

NSM



A Quarterly Journal
of the National Soaring Museum

Spring, 1978

Vol. 2, Number 2

From the Director

New Museum Building — A Reality!

As I write this report in early June the new building for the museum is very near to being ready for the installation of exhibits and artifacts; by the time **NSM** readers receive this issue of the magazine it should be open and functioning at last. A long cherished dream is finally becoming a reality! I hope many museum members will be able to visit with us this summer.

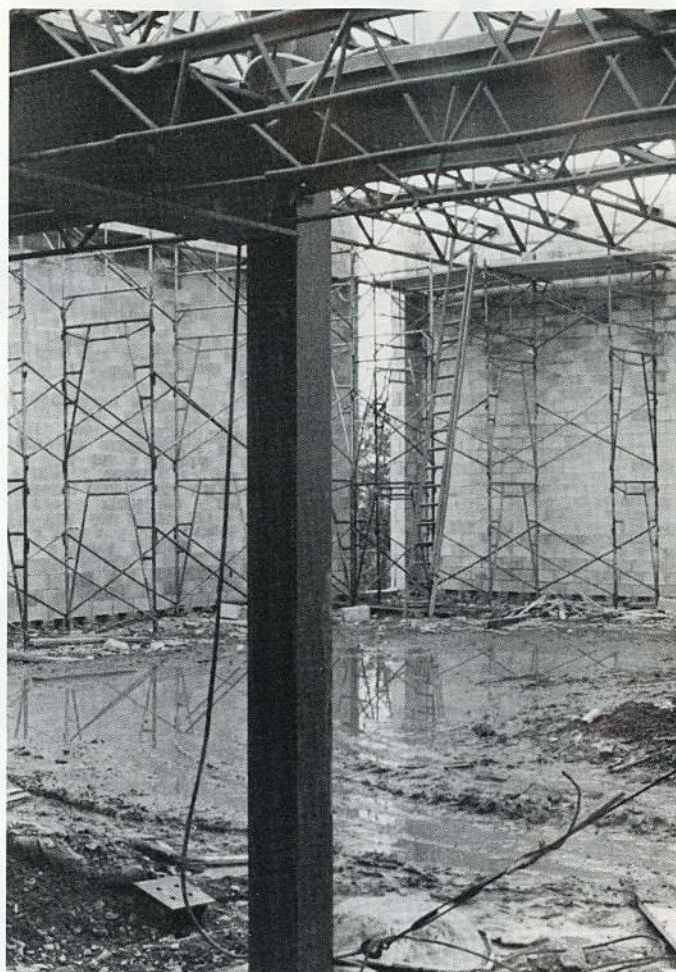
Readers will be interested in the first aircraft that will be hung in the museum. At this time we are planning to hang six; a Dagling Primary, the Bowlus-duPont Albatross, a BG-12BD, Schweizer 1-26 No. 001, the Sisu 1A, and the Hutter H-17. In making these selections the museum tried to develop a representative sample of sailplanes and gliders that have been and are significant for soaring in the United States.

Through the generosity of many donors, the museum is fortunate in having an increasingly extensive collection of sailplanes from which it can choose aircraft to hang on exhibition. This means that the aircraft on public view will be changing from time to time, thus providing our repeat visitors with the opportunity to see many different significant aircraft.

As the building program of the museum nears fruition, it is natural, perhaps, for my thoughts to turn to the memory of Joseph C. Lincoln, that great and good man from Arizona who cared so much about soaring and who was uniquely able to communicate his love of the sport to others through his books and magazine articles.

It is not generally known that Joe was instrumental in helping to establish the museum. At a time when the NSM was little more than an idea in the minds of a small group of soaring pilots, Joe's generosity provided both the wherewithal and inspiration to push on and develop the idea further. His interest in the museum was keen and his pleasure in its progress real. Just before he died in 1975, he gave Cirro-Q, his beloved 1-23, to the museum. This ship, which is awaiting restoration, carried Joe to the Barringer Trophy in 1960 and served as his mount during his efforts to achieve the diamond badge and about which he wrote so well in "Soaring for Diamonds".

I shall never forget a lovely May evening several years ago when Joe and I spent many hours walking around the Harris Hill soaring field. He took such delight in recounting the exploits of many other pilots who had flown from that historic ground. Joe knew that he was part of a rich tradition and took care to initiate others into the same tradition, a fact for which I shall always be grateful.



The spring thaw begins. March 1978.

NSM is a publication of the National Soaring Museum, Harris Hill, RD 1, Elmira, New York 14903. Anyone is invited to contribute material and pictures 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 NSM. Material that is to be returned must be accompanied by a stamped, self addressed envelope. No compensation other than credit will be made.

Publisher — National Soaring Museum
William D. English, Jr., director

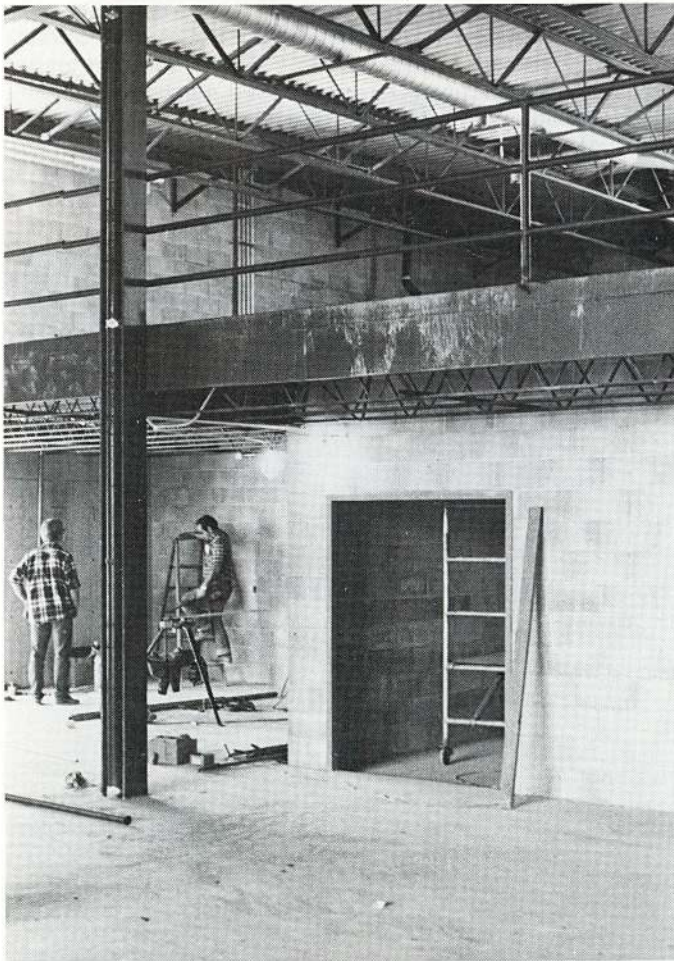
Editor — Shirley Sliwa

On the Cover: One of the Museum's prized artifacts, a bust of Warren E. Eaton, executed by Sculptor Ernfred Anderson in 1943. With the help of an anonymous donation, the Museum has been able to cast the plaster original. Warren Eaton was the first President of the Soaring Society of America and was of great importance in establishing soaring as a sport in the U.S.A. The historic glider field at Harris Hill is officially known as the Warren E. Eaton Motorless Flight Facility in his honor.

Use Your Film Library



Rear, lower level view of the main Exhibit Hall. March 1978.



Scene of lobby level, restoration area and entrance to community center.



Lobby level, showing the balcony gallery. May 1978.

Soaring Museum To Get Prize Exhibit

Editor's Note: Peg Gallagher is a Staff Reporter for the Elmira Star-Gazette. This article first appeared in that publication in June, 1977.

by Peg Gallagher

When the new National Soaring Museum opens this summer at Harris Hill, one of its prize exhibits will be an historic sailplane that was mysteriously "lost" during World War II, then found again about six years ago. The Albatross, built in 1933 for Richard duPont, is in the process of being restored for its debut when the museum opens in July. William D. English, Museum Director, called the Albatross "as significant a sailplane as was ever built."

The one-of-a-kind Albatross was the first American sailplane to set a world's record. It was flown by duPont to a world's distance record of 121.6 miles, from Waynesboro, Va. to Frederick, Md. It also won three national contests in a row, with duPont as the pilot in 1934 and 1935, and Chester J. Decker of Franklin Lakes, N.J. as the pilot in 1936. The sailplane is being donated to the museum by Decker, who is also funding its restoration.

The plane, whose whereabouts was unknown for a long period, was found by Paul Schweizer, Vice President of Schweizer Corp., and his wife, Virginia. The plane was found hanging from the rafters of an abandoned hangar at Auburn-Lewiston Airport in Maine. Stories of the old sailplane hovering over Harris Hill conjure an image of gossamer wings flitting from cloud to cloud. Schweizer still remembers watching the plane as a kid in the 1930's. He was one of the youngsters on the Hill when the plane arrived. "Its wings were covered with plain fabric and when it flew, you could see the sun through the wings," Schweizer said. It was quite an exciting aircraft and we had a real affection for it." At the time, its design was "a step ahead of everything else in this country and pretty much equal to what they were making in Germany," Schweizer said.

The sailplane was designed and built by Hawley Bowlus for duPont. Bowlus, a well-known figure in the early days of aviation, supervised the construction of Lindbergh's "Spirit of St. Louis" and was involved in gliding in California in the 1920's. duPont was President of the Soaring Society of America in the mid-1930's and, with Warren Eaton, was responsible for establishing Harris Hill as an important soaring area. He was the first President of the Elmira Area Soaring Corp., predecessor of the Harris Hill Soaring Corp. duPont, a member of the family of industrialists, was the founder of All-American Aviation, which later became Allegheny Airlines. Considered a high performance and sophisticated ship at the time, the Albatross is 24 feet long, has a 62-foot wingspan, and weighs 347 pounds.

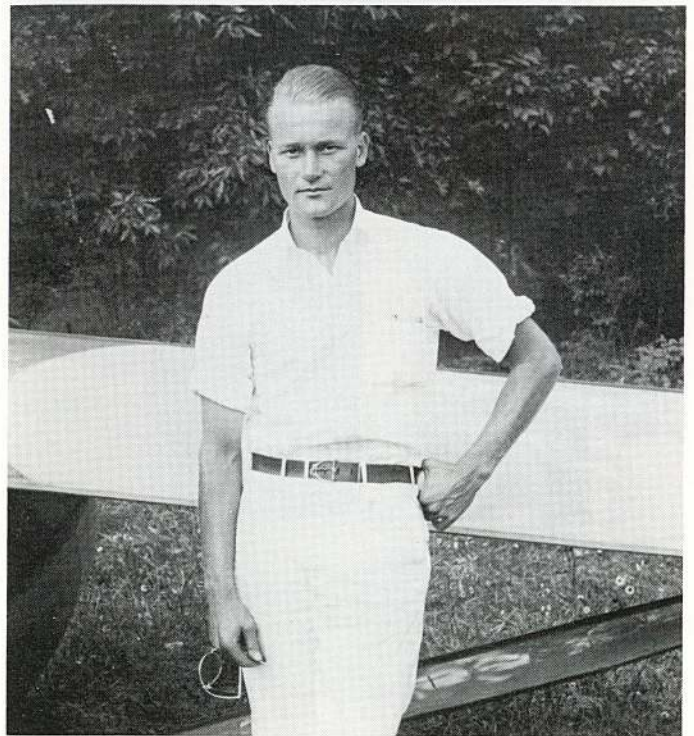
Before World War II, Decker bought the plane from duPont and its history during the war years is unclear. It was loaned to a friend and was apparently damaged and put in a repair shop. The bill, which had not been authorized by Decker, was not paid and the ship was removed from the shop. But Decker retained the title. The search for the ship goes back more than 30 years. Decker attempted to locate it after he was discharged from the service, realizing even then that it would be an important museum piece. He finally traced it to a man in New Jersey and offered to buy it, even though he still held the title. The man refused to negotiate or even tell him where it was being kept.

Through the years, Schweizer and others concerned about preserving the history of the sport often wondered where some of the old sailplanes were. "A lot of them landed in the scrap pile so we don't really have a heritage of early 1930's sailplanes," Schweizer said. "The military bought up

most of them in World War II. The Albatross wasn't in flying condition and that's why they missed it," Schweizer said. Those concerned about finding and preserving the old planes would occasionally hear rumors of certain ships still being around. "We would check and we always hoped that we would find this one," Schweizer said.

Then, about six years ago, through a second or third hand source, Schweizer heard that a sailplane whose description fit the Albatross was in an old hangar in Maine. Since he and his wife planned to travel in that direction, they decided to check. "This time we found it. There it was, hanging up in the rafters," Schweizer said. Schweizer notified Decker and Decker, who still held the title, had his long lost plane removed from the hangar and returned to his home. Decker kept it with the idea that it would eventually be placed in a museum. This year, with the new museum being built, Decker agreed to have it restored and placed at Harris Hill.

The sailplane arrived in Elmira about a month ago and is being restored by John "El" Pullen and Richard Dassance, at Dassance's garage on the Brown Road, Horseheads, N.Y. Pullen, a retired Schweizer employee who builds power planes, is an expert woodworker, and Dassance, a Schweizer employee, is a skilled painter and finisher. The plane, made primarily of Sitka spruce plywood, has been completely stripped and its framework is being repaired. The wings originally were covered with cotton balloon cloth which is no longer available. They're using an unbleached muslin that is very similar to the original material. The work has the seal of approval of the man who should know how well it is going — Chet Decker. Decker, who was in Elmira recently to look at his old sailplane, called it a superb restoration job. "It's just a jewel," he said.

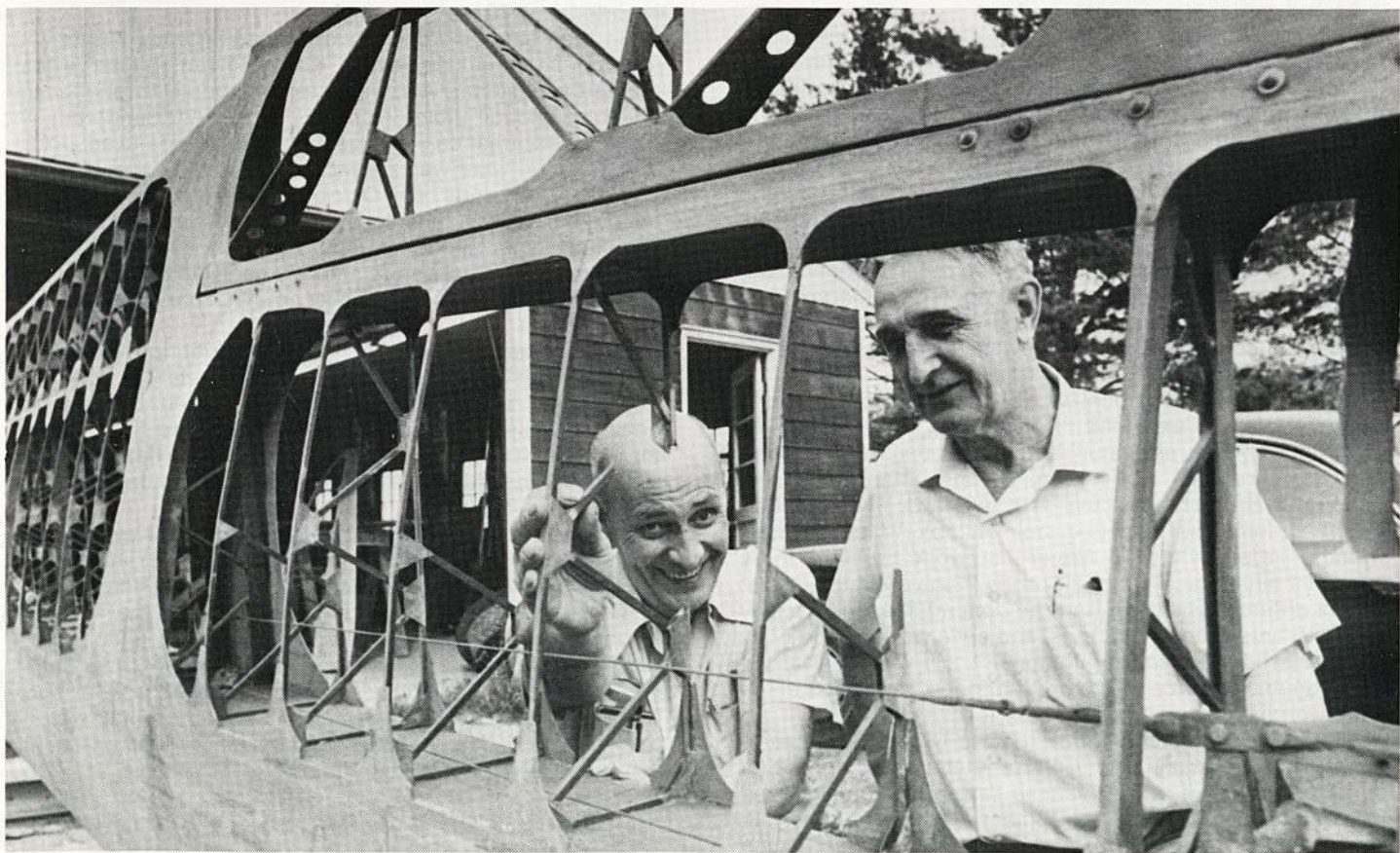


Richard duPont at Harris Hill in 1933.



Scene from the past. The graceful gull-winged Albatross, is shown in flight over Harris Hill. The undated Star-Gazette photo is believed to have been taken in the late 1930's. The

Harris Hill Administration Building, shown in the background was built in 1936 and was destroyed by fire in January 1977, is the site of the new Museum facility.



Restoration work. Richard Dassance (left) and John "El" Pullen check part of the plywood wing of the Albatross that they are restoring.

St. Louis' Little Known First

Editor's Note: Author Glenn Kidd states that this article should be considered a hypothesis which needs historical examination and first appeared in the November publication of the St. Louis Soaring Assoc., "Cu-Bird," and the Nov.-Dec. "Newsletter" of the Aeronautical History Society of St. Louis.

by Glenn Kidd

The Louisiana Purchase Exposition of 1903, often known as the St. Louis World's Fair, was organized to celebrate the centennial of the purchase of the Louisiana Territory. While in the planning stages, a proposal was placed before the Directors of the Exposition Company to sponsor large prizes for achievement in aeronautics. The move would serve a double purpose of contributing to the advancement of science, and probably more important, provide an attraction for the Exposition by drawing examples of the latest advancement in human flight. A sum of \$200,000 was committed to the project, \$100,000 of which was to be the grand prize for aeronautic achievement considerably beyond anything yet attained.

To develop the program to its fullest, the Director of Exhibits solicited the help of the world's known experts, including Santos-Dumont of Paris and Octave Chanute of Chicago. Eventually, a conference was held in April, 1902 to draw up rules for the competition. The rules were printed in pamphlet form and distributed to all known experimentors, aeronautic clubs and societies.

Octave Chanute was a most enthusiastic supporter of the Exposition's aeronautic contests and served on its aeronautical advisory board. In addition, he actively encouraged other aeronautical experimentors to participate, including the Wright Brothers with whom he had corresponded since the spring of 1900. As early as January, 1902, Chanute had asked the Wright Brothers if they would bring their craft and compete. Wilbur's response was reserved. "Whether we shall compete will depend much on the conditions under which the prizes are offered. I have little of the gambling instinct, and unless there is reasonable hope of getting at least the amount expended in competing, I would enter only after very careful consideration . . . However, we shall see about the matter later".¹

Although the Exposition was officially opened in April, 1903, the fair was extended through 1904 due to delays in construction. The aeronautical contest benefited in this delay as there were few legitimate applicants. Meanwhile, the Wright Brothers' success at Kitty Hawk in December, 1903, had somewhat changed their outlook. Wilbur advised Chanute in early 1904, "We are at work building three machines with which we shall probably give exhibitions at several different places during the coming season. We may decide to enter one at St. Louis, and have written for a copy of the revised rules and regulations . . . If we find that the objectionable features of the original rules have been eliminated, we may decide to make a try for it".²

Chanute was ecstatic and hurried to Dayton in hopes of getting a firm commitment. Unfortunately, the Wrights still found fault with the rules, this time saying the rules favored the dirigibles, such as Santos-Dumont's. Not to be deterred, Chanute encouraged the brothers to visit St. Louis, which they did, but they still remained reluctant. Wilbur complained to Chanute, "As there are no consolation prizes for flying machines like those provided for airships, we would have to

win the grand prize or get nothing. It is a tough proposition . . ."³ Chanute responded that there seemed to be no real competition with the exception of Santos-Dumont.

Chanute was becoming concerned when in mid-August he wrote the Wrights, "Aeronautics are languishing in St. Louis. Even those who have paid their entrance fees are not coming forward with their machines".⁴ It was probably at this time that he chose to take the matter into his own hands by resurrecting one of his own 1896 experimental biplane gliders for exhibition. Hiring one of his old assistants, William Avery, they proceeded to replace broken and rotten pieces of the frame and recover the wings that same month. Chanute entered the craft under the title of a "gliding machine".

Avery and the glider arrived in St. Louis in late September and proceeded to erect the aircraft and prepare for the flight trials. The first flight was delayed by what was to make the resurrected Chanute glider an historical event. To launch the glider from the flat Aeronautics Concourse, Chanute and Avery had devised an electric winch that would pull the glider into the air to a sufficient altitude that it could be released and begin gliding. Electric wiring for the winch motor could not be obtained until after the beginning of October.

On October 7, everything was in readiness. A miniature railroad nearly 100 feet long had been constructed. Down this trackway rode a single flatcar on which Avery and the glider stood. Connected to the glider was a rope that led to a large take-up drum some 400 feet down the direction of the tracks. This drum was powered by a 19-horsepower electric motor and controlled by a motorman standing nearby. At Avery's signal, the motorman started the take-up drum and the glider and pilot on the flat car started down the tracks. When flying speed had been reached, the glider became airborne and ascended to an altitude of from 18 to 35 feet. The rope was released and the glider flew on a gliding descent. Reported distances varied from 90 to 400 feet, maximum altitude reported was 70 feet.

In the next two weeks, Avery made forty-six flights with the winch launch apparatus. Chanute felt the large wall erected around the Aeronautical Concourse to shelter the balloons and dirigibles from the wind was hampering his glider's performance. Arrangements were made to set up the apparatus on what was known as the Plaza St. Louis on the Exposition grounds. On October 26, a test flight was attempted from the new location. At 3:00 p.m., Avery was launched to an altitude of approximately 30 feet when the rope broke or released prematurely causing what was probably a stall. Avery landed heavily on the asphalt path fracturing his ankle.

This ended Octave Chanute's contribution to the St. Louis World's Fair. He had spent approximately \$1,400 of his own money to see that the Exposition had at least one heavier-than-air machine fly. It was also the first heavier-than-air flight in St. Louis. Avery was not to be heard of again except for a questionable craft he built for a Chicago client in 1910.

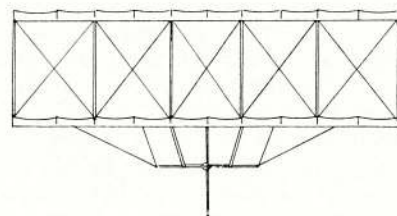
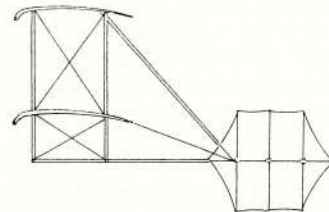
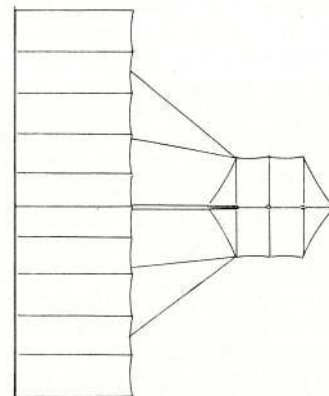
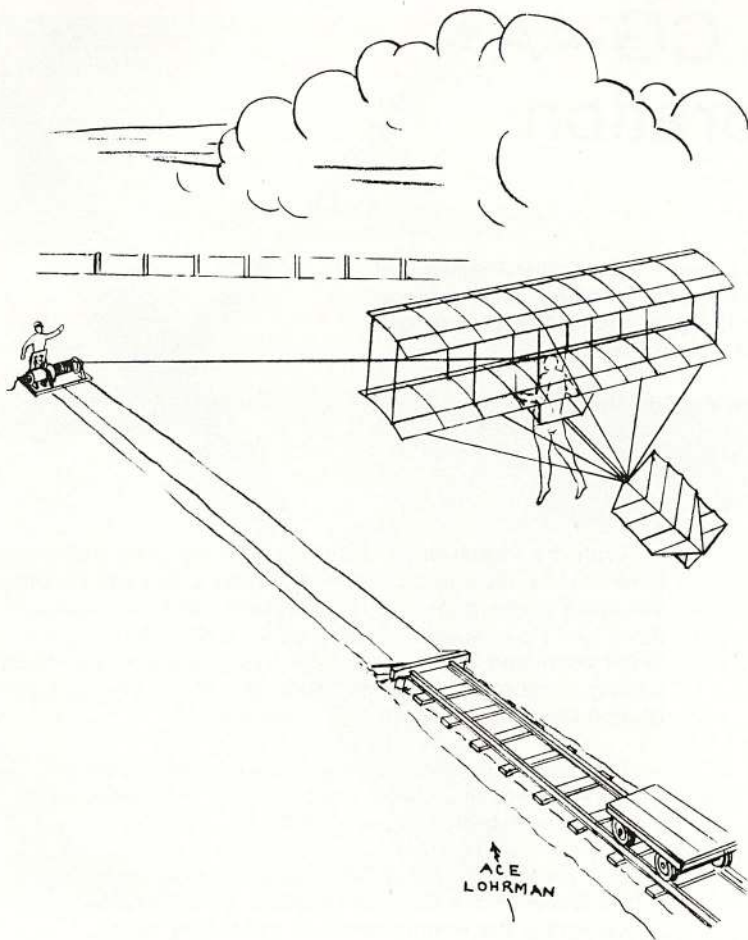
What may be the most significant point of the event is that this unsuccessful attempt at the Exposition's Grand Prize is the first known use of a winch to launch a glider and, of course, the first known rope break. Today, the winch is seldom heard of, whereas during the 1930's and into the 1950's in Europe, it was the major means of glider launching. With the future availability of petroleum products for sport flying now coming into question, this method may well be back on the road to usefulness. All the more reason to recognize the first experiments in its use.

¹C.R. Roseberry, **Glenn Curtiss: Pioneer of Flight** (New York, 1972), p. 38.

²Ibid, p. 38.

³Ibid, p. 38-39.

⁴Ibid, p. 39-40.



Chanute Hang Glider - 1896

Waco CG-4A Restoration

Editor's Note: William K. (Bill) Horn is the Editor-Publisher of Silent Wings. He is also the National Treasurer and Historian of the National World War II Glider Pilots Association and Director of their Glider Restoration Project.

by William K. (Bill) Horn

Would you want to tackle the rebuilding and/or restoration of a motorless aircraft, 48 feet long and with a wing span of almost 84 feet? Think you could do the job in a matter of a couple or three years? Well, the members of the National World War II Glider Pilots Association think they can.

The WWII GP Association is a unique organization. Officially formed seven years ago, its regular membership consists of the remaining pilots who flew giant troop-carrying gliders during WWII. Although the general public is barely aware of this odd contingent of Air Force pilots, they appeared on battle fronts all over the world, from the jungles of Burma and the river beaches of the Pacific to the mammoth invasion armadas of Normandy, Holland, Southern France, and Germany in Europe. Few people still realize that glider pilots flew through a wall of flak and anti-aircraft fire to bring medical supplies and ammunition to the beleaguered troops of Bastogne during the last part of 1944.

These Air Force glider pilots flew the aircraft that became the mainstay of the Troop Carrier Command, the Waco designed CG4A glider, the CG standing for Cargo Glider. It was built to carry 15 fully armed paratroopers or loads of supplies and ammunitions of from 4,000 to 5,000 pounds. Even mules were carried in the gliders during the Burma campaign. Complete aircraft and maintenance shops were built into some gliders in order that they might land in small clearings and repair heavily damaged fighters and light bombers. With the development of the snatch pickup system which enabled a tow ship to fly over a prepared glider and literally "snatch" it off the ground without having to land, the way was opened for many rescues of personnel from isolated crashes. It also was used to evacuate wounded troops and transport them to rear area hospital centers, furnishing faster medical treatment and preventing a higher death rate which might have resulted from movement by ambulance.

Almost 14,000 (13,909) of the Waco CG4A gliders were built before production was halted in 1945. Sixteen different contractors built the huge aircraft, including Ford Motor Co., Gibson, Northwestern, Pratt, Read, Laister-Kaufman, Cessna and many others beside Waco Aircraft.

When the National World War II Glider Pilots Association was established seven years ago, the early members were shocked to learn that apparently none of the gliders that they had flown had survived the years since World War II. The frail fabric and steel tubing aircraft with its huge wooden wings had become a thing of the past. This fact stirred the small organization to its roots and the members immediately started a campaign to do something about it. In their goals as an official organization, they inserted the following objective:

To restore and/or rebuild, in flying condition if possible, one or more World War II combat CG4A gliders . . .

With the formal organization ratified by some 500 members in 1974, the search was on for glider parts and for other surviving glider pilots of the WWII era. Both of these aims have been successful. Of the some 2,500 glider pilots of WWII estimated to be alive, more than 1,500 are now dues-paying members of the association and the following CG4A gliders are now known to be in existence:

1. A beautifully restored Waco CG4A glider located at the Air Force Museum in Dayton, Ohio. This glider went on public display in June of 1976.
2. A partially restored CG4A glider is now on exhibit at the General Don C. Pratt Museum, Fort Campbell, Kentucky, the Headquarters of the famed 101st Airborne Division.
3. A restored CG4A glider now is at rest in the Airborne Museum, in Ste. Mere Eglis, France, near the Normandy beaches where the glider played such an important role in the successful operations in the famed D-Day assault.

The GP association also took on the tremendous task of restoring one of the CG4A gliders for its own pleasure and use and began a fund-raising campaign that would make the project successful. Members searched and found major components of the Waco glider, some as far west as California and as far east as NE Pennsylvania. Once these components were located and secured, a difficult transportation task was involved to move the fragile parts to a central storage depot in Dallas, Texas where the restoration and assembly was to take place.

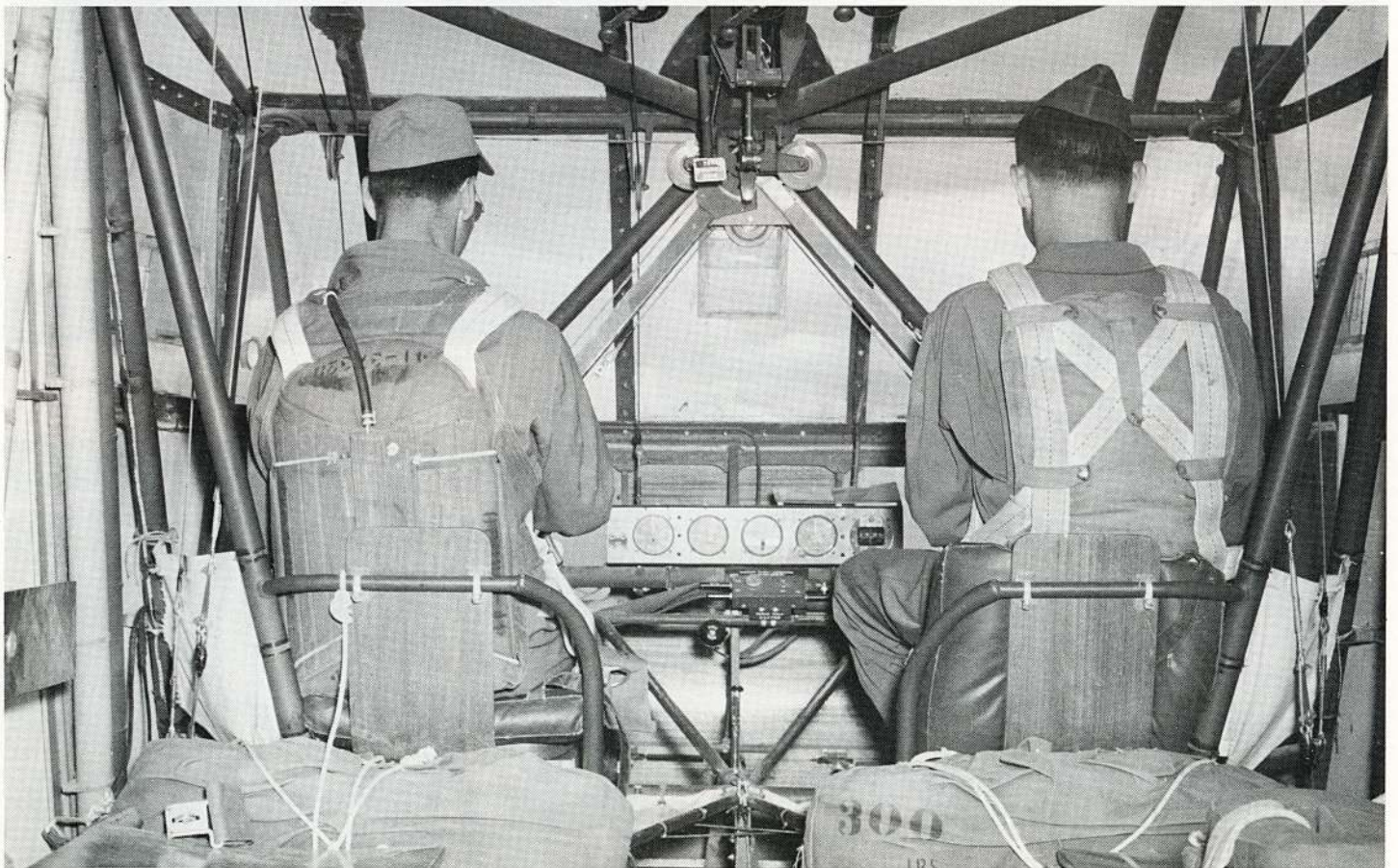
In Dallas, these various parts and components are being rebuilt, restored, refurbished, and reassembled into what will become another complete CG4A glider. Once this static model is completed, it will be displayed by the glider pilots each year at their national reunion which is held in various parts of the U. S., and during the remainder of the time, will be loaned to aircraft museums.

A recent development during the past year has been the Confederate Air Force's interest in the project. Knowing that many of the recently found parts of the glider are in "airworthy" condition, the CAF has entered into an agreement with the glider pilot association to build a "flying" version of the CG4A. Such a glider would complete the CAF's inventory of flyable WWII aircraft and plans are presently underway to add this aircraft to the CAF's annual airshows within the next two years.

(Continued on Page 10)



CG-4A on tow.



Cockpit view of CG-4A

WACO CG-4A

(Continued from Page 8)

The static model's restoration is almost finished. The fuselage, which is in three sections — cockpit, cabin or cargo compartment, and tail section, is virtually complete with only the fabric covering to be applied. The wings for the static model are being restored and recovered by a college in California and are due to be completed this year. The first assembly and exhibit of this glider is scheduled for the association's annual reunion, in Dallas in September, 1979.

Preliminary plans for the flying model's completion by the CAF call for October, 1979.

This flying model will require a tremendous amount of work and effort. Since none of the wooden wings are known to have survived, it will be necessary to completely rebuild this component. With a wing span of almost 84 feet, a chord of 10 feet, six inches, the construction of this item looms as a big challenge, to say the least. Other major components such as control surfaces, cabin and tail sections, and cockpits have been located but the search still is on for better parts. There still is that hope that somewhere a complete glider awaits in some forgotten barn or hangar. Such a find would enable the GP association to work with other museums who would like to add this famous motorless aircraft to their inventories.

SPECIFICATIONS WACO CG4A GLIDER

Dimensions:

Wing Span	83.6 feet
Wing Area	852 square feet
Fuselage	length — 48 feet height — 7.3 feet

Cargo Compartment

Length	13.2 feet
Width	5.8 feet
Height	7.2 feet

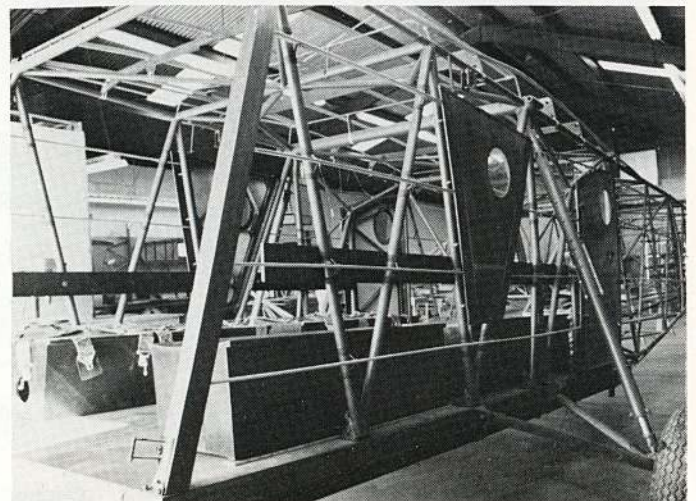
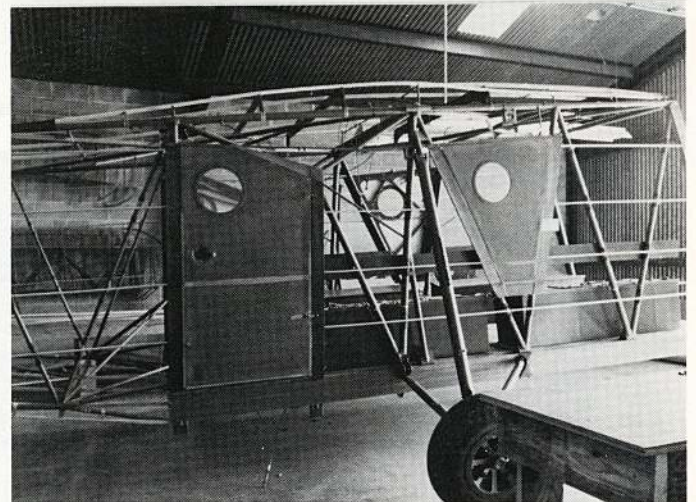
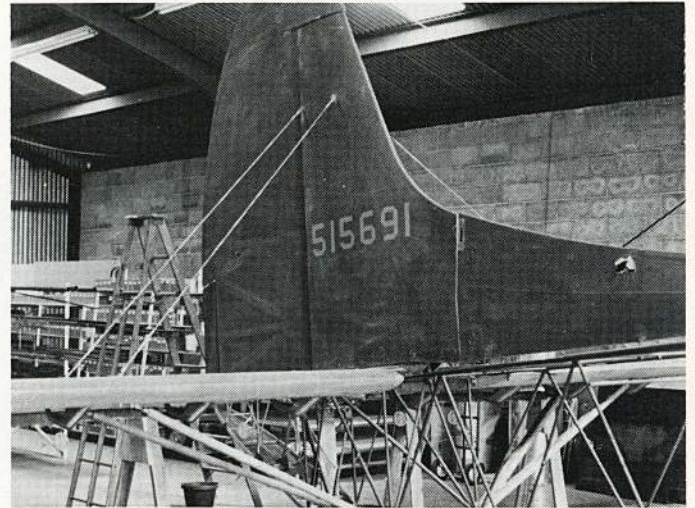
Weight

Total with Cargo	7,500 lbs.*
Empty	3,440 lbs.
Cargo	4,060 lbs.

Towing Speed 120 - 130 MPH

*Weight limits shown are design weights. In actual practice many of the gliders flew with loads in excess of 5,000 lbs., especially during the Burma campaign. Empty weight was increased to over 4,000 lbs. This fact was caused by the many modifications made during the time the glider was in production. It is estimated that over 7,000 modifications of a minor nature were made during the life of the CG4A.

General. The course, lasting three weeks, consisted of ground instruction and 30 hours of flying for each student. The early glider pilot training days were covered in an in-depth article which appeared in the Spring, 1976 issue of NSM.



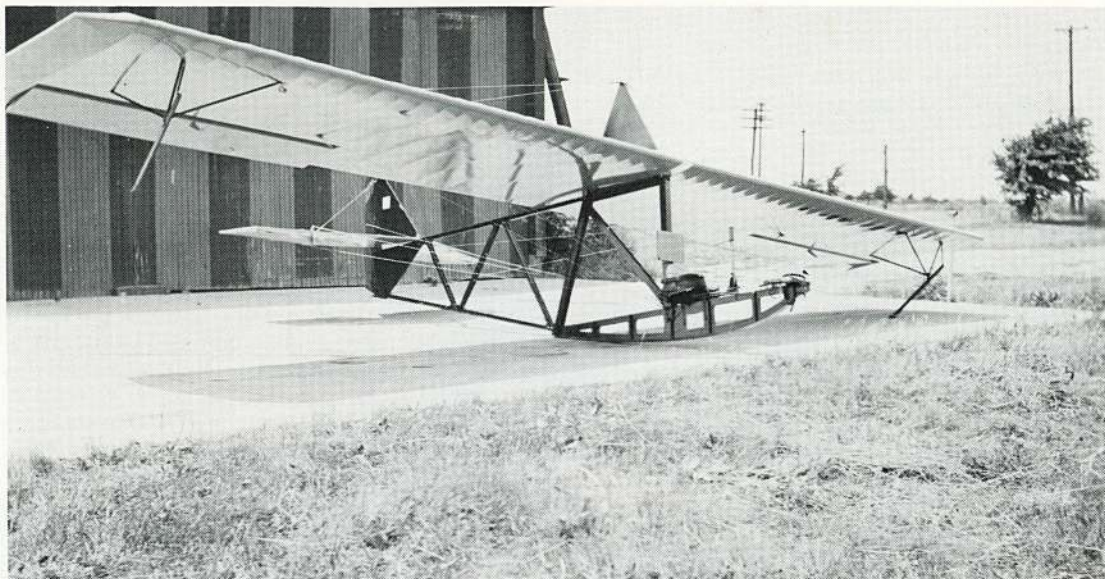
The U. S. Army's Air Force glider pilot training program started in 1941 at Harris Hill when the then Army Air Corps contracted with the Elmira Area Soaring Corporation for the glider training of 18 Army power pilots. The first group of six started instruction at Harris Hill in June of 1941. This class was led by Major Fred Dent, Jr., who later became a Major



Scene of one practical use of the CG-4A.



CG-4A Restoration photos from Bill Horn.



Keep Your Legs Together As You Pass Through the Rollers

Editor's Note: This article first appeared in the Pacific Soaring Council's publication, "West Wind," August, 1977.

by Eric J. Chipps

Watching my 14 year old son in a 2-33 lurch off the runway behind the tow plane the other day, busy pursuing his goal of achieving the solo clearance with which he must content himself for another year or two, I fell to musing on how effectively student sailplane pilots were trained these days and then, in a way which I dimly recognize as an early symptom of old age, fell to musing that it was not ever thus and to reminiscing on my own, very different introduction to gliding in wartime England.

Like so many things that were subjected to the stimulation of national necessity during World War II, gliding in England underwent an enormous expansion from the small, rather exotic group who pioneered the sport in those halcyon prewar days.

Civilian flying was not permitted in those much disputed wartime skies. However, our trusted leaders considered it desirable to promote a pre-service youth organization aimed at providing aircrew intake for the RAF when they grew up and, since an unbroken diet of classroom lectures on Met., Theory of Flight, Navigation, etc. becomes tedious eventually, our leaders decreed the establishment of weekend glider training schools at RAF airfields around the country to spice up our training. Thousands of 15 year olds were to be motivated by soaring like birds through England's blue and golden skies (when not 300 and 1/4 mile, anyway). We fought to enroll.

The standard equipment for a gliding school in those early days was a converted barrage balloon winch, two primary gliders and a somewhat primitive flying machine called a Kirby Kadet. The latter seemed very advanced by virtue of actually having a cockpit and a rear fuselage extending to the empennage, in striking contrast to the primaries which resembled a plumber's joke aft of the wings. Thrust was provided to the would-be aeronaut by drawing some 3,000 ft. of one-ton steel cable off the winch and across the grass field and then using the V-8 engine provided to wind it in at flying

(or not flying) speeds.

The flying instructors, noble and impressive fellows to us lads, were also weekend warriors who nominally at least, shared their pilot skills without stint. One, I recall, managed a local bus company from Monday to Friday; another rebuilt old cars; yet another was an elderly journalist. They were led by the school's C.O., who was an office manger when not leading us, steely-eyed, into the blue.

In retrospect, the old adage "In the kingdom of the blind, the one-eyed man is Lord" was never more apt. Come Saturday, they would don their Air Force blue and emerge with enthusiasm and all of ten or twenty hours in their logbooks, to induct us lads into the uncharted joys and terrors of taking the air.

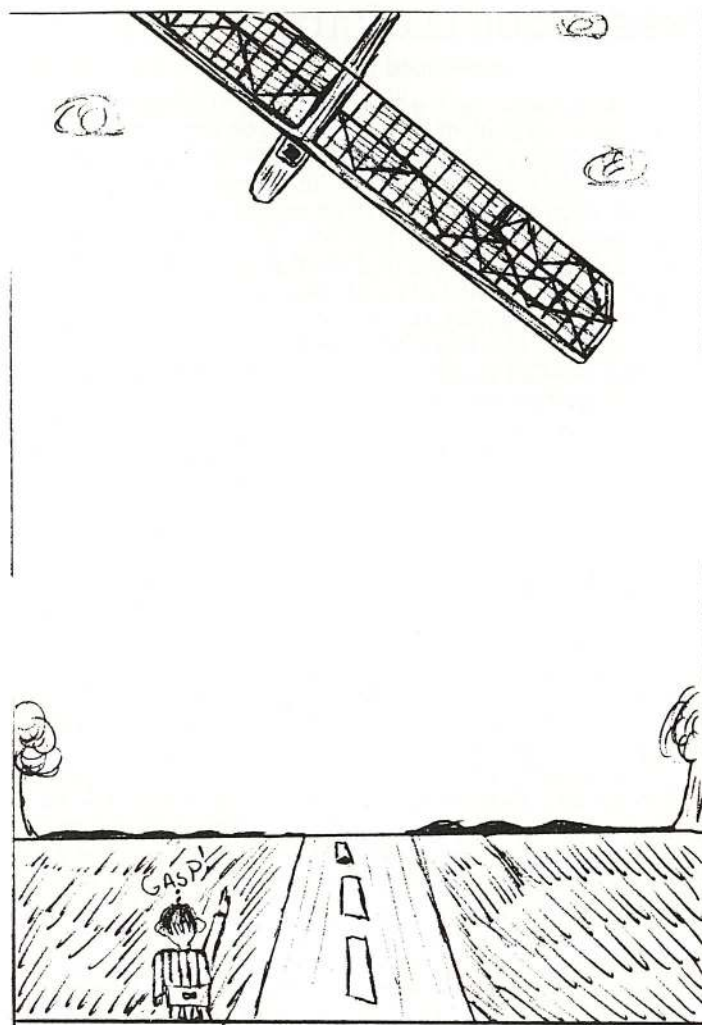
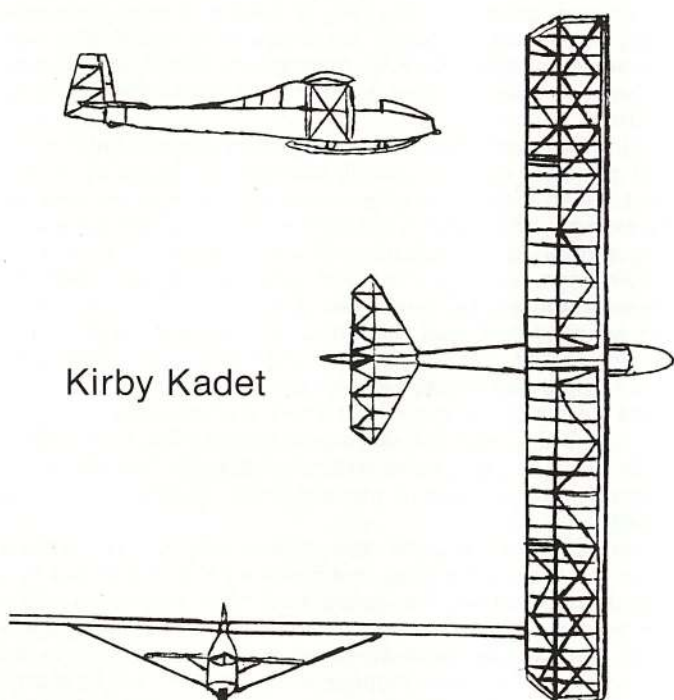
For the most part, terror seems to have been the predominant emotion of that period. This was due in no small measure to a training system in which dual control played no part: you were on your own from the beginning, albeit with your ears ringing with good advice.

It may be appropriate to describe a primary glider at this point, for anyone who has not been privileged to visit an aeronautical museum. Ours were called Daglings, for reasons now unclear. I've heard of primaries called Zoglings, so perhaps there were two corporations, Dag and Zog, both competing for a market share. The resemblance to early 20th century machines was strong. A center N-frame anchored the constant-chord wings, with multiple piano-wire braces running from the frame both above and below to mid-points on the span. The upper wires simply prevented the wings from folding when under the influence of gravity and not generating opposition to that clutching hand through flight. However, heavy landings caused the upper wires to break, providing the moving and frequent sight of two yellow wings, drooping forlornly down to the ground, concealing the equally forlorn student, for all the world like Tweety after Puddy-Tat had passed by.

To the bottom of the N-frame, a narrow plank was attached on edge. The lower edge, suitably shod with mild steel plate, was the landing gear. The upper edge supported a metal saddle, much like a tractor seat, onto which the student pilot was secured. Bolted transversely at the front of the upper edge was a wooden bar, pivoted at the center, playing the role of rudder control and between the knees, there found itself a length of pipe to permit elevator control. From this airy perch visibility was virtually unlimited: only the excess of ventilation seemed a problem, along with an inherent concern about the fearful consequences of the straps coming undone anywhere except on the ground. At least, pre-flighting was a snap, all being visible at a glance, plus a whack or two at the aft plumbing to redistribute the spiders, field mice, etc. who inhabited the endless internal maze of pipes.

The L/D of a Dagling (1/3?) didn't seem of great concern to the student, in view of the training techniques used. Few intrepid pilots were able to climb much over 300 feet before all that fresh air engendered an urge to descent, particularly in those early, fledgling flights. **All** the students' flights were solo, with the primary system of training, thus the warm confident feeling that "this must be normal otherwise the guy in back would have shouted by now" was often replaced by the white-knuckle syndrome.

To limit the three-dimensional control skills learning requirement, the student was first drawn across the field by winding in the winch cable at a speed sufficient to provide lateral control, but too slow for flight. This was conducted in one-hundred yard "ground-slides" with the instructor pursuing his student, bellowing advice and providing more detailed suggestions at each pause. An interesting feature of this technique was the large control movement learned by the student at low speed, causing him considerable astonishment later, when attempting early flight at naturally higher speeds.



.... The glider in vertical descent drew low cries

(Sketches for article by soaring enthusiast Dave Gardner.

Once apparently able to keep the wings level, usually four or five "slides" later, the student was prepared for a major step: actual flight. Required to undertake a "short hop," the proud lad was extensively briefed. As he felt the speed gather, he would ease the stick back no more than one eighth of an inch, whereupon he would leave the ground. Easing off the one-eighths, he should then fly level, two to three feet up until feeling the winch power decline whereupon, with equally delicate movements, he should descend gently to the ground again. A great moment, without doubt.

Theoretically, this seemed a simple step requiring nothing more than gentle introduction of pitch control. However, the component variable not within the student's control was thrust (or pull, anyway) as supplied by the winch driver located something over half a mile distant. Everyone is familiar with the difficulty of judging the relative speed of an object approaching head-on. Accustomed to the problem, most winch drivers would look to the glider's rate of ascent for help in judging forward speed. A rapid appearance of the glider after responding to the "all out" Aldis lamp with power applications usually indicated a need to ease off a little to reduce air speed: non-appearance indicated too little air speed and called for more power.

(Continued on Page 14)

KEEP YOUR LEGS TOGETHER . . .

(Continued from Page 13)

Unfortunately, such a response curve often superimposed itself upon the student pilot's desire to perform creditably the set task. Seated on his plank, still thudding along the ground with the stick one-eighth-of-an-inch rearward, the student would reach the conclusion that coarser control movement was required in order to take off. Just about this time, the winch driver determined that more power was needed. The resulting combination of power plus up-elevator usually produced a spectacular result, with the primary leaving the ground like a low-trajectory rocket.

The terrified student, finding himself forty feet up at an appalling pitch angle, would gather such wits as remained to him and ram the stick against the forward stop, such niceties as "one-eighth" movements quite forgotten. Meanwhile, the winch driver, equally appalled, would reduce power to slow the rocket-like ascent, intending to open up again as the aircraft's pitch angle levelled. Unfortunately, this fresh application of power often would coincide with the pitch angle as it passed **through** the horizontal into a normal response to full forward elevator control, e.g., a steep dive. The luckless student was now confronted with the ground rushing up at him and would respond to such a powerful stimulus by hauling back hard and, cheeks sagging with the G-forces, would initiate another steep climb, to which the winch driver would respond with power reduction, etc.

Progress thus became a series of giant cyclic waveforms with an amplitude of 50-60 ft. Continued for ten minutes or so, the student might have regained reasoning power and learned to cope: alas, 3,000 ft. of horizontal travel inevitably ended at the winch and led to the haunting refrain of those days . . . "Keep your legs together as you go through the rollers . . ."

In practice, most pilots chose to face the final dive in preference to the winch rollers, though in fact the winch driver's own sense of self-preservation was now permitting him to rationalize chopping off the power. Thus, many of those first "low hops" ended with the primary near the winch, wings drooping to the ground without support from the broken piano wires and glazed expressions on both winch drivers' and students' faces.

Despite all, no-one seemed to have more than their pride injured. Repeated, the next "flight" would be a little better controlled, until after eight or nine such attempts, a reasonable flight of half-a-mile or so at 10-20 feet above ground followed by a gentle landing was a normal accomplishment.

Next came the "high hop," a climb to 300 feet, release and descent to a free landing. A certain delicate judgement was needed to avoid climbing too high, since turns were not yet taught and over enthusiasm for altitude at an early stage often turned to a realization that the choice was going to be between banging it down or going through the hedge on the other side of the field. The best way to stop in dire emergency was to plonk the primary down and lower the wing. It would groundloop in style, apparently with no ill-effect on anything except the pilot's pride, as usual.

By now our student hero was building confidence and ready to face the next hazard: the turn. This was a major step since our mentors endlessly reiterated the awful specter of the spin which awaited any student foolish enough to allow too low an airspeed in turning flight. The training syllabus required the learning of S-turns from a winch launch to 300 feet, followed by a landing in the original direction. As usual, our mentors thundered on about one-eighth inch control movements, save in pitch downward where the Dreaded Spin lurked in waiting for those who failed to stuff the nose down before attempting to turn.

The predictable result was that most students would descend from their initial altitude in a howling dive with little discernable change of direction. Gradual improvement to the

point of actually making 45° turns then led one to the next and most difficult step of all: conversion to a real (i.e., with cockpit and fuselage) glider, the Kirby Kadet. This machine, though a modest performer, was substantially different from the primary. Its L/D was around 15.1, it stalled at around 35 kts. and would spin viciously at the drop of a hat, a fact that was to be dramatically demonstrated to us. The conversion technique required the first flight to be a winch launch to 800-900 feet followed by a left turn and landing. For students used to S-turning from 3-400 feet with a straight-ahead landing, the prospect of climbing to full launch height and flying their first ever pattern in a new and different machine, alone and with the Dreaded Spin closer than ever in the shadows, caused many a white knuckle.

Understandably, release was followed by a series of high-speed turns downwind, base and final, the problem usually being that the exchange of altitude for speed to insure avoidance of involuntary spins usually meant that the base leg had to be turned half way down the field and often also became the final approach to a cross field landing, since not enough altitude remained to fly a full pattern. At least, no student ever spun in . . .

Not so for our fearless instructors, who seemed so experienced to us, but were in fact very low-time pilots. Our unquestioning confidence was disturbed when the first instructor spun the Kadet in from 200 feet when turning for final approach. The revolving plan view of the glider in vertical descent drew low cries of admiration at first for such a bold and innovative means of losing excess height. These changed to murmurs of dismay when the glider was demolished and the pilot removed in an ambulance. Could it be that our respected tutor had ignored his own, often-bellowed advice to "keep the bloody nose down!"? Indeed, he had and a second instructor repeated the accident seven weeks later, sharply reducing our supply of both gliders and instructors. Happily, neither instructor was killed and more or less recovered in due course, but no more salutary lesson in the need for adequate airspeed could be given or more taken to heart by those who had watched in awe.

Eventually, practice made it possible for us to fly the Kadet as well as it could be flown and to graduate as "qualified" pilots with the FAI "B" badge. It must have been hard work later, though, for those who eventually were trained as pilots in the RAF, to avoid the almost phobic need to keep our bloody noses down. It must have baffled the Luftwaffe.

In retrospect, methods and equipment were both crude, but none-the-less, the magic worked and those of us who first tasted flight in a glider were permanently hooked. Interestingly, after leaving the service, I rejoined the same gliding school as an instructor. Seven years after those early beginnings, training was transformed. Gone were the primaries, replaced by two-seater Slingsby T.21's and T.31's which permitted dual instruction followed by solos in the same aircraft. Grunau Babies were provided ("liberated" from a defeated Third Reich) for soaring purposes and standards were high, both for instructors and students.

The C.O. of the RAF Gliding Instructors School at Detling was, in those days, none other than the man himself, Derek Piggott, every inch a professional. Surely, times had changed.

A couple of months ago, I flew over Booker Airfield, scene of those early days, in a Pan Am 747 climbing out from London Heathrow. The grass had been augmented by a single runway, but the field still had that indefinable quality that can best be understood when you stand, out on the grass, at sunset: the hangars black and silent, the final crow flapping home to roost, the peace and stillness of it all underlined by the nostalgia that comes from remembering old friends climbing up into the sky . . .

And did I hear, in the distance, a faint cry . . . "keep your legs together . . ."?

SOME THOUGHTS ON RESTORATION

Editor's Note: Gus Sheurer's tale of restoring a Schweizer 1-19 (NSM Fall-Winter, 1977-78), inspired this article by soaring enthusiast Ron Ogden. Although Schweizer Aircraft Corporation cooperated with Ogden and is interested in aiding owners of Schweizer sailplanes, spokesmen caution that the amount of help available is limited for many reasons, including limited staff and liability.

by Ron Ogden

An old Schweizer glider sits in a musty corner of a hangar. Pigeons roost amid its bare longerons, and it's rarely noticed except when someone thinks, "I'd like to try to rebuild that old crate someday".

The hangar could be a barn or a garage, and it could be located in any out-of-the-way spot where men come to be birds. The dream could belong to anybody, and it is alive today.

Schweizer Aircraft Corporation is "glad to cooperate in the restoration of its older model ships," says James Short, assistant sales manager and the man to talk to about restoration work. Short says the company can provide blueprints and even some spare parts for its older gliders.

However, Schweizer is unable to provide more than what Short calls "minimal" advice because of liability. The company runs too much risk trying to instruct rebuilders over the phone, Short said.

It's the builder's responsibility to meet FAA requirements," he said. "Schweizer can't give a short course in mechanics." Schweizer also doesn't have the staff to become involved in a lengthy correspondence.

Although Schweizer doesn't stock out-of-production parts, some outdated ones still are available either because of continued demand or interchangeability. The 2-22 wing rib (constant chord section) remains available to restorers because it is used on the 2-33. Wooden skids often can be used on more than one Schweizer model. Schweizer makes 1-23 and 2-22 canopy bubbles on a limited basis.

In many areas, rebuilders will need to use their own judgement in deciding to interchange parts. For example, the 2-33 horizontal stabilizer including the elevator is very similar to that used on the 2-22 and 1-19. Model 1-23 and 1-26 canopy plastics are worth investigating for use on closed-cockpit 1-19s, TG-2s or TG3As.

Although the parts are similar, responsibility for the success or the safety of any such parts switching is up to the builder. Rebuilders will have to persuade the Federal Aviation Administration that such substitution is proper. But, the parts are available.

Pay attention to Schweizer's three-section part numbers. The first number identifies the model the part originally fit. A part number beginning with "22-" means the part will fit a 2-22. The second number refers to the assembly (wing, fuselage, etc.) to which the part belongs, and the last number refers to individual part within the assembly.

If you have trouble tracing the parts genealogy for a 2-22 there is someone who can help. Robert Buchard, 86 High St., Medfield, Massachusetts 02052 has purchased Schweizer's remaining stock for these models.

There are no parts for the very early machines, but a handy craftsman can build his own from the original blueprints. Schweizer will sell copies of those blueprints for a "nominal" charge per square foot, Short said. Again, licensing and airworthiness are the builder's complete responsibility.

Schweizer will go even further; the company will build any part, except wooden ones, for which it has a drawing on file. However, work is on a cost plus basis. "I'm not saying it's going to be cheap," Short said.

Although no magic formulas for speeding broken birds skyward exist, a few sensible shortcuts can help.

"Our sailplanes are simple, using standard American construction techniques," Short said.

The FAA publishes a handbook called "A.C. 43.13" detailing acceptable practices governing standard repairs such as spar splices. The restorer can refer there for appropriate information.

Provided with a picture of a damaged spar showing the location and extent of injury, Schweizer can provide standard splices for metal ships. Schweizer also has a few old manuals for its World War II vintage TG-2s and TG-3s. The National Soaring Museum has these manuals also, and they are available at cost. They require inspired interpretation.

Short's advice to restorers is: contact the FAA's Flight Standards District Office (FSDO) or General Aviation District Office (GADO) serving your area and talk to the man in charge of airframe maintenance matters; get involved with the local E.A.A. chapter, especially in a big project, find a licensed inspector to work closely with you, and then carefully select the plane to work on.

Rebuildable vintage Schweizers are available. According to the SSA Sailplane Directory (August, 1974 issue of "Soaring"), about 20 TG-2s remain, along with about 40 TG-3s. Approximately 20 wooden wing 1-19s are still around, as are a couple of the longer winged 1-20s. At most there are two 1-21s. More than 200 2-22s remain in the field and there are more than 50 different models of the 1-23 still around. Several restoration jobs are going on, including an Air Force rebuild of a TG-3. As national interest in older sailplanes grows, vintage ships will take their places beside older power planes in aviation circles.

Editor's Note: Jan Scott, President of The Vintage Sailplane Assoc. is another good contact. C/O Scott Airpark, Rt. 1, Box 151A, Lovettsville, Va. 22080.



1946 photo of the NEW Schweizer 1-19.

Museum Membership? — Capital Development Program?

Nonprofit Organization
U.S. POSTAGE
PAID
Permit No. 10
Big Flats, N.Y.

Many museum members may be wondering why they have not been asked to renew their membership thus far this year. The reason for this is that we have sought to minimize the inevitable confusion between our efforts to raise money for operating expenses through the museum membership program and our efforts to raise money for our capital development program which is allowing us to build a facility to house our growing collection.

Because the paramount interest of the museum at this time is to develop a new building, it seemed wise to concentrate our efforts on that area of museum activity. Accordingly, we have not sought to solicit new members for the museum nor asked for renewals from those who are already members since the fall of 1977. We have, however, continued on as members all those whose membership would normally have expired and will continue to do so until we send out renewal notices, which will be sometime during the current summer.

Supporters of the museum will be interested to know that our capital campaign to date has generated \$420,000 which represents approximately 84% of our overall fund raising goal. While we have a ways to go and it will not be an easy task to raise the remaining sum. We feel confident that we will achieve our goal sometime during the next several months.

William D. English

Letter from The Editor

I regret to inform you that Meta Levin, Editor of the Museum's quarterly Journal, NSM, has submitted her resignation due to her husband's transfer out of the Elmira area. We will miss her as a professional and as a friend. As the newly appointed Editor, I am requesting that readers continue their inspired job of submitting material for publication. I intend to continue the policy of making every effort to have the NSM the type of publication that the museum members desire.

Sincerely,
Shirley Sliwa, Editor

Notice: Reserve This Week-End On Your Calendar!!!!

The formal dedication of the National Soaring Museum will take place the week-end of September 9-10. All museum members will receive more information as the plans are formalized.

Other activities during this gala weekend include the induction of Steve Bennis and Barney Wiggen into the National Soaring Hall of Fame . . .

the 1977 Lincoln Award presentation to the author of the year's most popular writing, from the Harris Hill Soaring Corporation and . . .

a Chemung County Airshow, featuring the USAF Thunderbirds and a static display of the Confederate Air Force. All in all, a large and many faceted celebration of air activity in the Elmira area for the weekend.

MILES COVERDALE
3 BROOKVILLE RD
GLEN HEAD NY 11545

National Soaring Museum
Harris Hill, R.D. 1,
Elmira, N. Y. 14903