaring trips and was, no doubt, another factor endearing Waynesboro to us."

By this time Warren Eaton (2) and N. Heath MacDowell joined the expedition.

The following is Lawrence's account of the duPont's September 21, record flight in the Bowlus Super Albatross:(1) "He was off at 10:55. The hawks and turkey buzzards were riding the thermals high up over the valley; clouds were building up; a stiff north wind was blowing. Twenty minutes was spent gaining altitude over the ridge and Beagle Gap. Then the Albatross was seen to head northwest from a point above the takeoff area directly into the wind. When several miles out, the sailplane turned northeast. Little or no altitude was lost in the hop to Sawmill Ridge, and once to the windward of it the Bowlus (duPont), then almost out of sight, was seen to be gaining altitude rapidly. As time passed and no reports came, we grew more and more certain that a record was being made. It was not until 4:30 that Richard called Swannonoa to announce that he had landed on the airport at Frederick (MD), at 3:45. We scaled off the distance on the contour maps and were delighted with the computation--122 1/2 miles. (Official distance 121.6 miles)"

The following is duPont's account of the flight as pieced together by Lawrence (1):

"The flight was comparatively easy, with little to worry about along the way. For the most part the Albatross kept at an altitude of 2,000 to 3,000 feet above take-off, and, while the wind increased so that progress in the generally north, northeasterly direction was slow, there was never a time when it seemed questionable that Richard could continue safely. Only two or three times was he

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below the crest of the particular ridge along which he was soaring.

"The greatest altitude attained was over Big Meadows, slightly in access of 3,000 feet. For a considerable time the sailplane had to be headed into the wind over that point to prevent its being forced to the lee side of the range. Clouds over it were at an altitude which made it frequently necessary to dive steeply to keep out of them. Beyond Front Royal, where the ridge becomes more regular, more progress could be made.

"Relaxing after the first hour of flying, Richard was able to enjoy himself, even smoking a cigarette as he sailed along. After crossing the Potomac at Harper's Ferry, he soon ran into bad weather. He soared along Elk Ridge, which is seven miles long, and then jumped eastward three miles to the next one. There he continued northward, getting up near Hagerstown, which is seven miles to the west of that part of the range known as South Mountain. He ran into rain and a lowering ceiling. (So he) decided to turn back and make another jump eastward. This brought him to Catoctin Mountain. Since he could see to the north that the cloud level was below the crest of the ridge, he turned downwind and flew eastward toward Frederick. When he saw the city he tried to fly over it to catch a thermal current but he had only a scant 150 feet of altitude as he glided over the airport, 1 1/2 miles northwest of the downtown section. There he landed." (1)

Members from the National Soaring Museum's National Landmark Committee, Vintage Sailplane Association and Mid-Atlantic Soaring Association met at Waynesboro September 17, 1993 to mark the 60th anniversary of this historic flight. A weekend of related activities was coordinated by Eagle's Nest Airport manager, Pete Bryce.

Saturday morning, Mrs. Linn Buell, Herndon, VA, president of the Vintage Sailplane Association, staged a glider-mail flight in the WW II TG-4 (LK-10), owned by Gregg Reynolds of Woodbridge, VA. Said to be the first American woman to fly official glider mail, Buell carried postal bags of specially stamped dedication cachets. Afternoon events featured bungee launches of NSM/VSA's Jan Scott, Lovettsville, VA, in his "Grasshopper" open-seated primary glider.

At a banquet that evening, featured speaker, Floyd Sweet, McLean, VA, recalled the thirties and read a witnessed account of duPont's record flight.

Gracefully ascending hot-air balloons greeted Sunday morning and at noon NSM trustees' president, George Edwards, Elmira, NY, officiated over the unveiling of the National Soaring Landmark plaque. In attendance were members of the Vintage Sailplane Association, representatives of the NSM, Eagle's Nest Airport and the duPont family, as well as other officials and members of the soaring community.

Dedication weekend closed with a soaring contest organized by the Mid-Atlantic Soaring Association. Jim Furlong, Springfield, VA, skimmed along, 110 miles in marginal weather, to win. (4)

THE NATIONAL SOARING LANDMARKS

1981 Corn Hill, Cape Cod, MA (5)
1982 Harris Hill Soaring Site, Rhodes Farm (6)
1985 Akron, OH, Akron Fulton Airport (7)

Bowlus Albatross. Inset: Richard C. duPont (NSM Archive photos)

1992 Frankfort, MI (8)
1992 Torrey Pines, Ca (9)

If you or your soaring group have a suggestion for National Soaring Landmark consideration and wish to know details of the program, refer to the **NSM Journal** Special Issue, 1981, Vol. 4; or contact the NSM National Soaring Landmark Chair, Simine Short, 51 Soaring Hill Drive, Elmira, NY 14903. Phone: (607) 734-3128 Fax: (607) 732-6745.

REFERENCES:

(1) The duPont Soaring Expedition, a report published by Richard C. duPont and prepared by Arthur Lewis Lawrence
(2) Arthur Lawrence, Richard C. duPont, A. L. "Gus" Haller, Warren E. Eaton and Ralph S. Barnaby are "Founding Fathers of the Soaring Society of America."
(3) The Civilian Conservation Corps, (CCC) was a federal agency established in 1933 as Civilian Conservation Work to develop natural resources, provide employment and vocational training for unmarried men between 17 and 23. From 1933 to its dissolution in 1942, three million men enrolled.
(4) **Soaring**, Jan. 1994, "National Soaring Landmark Dedicated" by James R. Moser, pg. 11,12.
(5) **NSM Quarterly**, Summer 1976, Vol. 1, No. 4, pgs. 1-5
(6) **NSM Quarterly**, Fall 1982, Vol. 5, No. 2, pgs.4-6
(7) **NSM Quarterly**, Summer 1985, Vol. 8, No. 1, pg. 3
(8) **NSM Quarterly**, Spring 1992, Vol. 14, No. 3, pgs. 2-4
(9) **NSM Quarterly**, Summer 1992, Vol. 14, No. 4, pgs. 2-7

Linn Buell receiving glider mail pouch from Waynesboro Postmaster for flight in Greg Reynolds' LK-10.

Big Meadows - Lewin Barringer and Warren Eaton landing at Front Royal - 38 miles from take-off point. (NSM Archives photo)

Jan Scott's "Grasshopper" primary glider bungee launched - six runners on each end of bungee.

Hall of Fame members with photographs of the late Joseph P. Steinhauser (left) and Johann G. Kuhn, 1994 inductees into the U.S. Soaring Hall of Fame. Left to right: Paul A. Schweizer (1955) Elmira, NY; Floyd J. Sweet (1963) McLean, VA; P. Rudolph Opitz (1993) Stratford, CT; Bernald S. Smith (1984) Fremont, CA; Virginia M. Schweizer (1971) Elmira, NY; and Hal M. Lattimore (1989) Fort Worth, TX.

Soaring Society of American names Joseph P. Steinhauser and Johann G. Kuhn 1994 Inductees to the United States Soaring Hall of Fame During Ceremonies at the National Soaring Museum.

The late Johann G. Kuhn, (1927-1994), Madison Heights, MI, and Joseph P. Steinhauser, (1905-1995), Libertyville, IL, were honored posthumously on May 13 at the 41st Annual U.S. Soaring Hall of Fame weekend observances.

NSM President Jan Scott, Lovettsville, VA, and NSM executive director James W. Swinnich, welcomed the families of both inductees, attending Hall of Famers and other members of the soaring community to historic Harris Hill and to the Saturday evening banquet in the NSM's Edward A. Mooers Community Room.

Dr. Frank Gross, Akron, OH, also was recognized for his endowment of four soaring grants, the NSM Gross Sky Ghost Youth Scholarship, the SSA Cadet Youth Flight Scholarship Program, the Gross Sky Ghost Youth Flight Training Program and the Women's Soaring Pilots Association Scholarship.

Dr. Gross and his ships are the focus of the 1995-96 American Sailplane Designers and Builders Exhibit in the NSM's main hall.

Larry Sanderson, Hobbs, NM, executive vice president, Soaring Society of America, said of the honorees: "Joe Steinhauser and Johann Kuhn each gave to soaring more than they received...Each man left something of himself with his family and with the sport of soaring. We have not lost...people have gained."

Sanderson introduced Simine Short, Downers Grove, IL, who gave a slide and video presentation on Joe Steinhauser, and Loris (Lorry) Charchian, Bingham Farms, MI, recalled some of the accomplishments of Johann Kuhn. (See the Spring 1995 **NSM News**, Vol. 5, No. 1, "Kuhn and Steinhauser join Hall of Fame," for biographical background.)

"Joe Steinhauser's philosophy for getting people involved with soaring was to teach them how to fly," Ms. Short commented as she clicked through frames of his soaring experiences. From 1928 and Steinhauser's first successful flight in his homebuilt S-2 primary until a debilitating 1955 auto accident ended his soaring career, Steinhauser had been a motivating force in the Midwest soaring movement. In 1953, 15 of the 31 sailplanes registered in the State of Illinois were operated by Joe Steinhauser.

Ms. Short recalled how Joe's famous "D-Chicago" sailplane was so named. Always mindful of sailplane safety and the public's sometimes negative perception of the sport of soaring, Steinhauser went to Germany in the mid-thirties to purchase a safe, dependable, high-performance glider. After meeting with Martin Schempp, Oskar Ursinus and many other German motorless flight pioneers, he decided on a Wolf sailplane. It was then considered one of the world's most advanced as well as being safe and practical. German registration was by letters not numbers. Ever the hometown promoter, Joe had the Wolf registered "D-Chicago" and made his

Dr. Frank Gross reviews his training and scholarship programs for youth and women. Executive Director James Swinnich at left.

Silver "C" duration flight over the dunes of Lake Michigan near Benton Harbor. He started the Motorless Flight School in Chicago and trained nearly 70 members during the first two years.

Joe was instrumental in bringing seven area glider clubs together in 1937 to form the Chicagoland Glider Council. "The oldest council in the sport of soaring," Ms. Short said.

In 1940 he bought Emil Lehecka's Rhoensperber, and using thermal energy alone, is believed to have made the first Silver "C" distance and altitude flight over the city of Chicago.

Steinhauser, along with John Robinson and Stanley Smith (Hall of Fame, 1954 and 1957, respectively) flying three Schweizer 2-place SGS 2-8 sailplanes, with passengers, performed a triple tow behind a J-5 Standard biplane in April of 1941. The demonstration, sponsored by the SSA, The Elmira Area Soaring Corporation and the Schweizer Aircraft Corporation was conducted for a visiting U.S. congressional committee at the Big Flats (NY) Airport. It helped get the American military glider program underway.

The same type triple tow was again demonstrated from Joe's Motorless Flight Institute & Research Center in Chicago later that same year. This time three Marine Corps pilots flew the school's Schweizer SGS 2-8's (Later military version designated T.G.-2).

Steinhauser once estimated that his renamed Motorless Flight Institute trained more than 600 students. He only stopped when spinal injuries confined him to a wheelchair and he could no longer teach.

Larry Sanderson introduced Loris "Lorry" Charchian who opened by reminiscing about a recent club cross-country flight, "It was a beautiful Michigan soaring day...thermals all over the sky,

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Loris Charchian speaking on behalf of Johann Kuhn

Simine Short narrates her presentation on Joseph Steinhauser.

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but one of us was missing..."32"...Johann Kuhn wasn't there.

"He gave 40 years of continuous and selfless service to the benefit of the soaring community nationwide. Kuhn spearheaded the development of Michigan's Ionia Airport as a respected location for 22 regional competitions, of which he directed 17 and four national contests. His last contest was directed from a wheelchair."

Jerry Benz, owner of Ionia Airport's Benz Aviation, said that Johann and Hilde, his wife of almost 45 years, organized the first regional contest there. "If it wasn't for Johann there wouldn't be any Region Six," Benz said.

Like many German-American sailplaners, Kuhn learned soaring in a pre-WWII German youth group. A tombstone engraver by trade, he brought his love of soaring, as well as his sculpting skills, to America when he immigrated in 1955.

"He was a tireless member of the Detroit Vultures Soaring Club for 21 years," Charchian said, "...recruiting, instructing, and refurbishing several of the club aircraft."

An SSA governor for Michigan for 34 years, Kuhn was an outstanding painter of sailplanes and soaring scenes. He worked as a clay modeler at General Motors, developing concept cars and utilized this sculpting background to introduce numerous sailplane design innovations. He designed and executed Michigan's annual Ward J. Maynard trophy presented for the year's most significant sailplane flight.

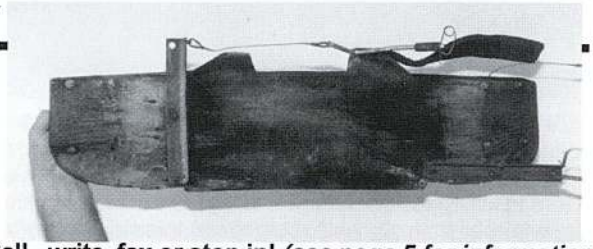
Charchian maintained that Kuhn was "perhaps the best wood craftsman in the country, and his ability to repair fiberglass rescued several aircraft judged to be total losses."

Both Hall of Fame speakers confidently assured the audience of Johann Kuhn and Joe steinhauser's secure place in U.S. soaring history.

Can You Identify This Soaring Artifact?

Besides sailplanes and gliders the NSM has thousands of other artifacts. We have goggles and toggles, chutes and boots, gauges and pages. Every now and then something turns up that can't be identified or classified - drives the staff crazy!

Here's one of those "somethings." Can you help us identify it? It is 3" X 7" X 30".



Call , write, fax or stop in! ***(see page 5 for information)***

STAN HALL DELIVERS 21st ANNUAL BARNABY LECTURE "SOARING AND THE SOCIETY OF AMERICA"

Stanley A. Hall, Sunnyvale, CA, author and recognized leader in the design and construction of homebuilt sailplanes, delivered the 21st Ralph S. Barnaby Lecture October 22, 1994, in the National Soaring Museum's Edward A. Mooers Community Room.

The first of these lectures, named in honor of Capt. Ralph S. Barnaby, USN, (1893-1986) was given in 1973. Barnaby was one of the founders of the 1930-31 National Gliding Association as well as the Soaring Society of America in 1932. He broke Orville Wright's record in 1929 by staying aloft at Truro, MA, for 15 minutes and 6 seconds. He earned U. S. Glider Pilot's Certificate #1, which was signed by his friend, Orville Wright.

The Ralph Stanton Barnaby series of lectures relate to historic and outstanding achievements in motorless flight. The talks are delivered annually by distinguished personalities in the field.

Stan Hall (Hall of Fame, 1974) offered the intermediate performance Cherokee II to sailplane homebuilders in 1956. The sailplane's simplified plans and wood and fabric construction appealed to the amateur builder. With 250 sets of plans sold, the Cherokee II became the world's most popular homebuilt.

Hall has authored over 90 articles and talks on all aspects of sailplane homebuilding. He designed and built the gull-winged Hall Ibex in 1962, and in 1975 the foot-launched Vector I.

Hall's extensive aviation background includes engineering draftsman, control systems designer of military aircraft and cargo gliders, and WW II flight commander of the Army's glider training program in Arizona. During his 20 years at Lockheed Missiles & Space, Hall managed bioastronautics programs and satellite systems integration activities. He is past president of the Southern California Soaring Association and was awarded the Soaring Society of America's Exceptional Service Award.

(Stan Hall's, "Soaring and The Society of America" lecture has been edited to conform with space limitations. Complete talk is available on request from The National Soaring Museum.)

Soaring and the Society of America: By Stan Hall

Webster defines a museum as a place where history is preserved. Thus, in a real sense, museums make history by displaying old ideas which then stimulate the creation of new ones. Our museum is such a place.

I am here to offer a new idea, a proposal in which we, you and I, make some of that history, starting right here, right now.

This idea is based on the premise that if we want to expand and flourish as a soaring organization, we need better financial support, which we can get by first doing something about our public image. The proposed technique for doing so, which admittedly comes right out of left field for special-interest groups such as ours, borrows from the world of modern corporate business.

The New Age Mantra

Wide-awake corporations are doing something new these days. They're acting upon what is being called the "New Age Mantra," which goes: "Do Well by Doing Good." These companies are, believe it or not, taking on societal problems, problems completely outside their line of business. The result is, their public image is soaring, and along with it, their sales. Their Bottom Line never

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looked so good. What started out as a charitable exercise is turning out to be a very shrewd business tactic. By Doing Good, they are indeed Doing Well... It works for them, it will work for us.

I want us to help ameliorate one of the great societal tragedies of our time: the virtual abandonment of a generation of troubled teenagers. These are kids who one day will be called upon to lead our country - and the SSA. We in soaring have some special talents we can put to work, here, to assure that this leadership will be as capable tomorrow as it is today, if not more.

I propose, therefore, that the SSA initiate and become involved in depth in glider building in the public school system. I want the SSA to design a glider, provide the plans at zero or modest cost to high schools and then instruct the students in how to build it, crew for it and, perhaps after they graduate from the school system, how to fly it.

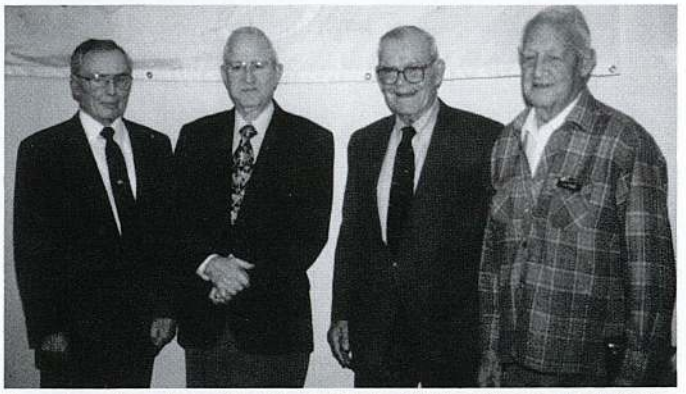
The goal of this program is to mold young, at-risk minds so that when called upon to lead us into the 21st century and beyond, those minds will be ready.

Now this will require a seismic change in the way we see ourselves and our relationship with the rest of society, a change that may lead some to conclude I want us to become social workers. I don't. But in helping solve one particular societal problem we will also be solving some of our own problems.

Some Disturbing Statistics

Consider this: Each year some 600,000 teenagers drop out of school. These are kids who, having no marketable skills, no positive role models, no self-esteem, no hope and thus no future, too often turn to killing themselves with drugs or each other with guns... Surely, with our maturity and specialized talents we can help turn this around. These are throw-away kids. Kids in free fall, kids who can't even reach the first rung on the ladder of life because of all intents and purposes they live on another planet.

Our powered brethren in the EAA are already involved and, I hasten to add, so to a lesser extent is the SSA. But both organizations are involved in a way different from the one I'm promoting. The EAA has underway a volunteer project designed to get a million kids off the ground by the year 2003 by giving free airplane rides. They also sponsor workshops where youngsters can build simple aircraft structures like wing ribs. The EAA calls its project the EAA Young Eagles Program. To date, the program is a ringing success.



Barnaby attendees Dr. Oran Nicks (left) with speaker Stan Hall, Paul A. Schweizer and Irv Prue

The SSA has similar activities under way, where youngsters are given sailplane rides. This program, too, represents a story of success.

While giving rides is sure to provide a degree of incentive for youngsters to eventually become pilots, I'm not convinced there's enough incentive there to stimulate a kid to eventually become anything but a pilot; an aircraft designer, a builder, an engineer, a mathematician or physicist, for example. If all he does after getting his ride is build a wing rib or two, he may simply charge it all off as an interesting, one-time experience because that's really all it may ever mean to him.

Now, by all means I do want him to become a pilot. But there is much, much greater potential in soaring than simply making stick and rudder operators. Soaring is science, it is creativity. I want him or her to know that.

Reading Between the Lines

If you'll project your mind beyond these words you'll note that making technologists, including pilots, turns out to be a secondary objective, the main objective being to help make productive citizens, wherever their career paths take them.

In my view the way to reach both objectives is to expose the kids to the absolutely mind-grabbing experience of building their own glider. In the process they will develop not only their motor skills, but their judgmental skills, and realize in terms they can understand and have fun with, the elegance and utility of even the simplest of math, the beauty to be found in the most basic forms of science, the magic and vitality of even the most elementary forms of engineering, the power they have within themselves to program for themselves a useful life.

Stan Hall in front of a model of his Cherokee II at the NSM EOGASE diorama (Evolution of Gliders and Sailplanes Exhibit).

When these youngsters come out of a few high school semesters of total immersion in the challenges of glider building, we've got 'em. More important, society "has 'em."

Now, we aren't likely to achieve this result with a 15 minute ride in a sailplane, not when the kids find out later that taking instruction will cost (last time I checked) 50 bucks an hour for the glider, 25 bucks more for the instructor and another 25 for the tow.

But the cost of *building* a glider is low because only the plans, the materials and maybe a little professional welding need be purchased. All the constructing is done by the builder. And the highly educational experience is spread over a considerable period of time, certainly longer than 15 minutes.

Looking Back

What glider building did for me was set a compass course to a future, which I then followed, and enjoyed, all my professional life.

I came from a very self-reliant, yet caring and supportive family of modest means, which is to say in glider-building terms, if we didn't have tools we needed to build our gliders, we made do with the tools we had. Like most teens, though, I tended to be more than a little alienated with our educational system.

Then one day in 1929, something happened to change my life from that day on. Our teacher brought to class a copy of the June 1929 issue of *National Geographic* magazine which carried an article titled, "On Wings of the Wind." It talked about gliders, in Germany; how they were built, how they flew and the thrill and enjoyment hundreds of German schoolboys experienced in riding

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the winds of the Wasserkuppe. Here was something we could relate to!

We became hooked, permanently, and we built a glider of our own patterned after one of those shown in the *National Geographic*; no plans, just photographs and an occasional word of counsel from our mechanically-inclined dads, plus an overwhelming desire to explore the sky in ways which before we could only imagine. We taught ourselves to fly it, by hit or miss. Mostly hit.

The only thing that mattered was getting off the ground, and in a vehicle we built ourselves.

For me, once airborne, the glider became *alive* and became part of my being. The sensation of flight can best be described as *primordial*. I still recall how incredibly smooth the air was at liftoff from ground so rough it jarred every bone in my body. (like the German gliders ours had no wheels, just a simple skid)

And I still remember, as a 14-year-old sitting right out in the open in that wooden framework, with nothing around me but air, how the wing bracing wires whistled in the wind, and how the wind itself caused tears to stream from my eyes, as my heart tried to find a way out of my body. As I said, *primordial*.

We used to knock the skid off every Sunday by landing sideways instead of straight ahead because we hadn't yet discovered that turning an aircraft is backwards from turning a bicycle, a sled or a wagon.

Cherokee II homebuilders Bob Lock (left), L. John Newman with designer Stan Hall and Len W. McClain (right). Hall's IBEX sailplane in soaring configuration overhead.

During the week we would repair the skid so we could knock it off again the following Sunday.

Over the years we built several more gliders, each better than the one before. In the process we became exposed to the mysteries of aerodynamics and structures and began, in our youthful and untutored way, to vaguely sense the elegance of math, of form and function, of cause and effect.

In short, We Were Growing.

To us, designing and building gliders was like finding buried treasure, except it wasn't gold or silver we found, but the beginnings of *knowledge*. Suddenly, school started making a lot of sense, particularly the math, which we found to our great surprise was everywhere. Here was nature, exposing its secrets to us in terms we could recognize if not fully understand. Gliding was teaching us the importance of patience, persistence, self-reliance, craftsmanship and mental discipline, and these, unbeknowst to us, were preparing us for rewarding professional careers in later life. And how we *reveled* in it.

Now, I don't suggest that all youngsters who take up building gliders will end up as engineers or attorneys or doctors or airline pilots.

What I do suggest is, gliding will form an *incentive* for youngsters to focus their energies toward becoming useful citizens - at least until they outgrow whatever urge they may have to self-destruct.

The Cherokee II Experience

Sailplane Cherokee II, which may have been the first sailplane ever designed specifically for amateur builders, has a great deal to do with my mission here. In the mid 1950s I thought if I could design a sailplane easy enough and inexpensive enough to build, hordes of teenagers would flock to my door. In fact, to help assure this I would provide the plans at little over the cost of reproduction plus enough to cover my out-of-pocket expenses in designing the vehicle. I didn't make a dime. I didn't intend to.

As you know, the program was very successful. Close to a hundred Cherokees were built in 36 states and 6 foreign countries. I used to claim the Cherokee as the most widely scratch-built sailplane in the world. The lesson here is, if you design it easy enough and inexpensive enough to build, people will build it.

As best I can determine, though, I drew no teenagers at all -

Stan Hall examines the cockpit layout of the NSM's Cherokee II, part of the U.S. Sailplane Designers and Builders Exhibit.

only people generally over 30 to 40 years of age and having a measure of stability in their lives...

Kids lead two distinctly separate lives, one in school, the other somewhere else. The latter comprises a completely unstructured environment, one where the main interests involve fast cars, dates and acne. There is little or no possibility for commitment of any kind here, let alone the kind required to build a glider. I didn't think of that.

In school, however, the environment is completely structured. The school provides a shop class where the students can work. It has tools. It has experienced instructors. Its math classes show how math relates to the design and building process, using a real-life example, an example to which the students can quickly relate because it is right there in front of them.

But most of all it is a place where commitment is practiced every day. This makes school an ideal environment in which to build a glider.

Had glider building been a part of the school curriculum during the days of the Cherokee, we might now, like Germany, be up to our ears in gliders, pilots, designers, engineers and builders.

Regrettably, it didn't happen. Yet, there is hope it still can. It depends on how you see this proposal and what you are prepared to do to make it happen - for your kids, your grandkids and your sport.

A Tiger Team With Real Tigers

To see to it that it does happen, I'd like to see us organize what the aerospace industry calls a TIGER TEAM. This is a small, dynamic group of top-notch people brought together on an ad hoc basis to solve unusually demanding problems.

These people are tigers. They let nothing get in the way of solving the problem. And that includes the rule book. I would have our Tiger Team dissect this proposal and develop a comprehensive strategy for carrying it out. Then launching the program and managing it.

Now, how do we get from there to here? While I am able to identify the last step in such a program (the step involving the design and construction of the glider itself), I don't have the background required to figure out in detail the steps which must pre-

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cede it.

There are many such matters; matters of finance, organization, legal questions, logistics, political ramifications, myriad factors which comprise a workable package. These are matters best handled by people having professional experience in them.

This is where our TIGER TEAM comes in. Some of the best minds in our soaring community are right here in this room, minds whose capabilities range far beyond those involved in the simple act of flying a sailplane. This makes you a prime candidate for membership on the team. I want you and your team to bring its collective savvy to the task launching this program.

Maybe a good place to start would be to climb down into the trenches with educators, school administrators and other individuals and organizations who are presently fighting the good fight. If anyone can show us the ropes, they can.

Now I know there are a lot of maybes involved in a program like this, and I don't for a moment underestimate the difficulty involved in bringing people who fly sailplanes together with people who fly without getting off the ground. This will require some sober thinking, indeed.

Money, That Evil Word

So here comes Hall, you say, talking about launching a program which is certain to cost money, maybe a lot of it, and our bank account is already being squeezed. Where are those bucks to come from?

My answer is, it may cost little or nothing to light the fire, after which it sustains itself. We start with a pilot program, using as much volunteer labor as we can while drawing as much carefully orchestrated publicity to what we are doing as we can. After we've demonstrated that there's more to us than just talk, that we're more than a one-trick pony, we expand our horizons - with outside funding. We get this funding as the result of the favorable publicity we realize from our Good Works. This lies at the heart of the proposal. This is key. We needn't beg for money and we needn't organize fund raisers. We just do that which makes potential financial supporters want to help us - because as caring and concerned citizens, they know what the stakes are.

That money is available is exemplified by the large number of philanthropic organizations in this country. But we can't go to them if we don't know who they are and where they are. And they can't come to us for exactly the same reason. It's time we send up a flare. For my money, launching glider building in the public schools is that flare.

Now, About That Image Problem

Let's talk about gliding's public image, an image we need if we're to get this job done. Frankly, I don't think gliding really has one worth bragging about, this in spite of our being the oldest form of aviation known to man. Yet, we are undoubtedly the most obscure of all aviation endeavors. Why? - because we don't toot our own horns enough.

When was the last time you saw something in the media about sailplanes - other than maybe some poor soul busted his buns in one? Folks, we've got ourselves a real challenge, here.

What we need is something the public will BUY. The problem here is, soaring is not a spectator sport. People don't warm up to us like they do to football, air and auto racing and other noise and money-making enterprises. Regrettably, we're helpless here because that's the nature of soaring. The places we have to go to soar are often more suited to snakes and jackrabbits than people and it's really hard to sell tickets.

We need to emphasize, not of our prowess as really cool sailplane-flyers, because nobody really cares, but the constructive things of which really cool sailplane flyers are also capable - like helping disenfranchised kids reinvent themselves. Good Works; that's what the public will buy. That's what they can relate to and will support. That's what generating a proper image will do for us.

The Barnaby lecturer discusses some of his ideas and projects with sailplane homebuilders and NSM visitors.

We have to develop this image if we expect to draw the attention of those philanthropic organizations and individuals who, if convinced their money will be spent wisely, will support programs like ours. Note that enthusiastic and financially able individuals like Barron Hilton are doing so now for people who fly airplanes, balloons and yes, even sailplanes. We need more of the likes of Barron Hilton in our corner.

If I were wealthy, unconnected with soaring and had a philanthropic bent, I might be drawn to consider the SSA as an organization I'd like to know more about - if someone would simply tell me it exists. Obviously, I might say to myself upon hearing about their high school glider building program, these SSA people care about more than just their own pleasures. They deserve my help. Maybe I could help them build that new west coast museum they're talking about. Maybe I could lend a financial hand in sending our best American pilots to the next international competition. Maybe I could help some brilliant young designer develop the world's finest sailplane, an American sailplane. Maybe...

Now this is the attitude I'd like to encourage among the other Barron Hiltons of the world...All we have to do is let them know we are here. When we reach down in the full glare of publicity as we lift some throw-away minds out of the intellectual ghetto, they will know we are here.

If I were 20 years younger, I'd grab this ball and run with it with gusto. Unfortunately, it is 20 years too late for me. I don't do anything with gusto anymore. Except maybe talk. To twist an old saying: "the spirit is willing but the body is out to lunch".

Everyone Knows This Will Work, Right?

Now, I suspect we have at least one skeptic in this crowd who is thinking, "Stan's made too many off-field landings. It will never work." *Wrong.* I'm talking commitment here. High-achievers like us can do anything we put our minds to. If we put so much as a fraction of ourselves to this task as we do to our professions, our businesses or our soaring, you bet we can make it work.

It's time we did some of that hardball hustling ourselves, to show that we, too, understand the true meaning of the term, commitment. While our survival probably doesn't depend on this, is simple survival enough? Cannot we also grow?

Well, soaring fans, the chips *are* down. The pressure *is* on. The time to put that capability to work is now. History awaits.

So, if you'll permit me, here are your marching orders: One, get your Tiger Team organized. Two, start marching.

If we can make this program fly, and we can, we will show the world that soaring not only has a substance, it also has a soul.