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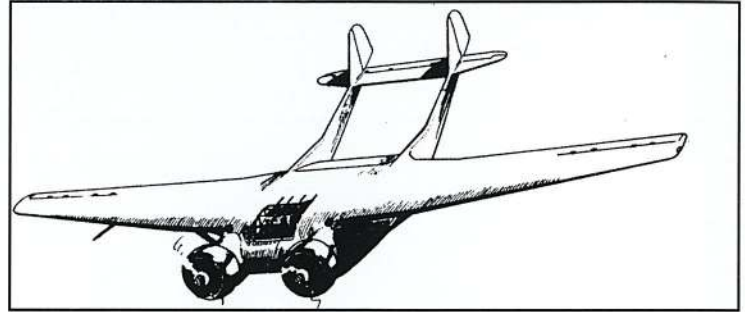
William Hawley Bowlus, The Flying Wing, and the XCG-16 Cargo Glider



**Front view, Bowlus XCG-16 Cargo Glider, July 24, 1944,
Oxnard, CA. (NSM Multi-media Archives)**

The Bowlus XCG-16 was the nearest thing to a flying wing in the American wartime glider inventory. It was not a true flying wing because it had a twin-boom tail section, one of the first used by American glider builders. The XCG-16 was a complete departure from the conventionally-fuselaged armed forces cargo gliders produced up to that point. The center airfoil of the cantilevered wing provided cargo area. The leading edge at the top of the wing swung up and the bottom edge dropped down. It opened like a mighty jaw, swallowing two M2-105mm-howitzers or one M2-105-howitzer and a quarter-ton truck with gun crew, or forty-two troops.(1)

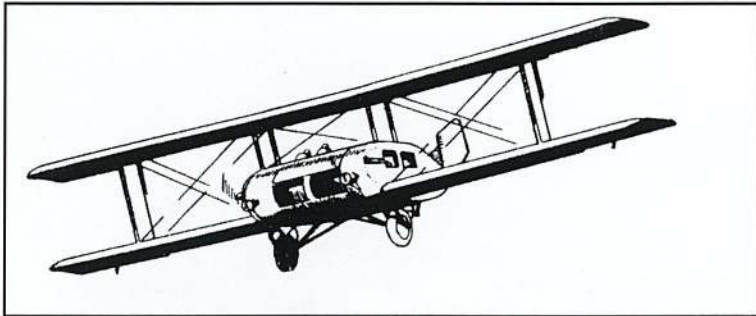
The flying wing concept seemed to fascinate some American aerodynamists during the years following World War I. These visionaries were convinced that biplanes wasted too much power to overcome drag. In 1920 William B. Stout designed an unorthodox monoplane which he described as "nothing but a wing with control surfaces." The concept was extended in 1924 when another American designer, Vincent J. Burnelli, built the Remington-Burnelli RB-2 biplane. The RB-2 featured two engines enclosed in an airfoil-type fuselage augmenting wing lift.



**1935 Burnelli U.B. 14 ("Airplanes of the World,"
by Douglas Rolfe and Alexis Dawydoff)**

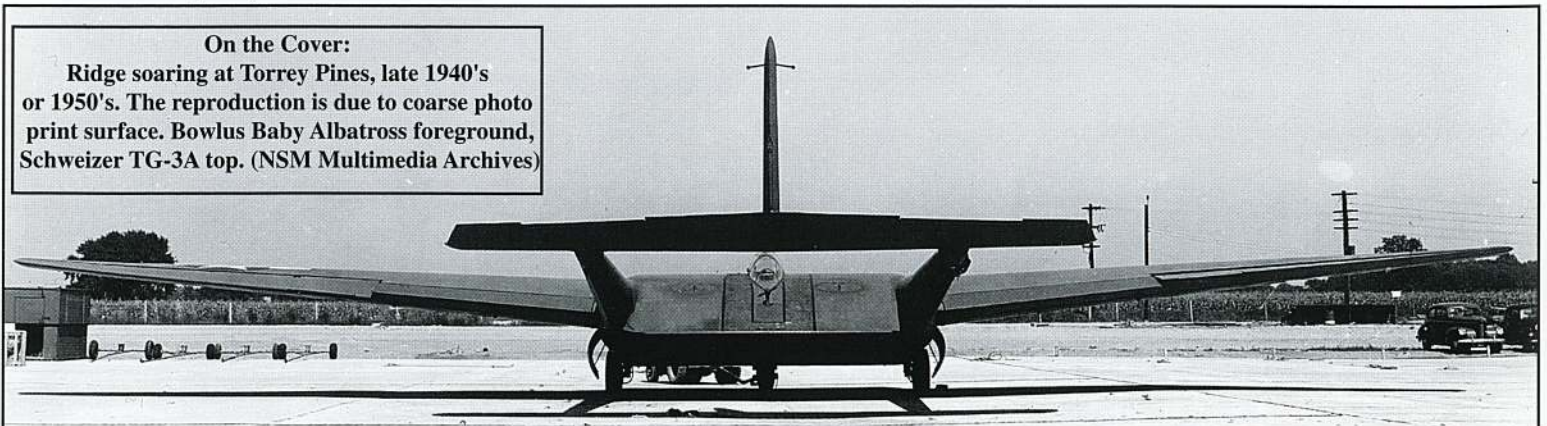
It seemed that Burnelli was moving closer to the flying wing ideas of the great German innovator, Alexander Lippisch. Lippisch in 1929 built the first of four huge G-38 airliners, in which four diesel engines, along with the pilot and passengers, were sealed in the wing as well as in the fuselage. In 1935, Burnelli carried his airfoil fuselage development further, building the sleek, twin-boom, twin-rudder, two-engined, U.B.14. Its planform was remarkably similar to the 1942-43 Bowlus XCG-16 military glider, except the latter had only one large rudder.

Meantime, in 1924, Henry Ford, sensing the need for efficient aircraft to bolster the emerging airline industry, bought Stout's plant and moved it to Detroit. Stout, apparently modifying his approach to conform to the marketplace, built the Ford-Stout "Pullman." The six-passenger ship had a cantilevered wing and was the first American all-metal airliner.

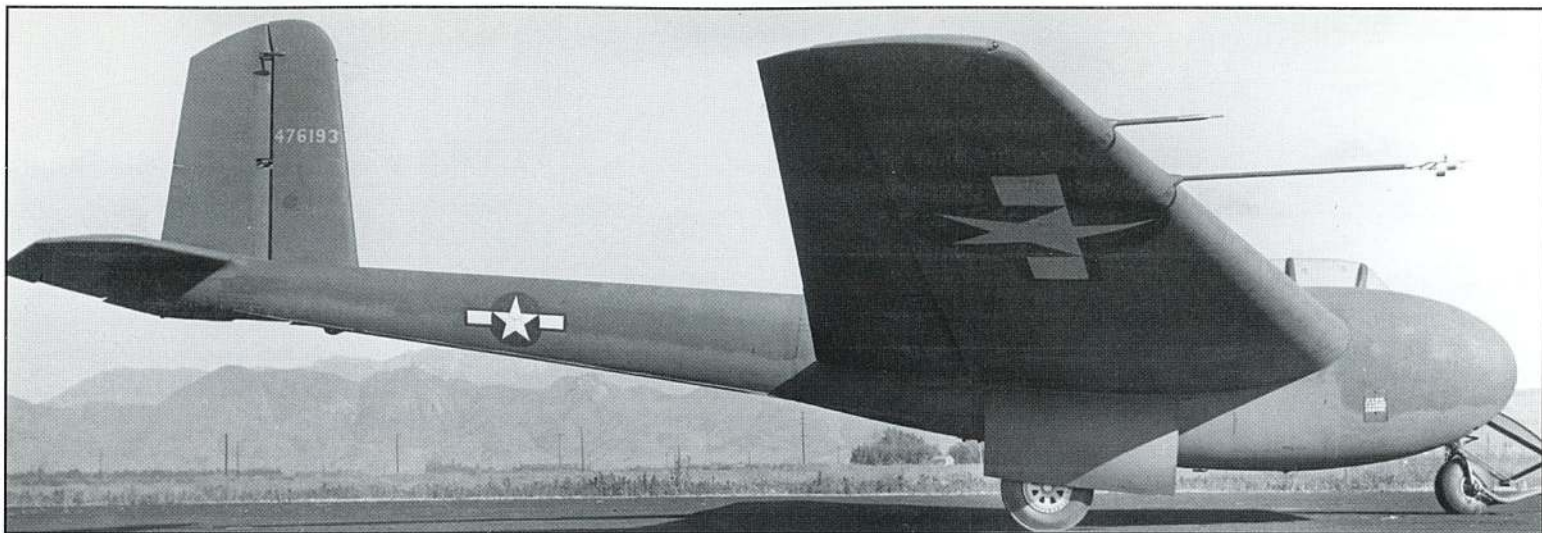


**1924 Remington-Burnelli RB-2. Note fully enclosed engines.
("Airplanes of the World," by Douglas Rolfe &
Alexis Dawydoff)**

**Rear view, Bowlus XCG-16, showing tapered cargo
compartment.(NSM Multi-media Archives)**

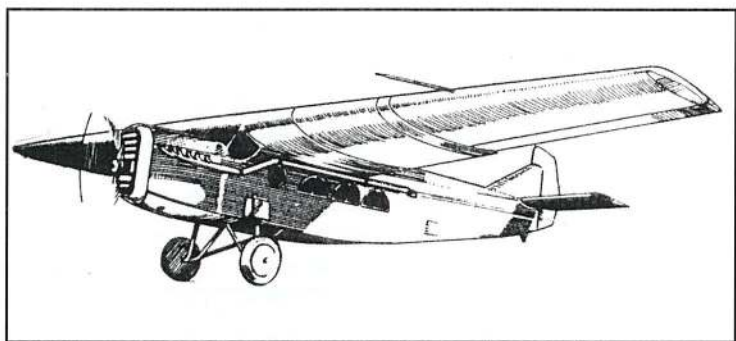


On the Cover:
Ridge soaring at Torrey Pines, late 1940's
or 1950's. The reproduction is due to coarse photo
print surface. Bowlus Baby Albatross foreground,
Schweizer TG-3A top. (NSM Multimedia Archives)



Side view of CG-16 Cargo Glider (NSM Multi-media Archives)

The following year, he used Anthony Fokker's tri-motor arrangement in building a 12-passenger open-cockpit, all-metal airliner. It was a 1926 development of this ship that led to the closed-cockpit, Ford-AT, the legendary "Tin Goose" tri-motor.(4)

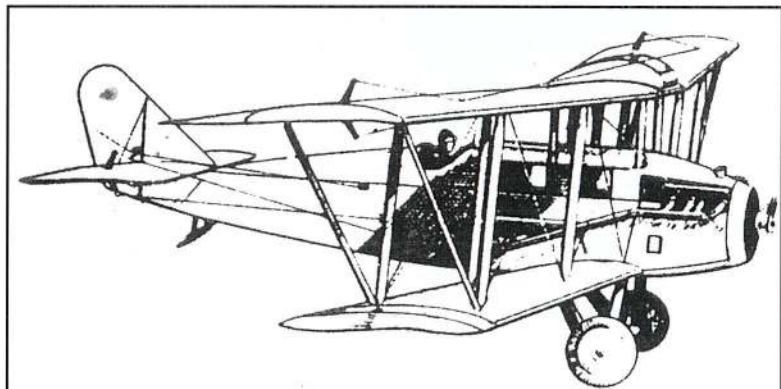


1924 Stout Pullman-the first U.S. all-metal transport. ("Airplanes of the World," by Douglas Rolfe and Alexis Dawydoff)

The year 1935 saw the appearance of the curious pancake-shaped "Canova," a one-off flying wing with conventional controls. (5)

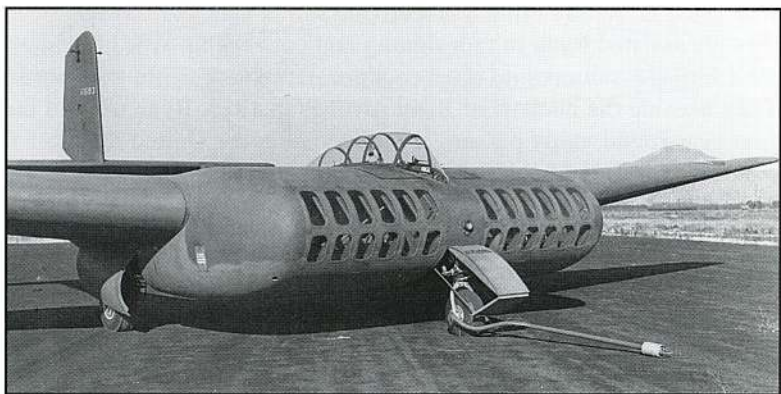
One of the early proponents of the flying wing concept was John Kundsens Northrop. Like Lippisch, he became fascinated with tailless aircraft. He felt that the drag created by every protruding component that does not directly contribute to lift (parasitic drag) could be reduced with an all-wing aircraft. Northrop built his first semi-flying wing—it had conventional tail surfaces—in 1928. (6) Northrop's first true flying wing, the 1940 N-1M, had a 38-foot span with a pair of pusher props on two 65-hp Lycoming engines tucked in the wing's trailing edge. Author Michael F. Jerram quotes Northrop's dictum, "What you don't put in an airplane can't give no trouble." Though the N-1M was vilified by *Time* magazine as a "ruptured, weather-wracked duck, too fatigued to tuck in its wings...."(7) General "Hap" Arnold viewed the little experimental ship differently, and urged Northrop to proceed with his designs. From there, Northrop later turned out the XP-79B, an experimental tailless jet fighter that was towed into flight; the XP-56 pusher prop, tailless fighter; the controversial XB-35 and YB-49 jet flying wing heavy bombers.

Not to be outdone by advanced thinking of the times, Chance-Vought engineers in 1942 came up with the V-173. It was a pancake-shaped, twin-engine, propellor-driven fighter designed for the Navy. A flying wing of sorts, it could take-off and land at a 20 mph indicated air speed from a ship steering into the wind. The Navy dropped the V-173, after tests revealed serious stability problems.(8)



1925 Ryan Standard-five place cabin plane, converted from the WW I, Standard JR-1 trainer. ("Airplanes of the World," by Douglas Rolfe and Alexis Dawydoff)

Given the urgency of the times, all manner of aeronautical ideas and experiments were funded in the name of wartime expediency. It is not surprising that a modified flying wing cargo glider would evolve from the drawing board of one of America's outstanding glidermen, William Hawley Bowlus.



Close-up of the Bowlus XCG-16 forward section. (NSM Multi-media Archives)



Bowlus XCG-16, showing opened clamshell leading edge, pilot and cockpit area. Stencil on nose wheel cover reads, "Battery location aft of nose wheel below co-pilot floor." Designer/Builder, William Hawley Bowlus is at lower right, others are unidentified; July 24, 1944, Oxnard, CA. (NSM Multi-media Archives)

Technical Data

Crew: pilot, co-pilot

Dimensions:

Wing-span: 91.8 ft
Wing area: 1140 sq ft
Fuselage:
Length: 48.3 ft
Height: 18.3 ft
Cargo compartment:
Length: 15 ft
Width: 7 ft
Height: 5 ft

Weight:

Total with cargo: 19,580 lbs
Empty: 9,500 lbs

Loadings:

Two M2 105 mm howitzers;
or one M2 105 mm howitzer, and
one 1/4 ton 4x4 truck with gun crew;
or 42 troops, equipped.

Flight performance:

Maximum airspeed: 220 mph
Maximum airspeed with flaps: 120 mph
Stalling speed
Flaps up: 62 mph
Flaps down: 58 mph
Aspect ratio: 7.4

Tow-planes: C-47, C-46, C-60

Design of the unique XCG-16, semi-flying wing combat glider reflected Bowlus' imaginative approach to motorless flight. He was one of the godfathers of the early soaring movement on the West Coast, which many aero-historians call the Golden Age of Aviation, the late '20s to the middle '30s.

It started in 1910, when he built his first glider. The next year, the fifteen-year-old glider designer and builder attended the Los Angeles Air Show, one of the first in the United States. Bowlus was dazzled by the aerobatic performances of Latham, Curtiss and Paulhan, among others.

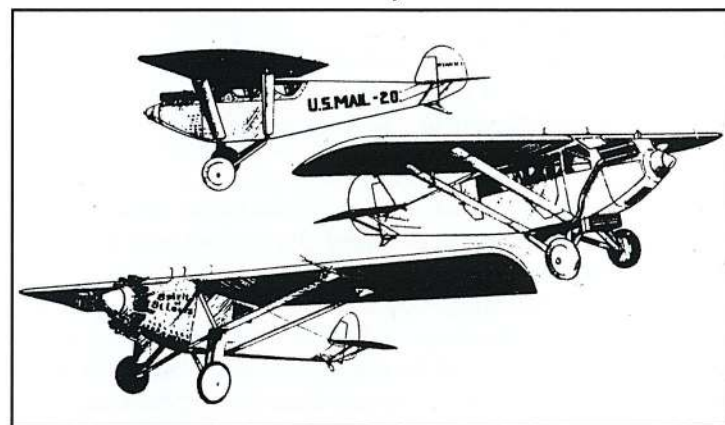
In 1916, while on leave from the U.S. Army Signal Corps' fledgling Air Service, Bowlus learned to fly power planes at the American School of Aviation, in Venice, CA. Even during WW I, when he was sent to England and France as an aircraft mechanic, he built three more gliders. (9)

Following the war, he worked in various aviation-related positions but he always found time to experiment with small models, and build several gliders. By 1924, he became associated with the T.C. Ryan Flying Company of San Diego, CA. There, Bowlus assisted Ryan in redesigning and converting WWI Standard JR-1 biplane trainers into open cockpit, five-place cabin transports. They became the nucleus of Ryan Airlines in 1925. Ryan offered the first year-round, daily passenger air service in the United States: San Diego to Los Angeles. (10)

Bowlus was involved in the design and construction of the first authentic Ryan ship, the M-1, monoplane, built for airmail service. By 1927, Bowlus was Ryan's shop foreman. There he became good friends with Charles A. Lindbergh during the building of "The Spirit of St. Louis," also known as the Ryan "Special." Lindbergh's ship was a concept that evolved from the M-1. (In an interesting aside, one of the fellows working in the shop with Bowlus was Douglas "Wrong Way" Corrigan. Corrigan became

famous in 1937 when he filed a flight plan from New York to Los Angeles non-stop. Instead, he wound up in Ireland non-stop, flying a modified, second-hand Curtiss "Robin.") (11)

Bowlus decided to capitalize on the air-mindedness of America. He felt that the best way to teach

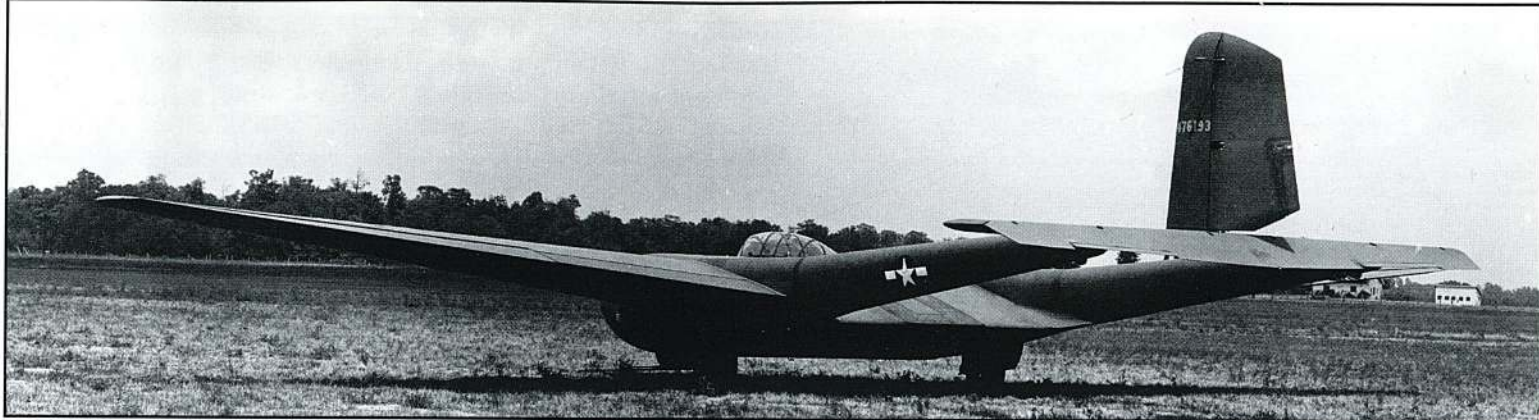


Top- 1926 Ryan M-1, the first Ryan design.

Middle- 1927 Ryan B-1 Brougham, the first volume-produced cabin monoplane in the U.S.

Bottom- Ryan Special, "The Spirit of St. Louis." ("Airplanes of the World," by Douglas Rolfe and Alexis Dawydoff)

flight was with gliders. In 1928, he formed the Bowlus Sailplane Company. The legendary 1929 "Paperwing" (paper webs used in the wing ribs) headed a stream of unique Bowlus ships carrying the famous Albatross logo on their rudders. He began construction on the first of four gull wing spruce-skinned "Albatross I" sailplanes in 1933. (The Bowlus-DuPont "Albatross" is on display in the National Soaring Museum's main exhibit hall.) (12)



Bowlus XCG-16 showing trailing edges of wings and cargo pod. (NSM Multi-media Archives)

That same year he designed and built the two-place "Dragonfly," his first pod-and-boom type sailplane. During the next few years Bowlus developed several sailplane projects. Between building gliders, starting a gliding school with Wolf Hirth and instructing in Glendale CA, at the Curtiss-Wright Technical Institute, Bowlus managed to construct the "Road Chief" travel trailer. The Bowlus-Teller Manufacturing Company offered four additional camping and commercial models, and a 30-foot, V-8 engine motor home. The trailers were streamlined and made of reinforced tubular steel framework covered with sheet aluminum. Over 150 of these advanced vehicles were sold. In another departure, Bowlus oversaw the 1937 construction of the twin-engined Bennett BTC-1, an eight-place transport of stressed plywood construction. It was produced for the Bennett Aircraft Corporation of Dallas, TX.

Bowlus is probably best remembered for the 1937, single-place pod-and-boom, "Baby Albatross" Model BA-100. Bowlus chronicler Richard H. Benbough wrote, "Designed for homebuilders, the sailplane was produced in a prefabricated kit of 10 units with half-shell pod skins of pre-formed laminated wood veneer. Some 176 kits were sold." The Model BA-102 two-place version was modified by extending the pod 30 inches aft of the main bulkhead. (On display at the NSM's main exhibit hall.)

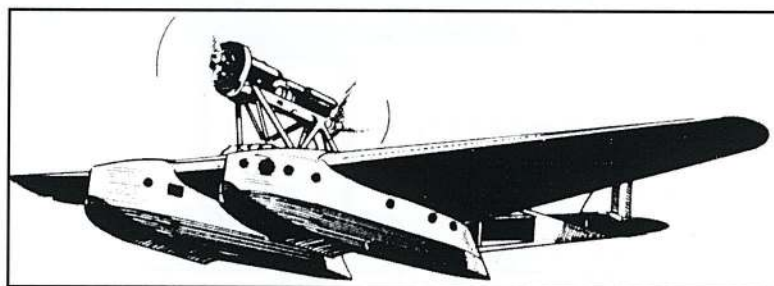
Backed by such aviation icons as Donald Douglas, Glenn Martin, John Northrop, and Al Menasco, the Bowlus Sailplane Company was formed in 1940. By 1941, Hawley Bowlus halted work on commercial production and shifted full-time the military glider production.

Under an agreement with the Douglas Aircraft Company, Inc., Bowlus produced the eight-place XCG-7 and the 15-place XCG-8. Both ships were conventionally constructed of wood and fabric and had a designed towing speed of 120 miles per hour. The XCG-7 was evaluated by the Air Force as being "of limited military utility." The XCG-8, which weighed 7,450 pounds, unloaded, was destroyed in a storm at Wilmington, OH, in 1943.

In 1942, Bowlus received another assignment from the Army Air Force and the Douglas Aircraft Company, the XBM-5 (XTG-12, and 12A). It was for a two-place, mid-wing training glider with a semi-monoque fuselage. Only five were made. (13).

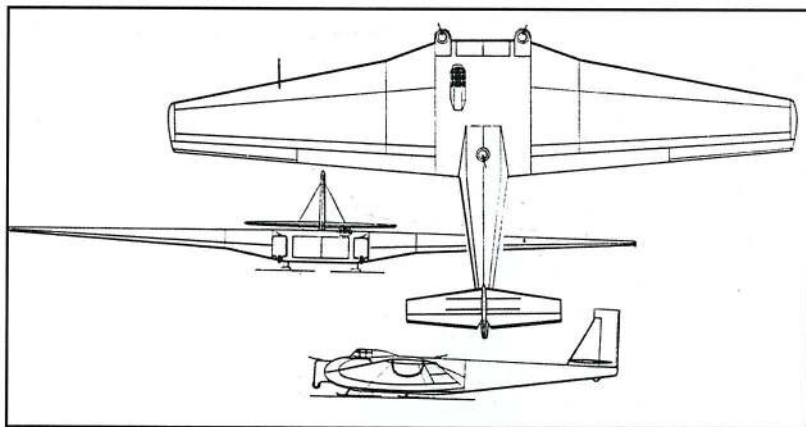
Around this time Bowlus came up with the AGA-XCG-9 cargo glider concept. It was to be a twin-tail arrangement, with the control and cargo pod located mid-wing. The layout was faintly reminiscent of the Italian Savoia-Marchetti, S-55A trans-oceanic flying boats seen on Lake Michigan during the 1933 Chicago World's Fair. (14) The wartime British General Aircraft,

"Twin Hotspur" transport glider also may have contributed to the idea for this layout. Though the AGA-XCG-9 never progressed beyond the model stage, some of its elements could later have been incorporated by Hawley Bowlus in the XCG-16.



1930 Savoia-Marchetti S-55. In 1933, Marshal Italo-Balbo led a flight of S-55 flying boats from Italy to Chicago and return.

Around the time of the Battle of Britain, the Junkers firm in Germany began work on the grossraumlastensegler "Mammut," Ju 322 V1. It was virtually a flying wing glider. Its general planform was similar to the previously mentioned Junkers G-38 powered transport. The monster "Mammut" had a 203-foot span, and was built for Operation Seelowe (Sea Lion), the proposed and later abandoned invasion of Britain. Wood shortages, production difficulties, and subsequent testing showed the "Mammut" to have serious instability problems around its normal axis, and the project was abandoned. (15)



1940 German Junkers 322 "Mammut" assault glider, built on the planned "Seelowe" invasion of Britain. The "Mammut" was plagued with design and production problems. Both the "Mammut" project and Operation "Seelowe" were abandoned.

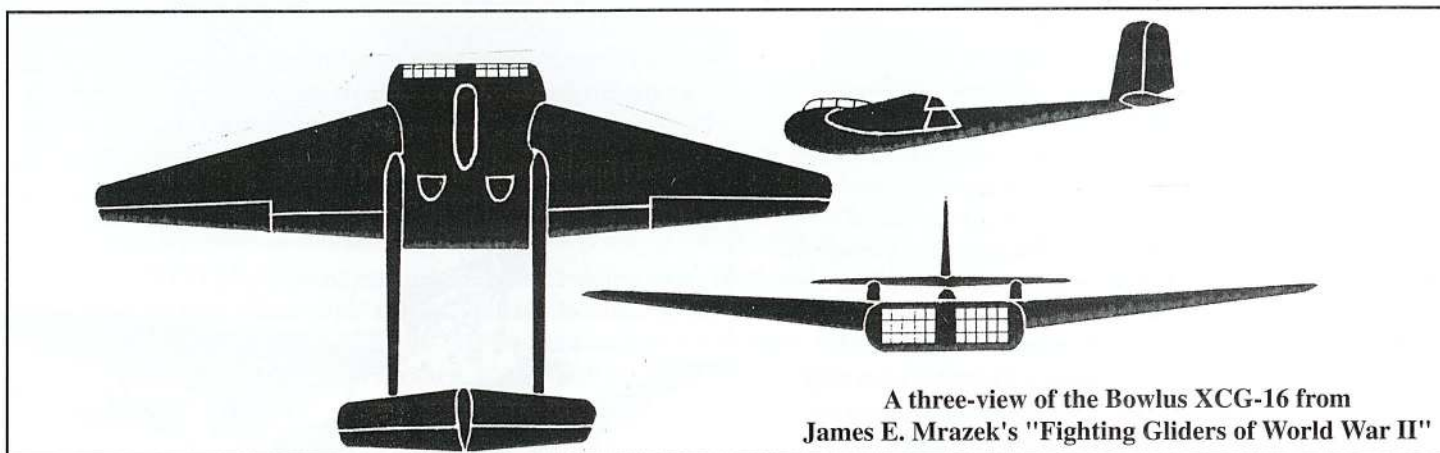
With the United States in the war, Bowlus and an associate, Albert Criz, organized the General Airborne Transport, Inc., Los Angeles, CA to secure a government contract. (16) The twin-boom, cargo-carrying, airfoil section, MC-1 was developed and built from a one-half scale flying model.

In September 1943, staff glider specialist, Richard duPont, along with Colonel Ernest Gabel, Hawley Bowlus and some passengers, took off from March Field in the prototype MC-1 without military authority. On tow, lightly secured ballast bags of shot and sand used to simulate actual loaded weight, shifted in turbulence. The glider began violently porpoising and was released by the tow pilot. The MC-1 went into an

unrecoverable dive with only Bowlus and one passenger managing to parachute safely. The others were killed.

Even so, in November 1943, a contract was let, and the XCG-16 rolled out six months later than proposed and at three times the cost. It was tested at the Clinton Army Airfield in Orlando FL. The XCG-16 was found to have inadequate crash protection, unsatisfactory loading ramps, insufficient personnel exits and poor pilot visibility. The contract was cancelled in November 1944, thus ending America's wartime experience with flying wing gliders. (17)

The flying wing concept was never abandoned however, and lives on today in modified form, in the Northrup "Stealth" fighter.



A three-view of the Bowlus XCG-16 from James E. Mrazek's "Fighting Gliders of World War II"

References:

- (1) Fighting Gliders of WW II by James E. Mrazek, pg. 136
- (2) The American Heritage History of Flight, by the editors of American Heritage, also Arvin M. Josephy, Jr. and Arthur Gordon, pg. 203
- (3) NSM Historical Journal, Vol. 19, No.2, 1997; History of the Horten Flying Wings, pg. 9.
- (4) Airplanes of the World, by Douglas Rolf and Alexis Dawydoff, pg. 82.
- (5) Ibid. 4, pg.201
- (6) Aircraft of the National Air and Space Museum, by Claudia M. Oakes and Kathleen L. Brooks-Pazmany, Northrop N-1M Flying Wing.

- (7) Incredible Flying Machines, an Anthology of Eccentric Aircraft, by Michael F. Jerram; pgs; 52, 53.
- (8) Ibid. 4, pg. 101
- (9) NSM Multi-media Archives, Notes on William Hawley Bowlus, by Richard H. Benbough.
- (10) Encyclopedia of Flight, Ryan bio. by Robert L. Parish
- (11) Ibid. 6, Curtiss Robin J-1.
- (12) Ibid. 9.
- (13) Ibid. 1.
- (14) Ibid. 4.
- (15) Warplanes of the Third Reich, by William Green, pgs. 510, 511.
- (16 & 17) Ibid. 1.



Left: William Schweizer at the Knoxville S.S.A. Convention, receiving the S.S.A. Exceptional Achievement Award for literary prowess.

Right: The historic Orlik II on display at the convention. left to right: John Serafin, co-owner, Dr. Paul MacCready, Cliff Robertson, stage and movie star, and George Kulesza, co-owner. Dr. MacCready recalled a 10 G gust roll while flying the Orlik II during his 1948, 9,000 meter altitude record flight in California's Sierra Wave. He added, "It still flies, and could for another 50 years." (NSM staff photos)



SAILPLANES BY SCHWEIZER

A HISTORY

A book by Paul A. Schweizer and Martin Simons

They are two of the outstanding motorless flight historians of our times, Paul A. Schweizer from America and Martin Simons from Australia. They have consolidated their talent to bring the world soaring community the long-awaited "Sailplanes by Schweizer, A History." It is a digest of the 22 different Schweizer types. A total of 2,170 have been produced since the Schweizer Aircraft Corporation's beginning in 1939.

The authors devote an entire chapter to each type and its variants. For researchers, R/C and scale modelers, there are skillfully detailed three-view drawings by Martin Simons accompanying each aircraft. Readers will appreciate the inclusion of specifications, dimensions, and outstanding flights of each ship.

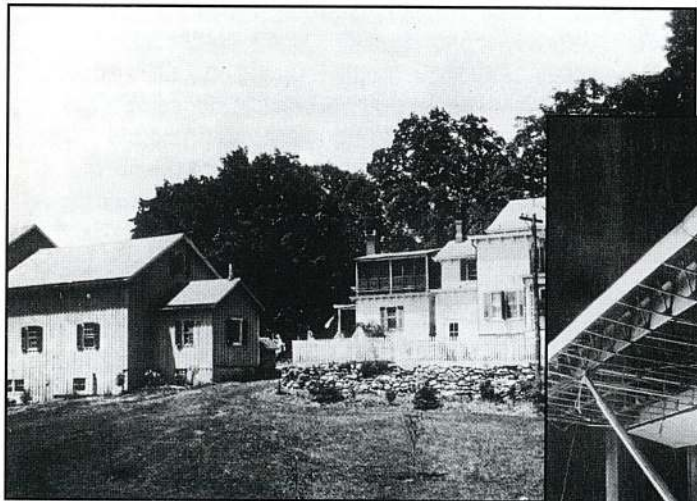
Many rare and unique photographs have been assembled from several sources to illustrate each part. Notable



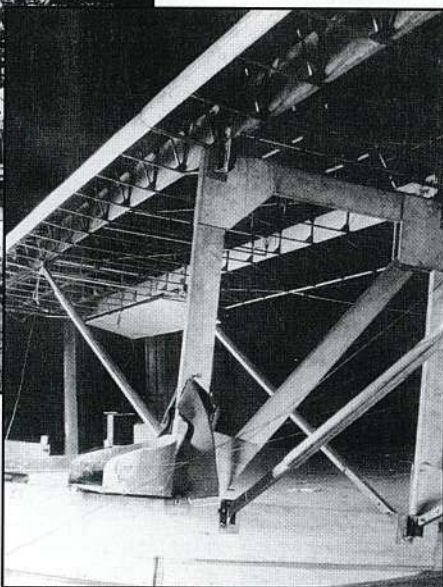
Paul A. and Virginia Schweizer at a book-signing during the Knoxville, SSA Convention. NSM staff photo.

pilots, record flights, as well as historical backgrounds for each model are covered.

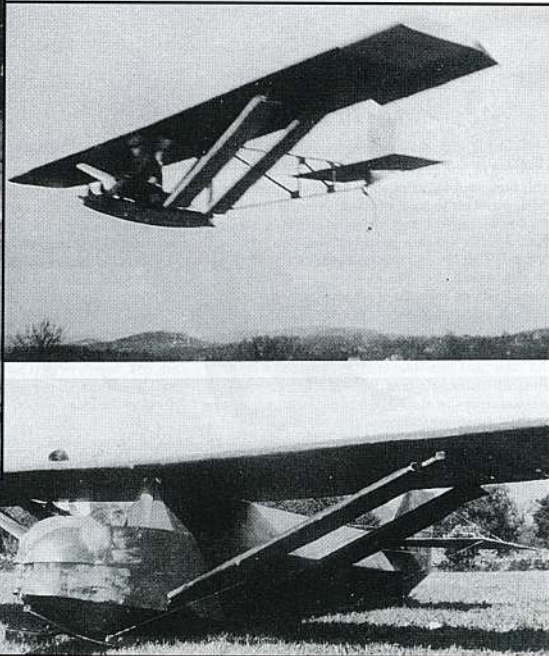
Paul A. Schweizer is co-founder along with brothers, Ernie and Bill, of the Schweizer Aircraft Corporation. He was first president of the National Soaring Museum, a past president of the Soaring Society of America and has served on several boards. Schweizer's book, "Wings Like Eagles - The Story Of Soaring In The United States," is recognized as one of the broadest and most authoritative chronicles on the development of American motorless flight. Schweizer graduated from New York University's Guggenheim School of Aeronautics in 1935. He piloted with the 1952 and 1954 United States World Soaring Teams, and captained the 1960 and '63 U.S. Soaring Teams. His soaring awards include The Eaton Memorial Trophy (1953 & 1988), United States Soaring Hall of Fame, Larissa Stroukoff Memorial Trophy, FAI Paul Tissandier Diploma, SSA Exceptional Achievement Award, Honorary Life Member of the Soaring Association of Canada, and the SSA Lifetime Service Award. His many aviation awards include, NAA Elder Statesman of Aviation, Associate Fellow of the American Institute of Aeronautics and Astronautics,



Above: The Schweizer home, "Bonnie Brook." Early gliders were built in the barn at left.

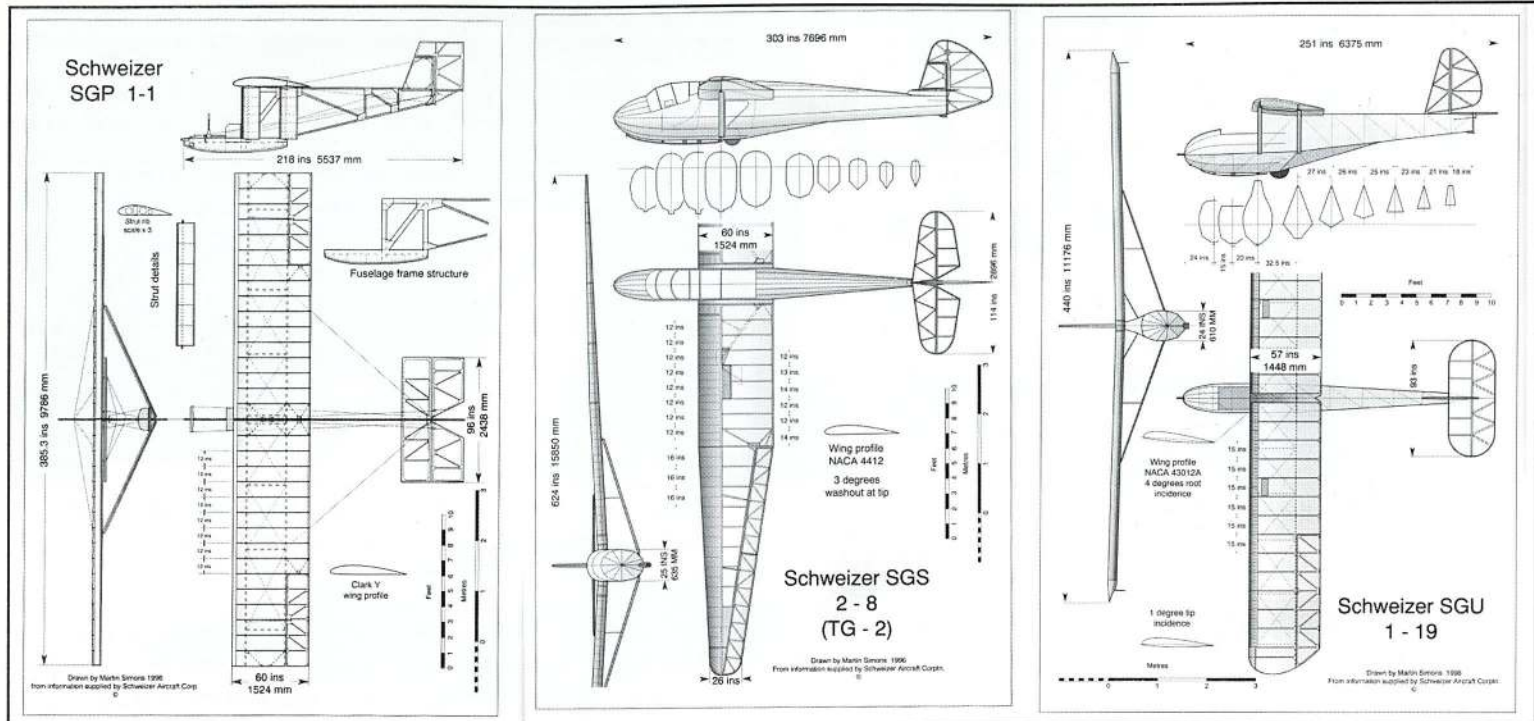


Center: First assembly of the SGP 1-1.



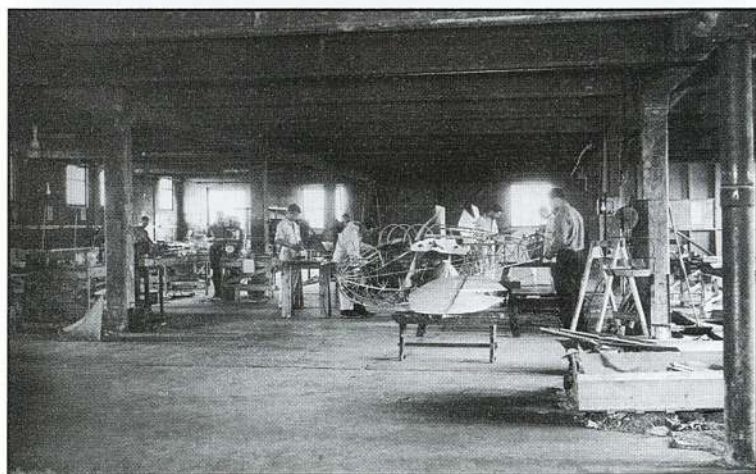
Bottom: The SGP 1-1 after repair and after having the fuselage faired with fabric in 1931.

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Mike Murphy Award of the WW II Glider Pilots Association, FAA Lifetime Achievement Award, and an Honorary Doctor of Aeronautics from Embry-Riddle University.

Martin Simons is an expatriate Englishman, now an Australian citizen and living in South Australia. He began gliding in 1947, and has been involved with the sport ever since. He has attained wide recognition for designing, building and flying model aircraft. After completing National Service with the R.A.F., he attended college and university in London (MA, MEd, BSc-Hons, London). Simons authored several books, written extensively on aviation, and was editor of the highly respected *Australian Gliding* magazine from 1970 to 1980. He is regarded as a leading world authority on vintage gliders and sailplanes. Simons was, until his retirement in 1993, a lecturer in The Philosophy of Education at Adelaide University, South Australia. He is a 1,500 hours sailplane pilot and has flown 80 different types of gliders and sailplanes, along with being an active R/C sailplane and motorglider pilot. In addition to his popular "The World's Vintage Sailplanes, 1908-45," he has authored "Slingsby Sailplanes." His precise and technical drawings in these volumes as well as those in "Sailplanes by Schweizer, A History" have impressed reviewers and readers alike.



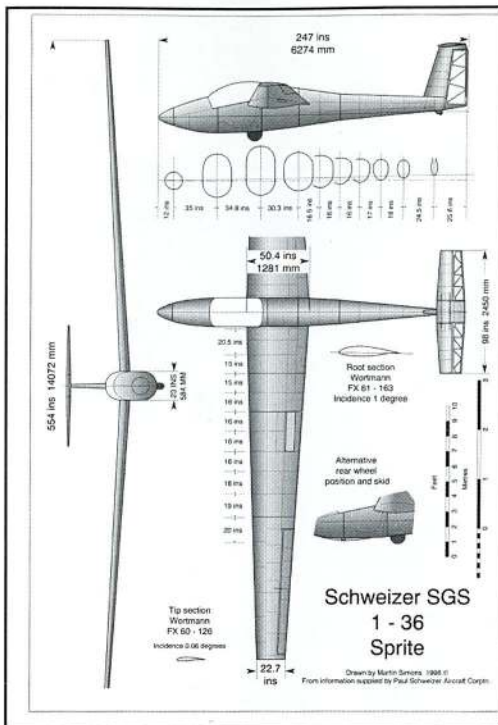
The SGS 2-8 in production at the Knitting Mills buildings.

The Peekskill, New York, Brothers Ernie, Paul and Bill started building gliders in 1930, with the covert construction of the SGP 1-1. It was feared that Papa Schweizer (Paul Sr.), a successful New York restaurateur, would not view the project favorably. The assembly took place out of sight, behind the family barn. "Except on Sundays, he was not home during the daylight hours, so we worked on the glider only when he was not there," Paul Schweizer wrote. The SGP 1-1 was a sturdy primary designed from books, magazines, and whatever general information high school senior, Ernie, the oldest, and the other two, could find. Sewing the muslin covering, was accomplished by sisters Helen and Emily, on the family sewing machine. Total cost: \$135, plus launching shock cord.

The summer of 1931 found the brothers on their way in the family Ford, 230 miles to the Second National Glider contest based at the old Caton Avenue airport in Elmira. Sailplanes and bungee launching crews were taken to whichever ridge faced the prevalent wind. It was the first chance that the brothers had to see other gliders and sailplanes. They talked with the pilots, enthusiasts, and designers. They attended many of the informal discussions when conditions were unflyable. On their return, they forged ahead with the SGU 1-2 'Yellow Peril', and the SGU 1-3 "Brick." Their SGU 1-6 "Boom Tail" won third place in the 1937 Eaton design competition. "The \$300 that we received gave us a big boost and helped us on our way into the glider manufacturing business, but we really thought the (SGU) 1-7 was a better more generally useful utility sailplane," Paul Schweizer wrote.

That year Paul and Ernie started a partnership called the Schweizer Metal Aircraft Company. Paul later said that the 1-7 which first flew in 1937, established the design philosophy that was to be used in many later Schweizer aircraft. The 1-7 had a welded steel tube fuselage and a strut-braced wing, with aluminum skinning for the torsion-resisting D nose.

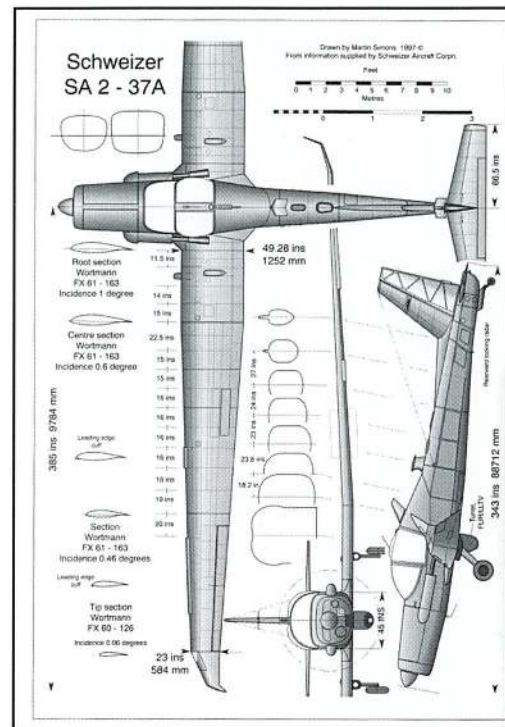
The SGS 2-8 (TG-2) two-seat, moderate performance sailplane made its appearance in 1938, at the behest of the Airhoppers Soaring Club of the New York City area. Even though it arrived in Elmira too late for the Nationals, the Airhoppers flew it during the latter days of the contest and gave rides to many other



pilots. It had established itself as a good performing, strong and practical club sailplane.

In 1939, at the suggestion of Elmira attorney Bob McDowell, who obtained the assistance of Elmira Industries, a local business development organization, Ernie and Paul sold the assets of their Schweizer Metal Aircraft Company for a 53% stake in the new corporation to be located in Elmira. (Bill was still attending Syracuse University.) The new Schweizer Aircraft Corporation moved to a space in the Elmira Knitting Mills. By early December, 1939, S.A.C. was located on the 12,000-square-foot upper floor of a two-story warehouse. Less than two years later, immediately before America's entry into WW II, Army and Navy orders began to arrive for military versions of the 2-8, the TG-2 and the LNS-1, respectively.

The military then became interested in the development of an eight-seat troop glider. The brothers went through sketches



and proposals toward that end. However, they decided the most efficient course for the infant Schweizer Aircraft Corporation was to redesign its trainers to conform with new wartime limitations on strategic metals. The result was the SGS 2-12 (TG-3 and 3A).

Concurrently, in 1944, a concept was being developed for "a single seat glider suitable for solo training, capable of being built from a kit, and requiring no scarce resources. Launching would be by winch or car tow from large fields." In January 1946, the resulting production run of the SGU 1-19 was completed. The post-WWII problems of determining markets, popularizing soaring and maintaining strict safety standards began.

The authors take us through the development of some of the world of soaring's most popular and dependable ships, and why they were designed and built. (The Air Force and Coast Guard SGM 2-37 and 2-37A motorgliders along with three-views are also included.)

Though the Schweizer Soaring School is still in operation, the company no longer manufactures sailplanes. Through the years, Schweizer has manufactured not only 34 different gliders and sailplane models, but motorgliders, the Grumann Ag-Cat crop duster, and jet liner components. Along with some special government projects, the company is presently engaged in the manufacture of Schweizer helicopters.

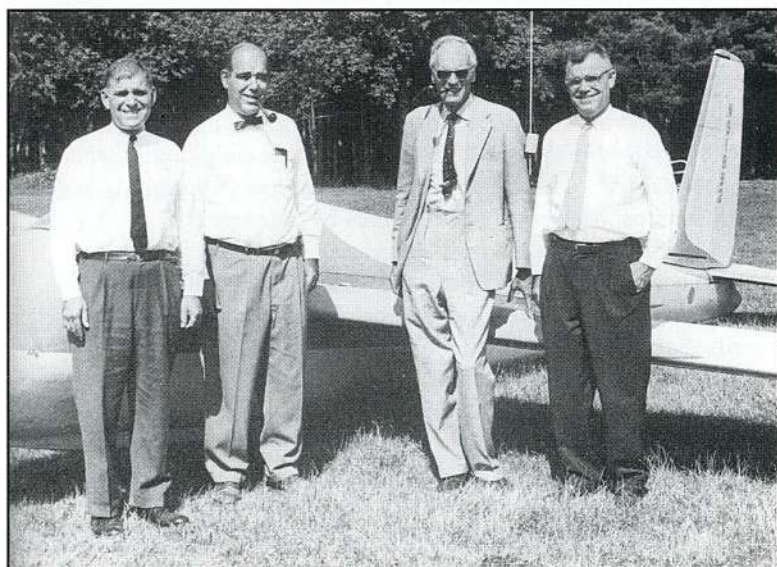
Paul A. Schweizer wrote: "If we were to start making sailplanes again, we would make a careful study of the current situation to see which way to go. At present we still believe that sheet metal construction is best for popular recreational and training sailplanes. We do not feel that we should produce more glamorous, advanced competitive sailplanes, because they are becoming so sophisticated and expensive that the market is very limited. We believe that the one-design recreational competition sailplanes will become much more popular in the future with the introduction of the World Class Sailplane."

He wrote that one thing that surprised many observers is how three brothers could work successfully for such a long period. "If there was a disagreement, we followed an unwritten rule that whatever the majority decided, the third party would accept. This worked well," Paul Schweizer wrote. "We are happy that the three

second generation Schweizers, Stu, Paul H. and Les, who have been operating the plant for more than twelve years seem to follow the same policy.

"So far as we know Schweizer is the only pre-Second World War family-owned aircraft company still in continuous operation by the same family. We want to thank all the many employees who helped us make this possible through the years," the pioneering sailplane builder wrote.

SAILPLANES BY SCHWEIZER is a refreshingly stitched patch in the fabric of soaring history. The thorough explanations in a down-to-earth writing style that everyone can understand, the engrossing drawings and archival photos, make it an aviation library "must." Even the casual aero-buff will find it a useful status addition to the coffee table folio spread.



Philip Wills, the famous English soaring pilot-stops off at Elmira on his way back from the 1960 Nationals, with the Schweizer Brothers, in front of the SGS 2-25. Left to right: Bill, Ernie, Philip Wills, and Paul A. Schweizer.



United States Soaring Hall of Fame members at the Knoxville 1998 Induction Ceremonies:
Seated, left to right: Tom Knauff, Doris Grove, Grenville Seibels, Jr. (for his father, 1998 inductee, the late Edwin Grenville Seibels II), 1998 inductee, Hannes Linke, Virginia Schweizer, Bertha Ryan, Alcide Santilli. Standing, left to right: Lanier Frantz, Edward Byars, Karl Striedieck, Charles Spratt, Edgar Seymour, Richard Johnson, William Ivans, E. Gene Hammond, Bernald Smith, Sterling Starr, Paul A. Schweizer, Henry Combs, William Sproull, Floyd Sweet, Howard Burr, Hal Lattimore, William Schweizer, and Carl Herold. (NSM staff photos.)

Hannes M. Linke and the late E. Grenville Seibels, 1998 United States Hall of Fame Inductees.

The National Soaring Museum hosted the 45th Annual United States Soaring Hall of Fame Induction Ceremonies this year in Knoxville, TN. Hannes M. Linke, Inglewood, CA, and the late E. Grenville Seibels II, Columbia, SC, were the 102nd and 103rd inductees to the United States Soaring Hall of Fame. Over 350 attended the induction ceremonies held February 26, at the Knoxville Convention Center during the 27th annual Soaring Society of America Convention. A reception followed, at the Foundry where 180 well-wishers met Hannes Linke and the Seibels family, and were entertained. Later, Paul A. Schweizer autographed his and Martin Simons' new book, "Sailplanes by Schweizer."

NSM trustee and past president, Bernald S. Smith, Fremont, CA, recalled his long association with Hannes Linke at many levels of the soaring movement. He mentioned several records that Linke had set and his administrative abilities at the international soaring level.

In his introduction, Smith noted how delighted he and Linke's friends, soaring associates, and other acquaintances, are to see that the honoree has affected a good recovery from his recent accident.

The first stirrings of Hannes Linke's soaring interest came in 1951, when, after church one Sunday, the 12-year-old lad in Kaufbeuren, Germany, slid into the cockpit of a Minimoa. He was fascinated by an experience that was well worth the expected 50-cent donation.

Linke's skiing competitor and good friend Harry Wuenstel had an acquaintance from school who was a member of an area soaring club, so the interested pair went out to watch sailplanes winch-launching. In the fall of 1953 Linke prevailed on his father to accompany him out to the glider field, "first making sure that my father had enough money with him. I think it was 10 dm a ride," (approx. \$5) Linke chuckled, adding, "after the ride I was hooked."

He joined the club in January. "I had to work 50 hours before I could fly, and by April I had enough hours," he said. On September 19, 1954, he soloed. The



Twotime World Champion and Nationals winner in all three F.A.I. soaring classes, George B. Moffat Jr., on his recollections of Gren Seibels.



Larry Sanderson, President of the Soaring Society of America, introductory speaker at the Hall of Fame induction ceremonies.

Linke and three friends became partners in a Libelle in 1966. The new Hall of Famer flew it to 16th place in that year's Nationals at Reno, Nevada. "It was my first ship with flaps. It had only the barest instrumentation: an air speed indicator, an altimeter, an uncompensated variometer and a compass," he said. He flew the Libelle to a 100 Kilometer Triangle world record the following year.

The partners purchased a Kestrel in 1969. Linke's first flight in it was at the start of the Marfa, Texas Nationals. He, and his old friend Harry Wuenstel, bought out the other partners and alternated flying in regionals and nationals. Linke crewed for Helmut Reichmann in his 1970 successful quest for the World Soaring Championship. Invited to fly in the 1974 transcontinental Smirnoff Sailplane Derby, Linke was made an honorary citizen of Odessa, TX, by reason of being the first pilot to complete the Las Cruces, New Mexico-Odessa, leg. He finished second, with only a 10-point difference out of 10,000, behind the Derby winner, Bill Holcomb.

Laughing, the dapper speaker mentioned that during the race when he was in Las Vegas, he proposed to his girlfriend, Constance, who was crewing for him. When we got to Frederick, MD., she said, "Although you only came in second in the Derby, I accept."

sailplane "D" number was 1108. "I'll never forget that number," he said. In those days you could only get one or two flights a weekend," he said. Two years later, at 19, he received his Class II license, with an age waiver, and became the youngest flight instructor in Germany.

Next came instructing on the island of Juist and a couple years of college. Then, in 1963 he emigrated to the United States, and became an instructor at the Lilienthal Soaring Club of Southern California. Two years later, he finished his Diamond Badge requirements, soaring a Zugvogel 3a around a 500 kilometer triangle from Marfa, TX.



1998 Hall of Fame inductee Hannes M. Linke.

and a steward at the 1993, '95, and '97 world events. He said that he was looking forward to the same position at the 1999 World Contest to be held at Bayreuth, Germany.

Although now divorced, Linke spoke warmly about this relationship with his former wife and praised her for covering for him at his business, during his recovery from a recent accident.

In a subsequent phone conversation, he mentioned that the other day, he flew four hours dual in a Grob Acro 3, and then three and one-half hours in a Discus.

Linke has been intimately involved in practically all phases of sailplane competition: club, regional, national and world soaring events. Sadly, he mentioned the 1972 Yugoslavian Internationals, where Skopje, and Novi Sad, were among several places he had visited during that meet.

In 1980, he was an advisor for the Hilton Soaring Cup. After Helmut Reichmann's untimely death he became competition manager, then competition director.

He was contest manager for the 1986 Hitachi Masters of Soaring Contests, and two years later, became its contest director.

In 1991, he was competition director of the World's Soaring Championships at Marfa,



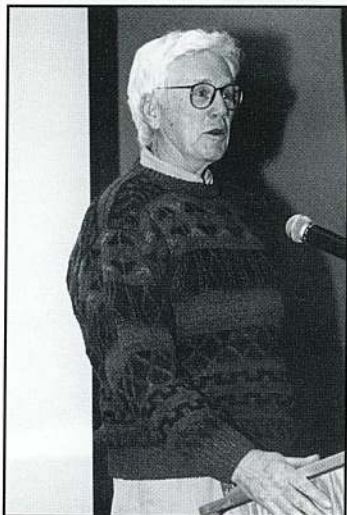
1998 inductee Hannes Linke became only the fourth American pilot to fly a 500 km triangle in 1965.

Former World and National Soaring Champion George B. Moffat's recollections of the late Gren Seibels

"On first meeting Gren at some contest in the late sixties, I remember being struck by several things. Maybe the first wonder was how that long, lanky frame could thread itself into a Libelle. And the charm, yards thick and wholly backed by substance, sort of smoothed over you with that marvelous deep Southern voice, of like conversing with an articulate cello.

"Did I mention intelligence? I guess a lot of us back in

the Golden Age of Soaring might have been a bit nervous if we'd known the penetrating degree of analysis being brought to bear on our flying abilities and our foibles. ...And how soon they would appear in Gren's books.



George B. Moffat on Seibel's books "... With the appearance of the first of them, we contest pilots knew that American soaring had found a voice..."

marvelous phrase, 'Jewels flashing in the night of time,' to describe those very few who remain as beacons in the memory, usually because some writer has taken them under his wing. Reading 'Gaggle of One,' I was struck by how Gren had made that whole era of the late sixties and early seventies come alive or maybe stay alive.

"What a writer of Gren's ability can do is make more real, more timeless, the transient experiences we have shared; our 'tussles with gravity,' as he liked to put it. His words, filled with grace, humor, and perception, freeze for our lasting enjoyment moments that would otherwise be just that ...moments.

"Gren also had a gift for recognizing the comers in soaring. He, the consummate patrician Southern gentleman, was about the first to see the potential of a down-home, country boy who used to hang around the airport at Chester, SC., name of Charlie Spratt...'Spratman' to Gren. He and a couple of others got Charlie started writing. He was a natural, with a style all his own, and has become a legend in our sport. And Gren saw it first. At the time of his death Gren and Charlie were collaborating on a new book.

"Gren saw soaring as an escape from the ordinary, a chance to search for soul. 'While racing a sailplane it's impossible to brood over taxes, or business aggravations, or in-laws,' he said. 'To compete with any hope of success requires ferocious concentration, along with a deep-seated faith in one's indestructability.' And, 'If soaring is useless, so is wine, poetry, or great music.....Without such enhancements our lives would be diminished, drab and barren.' as Charlie Spratt said, Soaring was like wine to Gren, and he flew with a joy seldom seen."

Moffat continued, "Gren had to give up flying in the eighties, as a muscular problem began to eat away at his coordination. Many of us would make it a point of dropping by, if we were anywhere near Columbia (SC) for what would always be a marvelous evening of far-reaching conversation and laughter, with plenty of good food, (thanks Trudy) and drink. Just being in the presence of a couple as close as Trudy and Gren was an inspiration. His body was betraying him, but the intelligence was as lively as ever, and the wit as sharp. They were evenings to be treasured."

With the appearance of the first of them in the mid-seventies, we contest pilots knew that American soaring had found a voice. England had the great Philip Wills, idol of my youth and friend in the sixties. Now along came Gren, able pilot, wonderful friend, and superb chronicler of our lonely battles in the sky.

"Think for a moment about books. Without Homer who would know about Odysseus and Troy? Without Shakespeare would Julius Caesar be more than another name to memorize for a long-forgotten history test? Heroes are fragile; they don't last well in the oblivion of time unless some author makes them live, perhaps larger and more mythic than they really were. Joseph Conrad had a

Stage and screen star, Academy Award winner, classic power plane & sailplane pilot, and corporate spokesman **Cliff Robertson on Gren Seibels**

With the panache reflecting his professional career, Robertson read from some of Gren Seibels works.

Later he read excerpts from his own, "It's Your Fourteenth Summer," about his boyhood in LaJolla, CA. It is the story of how the young Robertson squirreled away enough coupons from hawking *Liberty* and *Saturday Evening Post* magazines toward getting a new bicycle. With the attainment of his goal, he pedaled miles through the twisting, arid, California countryside to the local airport where he quickly became an 'airport rat.' The eight hour workday was well worth it, when he heard, "Okay kid, get your cushion and let's go." And away they'd go, the 14 year-old and the pilot, bouncing down the runway in a two-place Cub, on an airborne adventure. During those 15-minute rides, Robertson thought that he was the luckiest kid in the world. ..."That's what I remember about those early days," he said.

He said that Gren Seibels had an almost total recall of conversations, incidents, and events. He had that special ability to convey them in writing with perfect clarity.



Cliff Robertson, "Gren had an almost total recall of conversations, incidents and events..."



NSM Trustee Floyd Sweet with Cliff Robertson at the Hall of Fame Ceremonies, Richard Johnson, left.

Edwin Grenville Seibels, II by Trudy Seibels

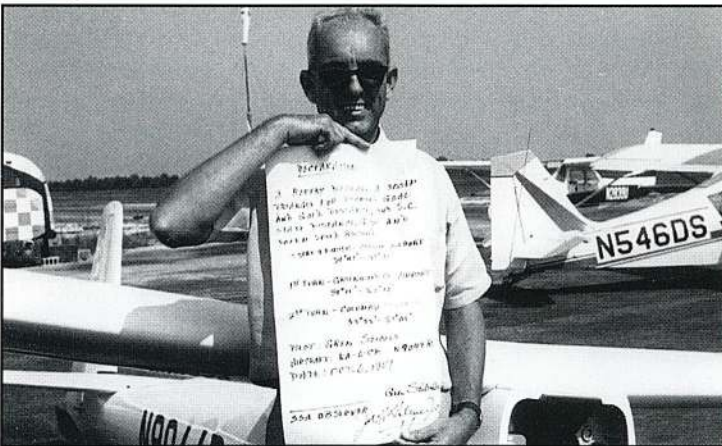
Edwin Grenville Seibels, II
b. July 21, 1921,
Williamstown, MA
d. October 11, 1998,
Columbia, SC
Diamond badge #121,
circa 1970

Right: Gren Seibels, Jr.
with his father's Award
during the U.S. Soaring
Hall of Fame Ceremonies
at the Knoxville SSA
Convention. Staff photo.

(Portrait and photos below are from the Seibels Family Collection).



Early on, Gren Seibels was consumed by twin passions: the beauty of the English language, and the wonder of airplanes. His family eagerly supported his desire for the mastery of the tongue, and encouraged his ambition to become an aviator. World War II threatened the completion of his college career, but he enrolled in the Civilian Pilot Training Program, earned his Private Pilot rating, and was deferred from active duty until completion of his degree. He graduated as Class Salutorian, Phi Beta Kappa. There followed a two-year tour as a naval aviator, flying torpedo bombers, and his first marriage.



**Gren Seibels and his first sailplane, Ka6-Cr, N9044R (CS).
One of a long series of badge flight declarations, circa 1967.**

Home in Columbia, SC, as a civilian, there came stints as a local newspaperman, then part owner and news director of a radio station, with duty as a flight instructor on the side. Three children arrived. When the first local television went on the air in 1953, he signed on as the pioneer news director. He became intrigued by amateur, then professional photography. He elected to run his own commercial film company. His wartime romance and marriage ended in divorce.

Trudy, a divorcee with one child, practiced architecture in Columbia. A transplanted Pennsylvanian, she had deep roots in aviation. Her uncle taught aerobatics at Kelly Field during World War I.

In 1967, Trudy designed a "wing room" addition to the home of a mutual friend, Morris Kline. Morris introduced Gren to soaring. Trudy and Gren were married, and Gren bought Morris's Ka6-Cr.

Together they embarked on their pilgrimage through the world of soaring flight. Completion of the Diamond Badge (No. 121) and competition flying came quickly. Helping develop the Chester, SC site into a world-class operation was a close ancillary goal to personal competition. Together they bought a beautifully



Gren and Trudy Seibels with first Tango Tango, Libelle 301B, N1811T, home from another aerial jaunt over the countryside, circa 1969-70.

restored 1931 Great Lakes Trainer for shared nostalgia.

Language returned to first love. Gren crafted and illustrated his stories of flight into palpable sensations for the casual reader. Trudy provided graphic design and editing. His four books and numerous magazine articles earned him the honor of two Lincoln Awards.

The sharing of his own joy and appreciation of flight and the encouragement of all who sought his advice were the glory of Gren Seibels gifts to the world of soaring.



Gren and the 1931 Great Lakes 2T1A, N11326. Dual transportation for safer leaf-looking. Deep metallic Navy blue trim on pristine white, circa 1972.



The All American Aviation Cargo Glider Operation

The following article was written by Taylor M. Boyer, April 27, 1986.

In the spring of 1945, Mrs. Richard C. duPont came to the office to suggest that the company study the possibility of a commercial operation using a glider pick-up something that Richard (duPont) had always been interested in. All American Aviation had an economist type, Richard H. Rush, who had developed a philosophy of how such an operation should work. This is pretty-well stated in an article in the May-June, 1945, issue of *SOARING*.

All American bought three TG-3A (Schweizer WW II designation) gliders and, in cooperation with the Schweizers modified one of them to carry cargo. The modification consisted mainly of cutting seven feet off each wing, and removing the front seat for the cargo bay. When we flew empty we carried a 100-pound sack of sand to keep the CG (Center of Gravity) within bounds. Rush found a customer and a route that approximated what we thought the operation should be. This was hauling lobsters from the beach at Nantasket, Hull, Massachusetts to Bendix Airport, New Jersey. There, they would be trucked to the King of The Sea Restaurant in New York City. It wasn't exactly what it should have been, but it was close.



Loading approximately 450 pounds of lobsters on the All American Aviation modified Schweizer TG-3A glider piloted by T.M. Boyer, at Hull.

First pick-up, October 15, 1945, at Nantasket Beach, Hull, Massachusetts; Otto Kupper on the wing tip. All photos from the NSM Multi-media Archives, T.M. Boyer collection.

We started trial runs in the summer of 1945, mainly between Wilmington, DE. and Harrisburg, PA., carrying loads of from 350 to 400 pounds. We did one double tow, but mainly it was single tow with the clipped-wing TG-3A, and pick-ups at both ends. The tow-plane was the All American workhorse, the NX-2311 Stinson "Reliant," that is now in the Smithsonian. Tom Beavers was the pilot, and Len Wittenberg the unit operator. The (pick-up) unit was the Model 15, which was good for a 1,500 pound glider.

By October of 1945 we were as ready as we would ever get. On the 13th, we flew to Westfield, MA, to an air show, and then on to Hull for the first run. On the 14th, several pick-ups were made for the benefit of the photographers. On the 15th the first run to Bendix was made with 400 pounds of lobsters. Flight time was two hours and twenty minutes down and about two hours back. I think that there was a headwind/tailwind involved with this disparity, but there was a big load difference.

On the pick-up at Bendix, the bag of sand slipped to the rearmost part of the (glider's) cargo bay, and I had my first experience with an aft CG condition. The TG-3A handled it very well.

We made two more runs, one on Wednesday, the 17th, and another the following Monday, the 22nd. Keeping the glider on the beach at NantasketNanasket had not been the best idea. On the 18th, we had moved to an airport at Norwood, again for an air show. The last run was made from Norwood.

In the end, I think that we proved that such a thing was possible. Under a very select set of circumstances it could be practical. With the equipment that we used it was as much as could be expected.

In any event, it was the first and only, and in that context I am indebted to Mrs. duPont and All American for letting me be a part of it all.

Editor's Note: The following are excerpts from Mr.Boyer's recent letter to the National Soaring Museum.

"...Thank Paul (A.) Schweizer for prodding me to send something to him. For a long time my feeling about all of it was that I got 22 hours of flying time that I would not have gotten otherwise. Maybe it was better than that, "All in all it went well, and I was able to hold up my end of it. Paul has commented in his "Wings Like Eagles" that it wasn't a commercial success and was discontin-



All American Aviation Lobster run, Hull, Massachusetts to Teterboro, New Jersey, October 15, 1945. Tow pilot Tom Beavers in flight jacket.

ued. My own spin on it was that it was more a demonstration, and never intended to be anything more.

"Sadly, Art Schultz and Vic Saudek aren't around to share the credit for what we did. Neither is Tom Beavers, the Stinson pilot. But better late than never-or so it seems. Also, it would not have happened if Mrs. duPont had not proposed it.

"You (the editor) remarked in our phone conversation ... that it must have been exciting to have been picked up off the beach etc. Actually, what was on my mind was more concern that I did not screw-up in the midst of all those photographers. Somewhere, there is a newsreel clip of the first day's flying.

Thanks again, and I am interested to see what you do with it."

Regards, T.M.Boyer



"At Bendix... Can't remember who this guy is, but I believe he had something to do with the King of The Sea Restaurants." - T.M. Boyer.

To the Editor-

NSM Historical Journal

Elmira, NY

16 February, 1999

My purpose in writing was to correct an error on Page 2 of Journal Volume 20, Number2.

The Photo of Jack O'Meara says;—at Glenn Curtiss Field (Now LaGuardia). This is wrong; Curtiss Field was at Valley Stream, LI, and home of the Curtiss Flying School. It was later abandoned , turned into a shopping area or whatever.

On the north shore of Long Island was North Beach Airport, which eventually became LaGuardia Airport.

I'm quite sure of this because I flew in and out of both airports during that period.

Sincerely yours,

R. N. (Bob) Buck
P.O. Box 689
Moretown, VT
05660, USA

Editor: NSM Journal

2-16-99

The unidentified person in the photo on page 4 of Vol.20, #2, is George "Jigger" Dolittle. "Jig" was (although not a pilot) a dedicated crewman for myself, Chet (Decker), Warren (Merboth), and the rest of the NJSA (New Jersey Soaring Association) gang.

In those days without radio comm. with the crew, the crew was as important as the pilot for contest success!

Felix (A. Chardon)
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From the NSM Multi-media Archives



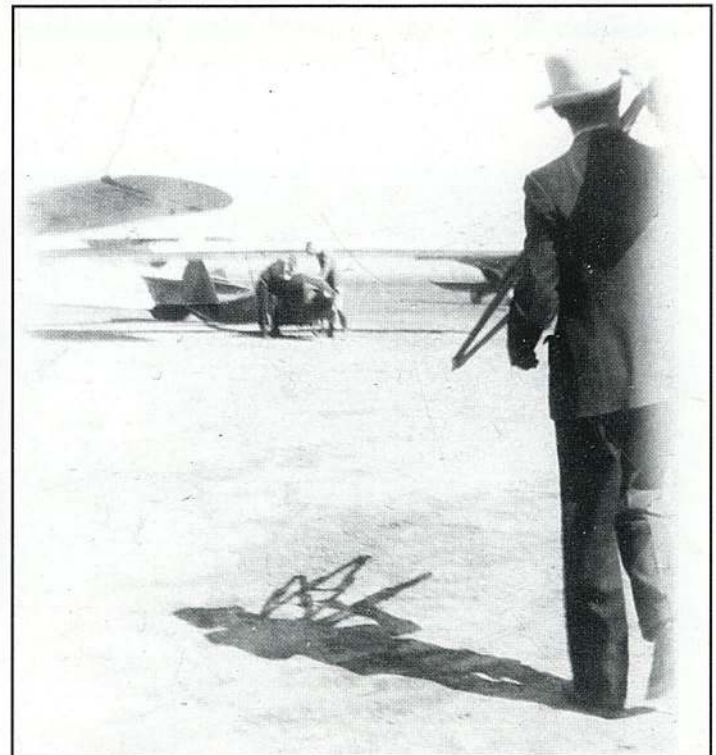
Above: Henry Newell photo of the 1908 auto launch of Tom Kramer in his glider at Oceanside, Long Island, New York. "All members of the Aero Club of Long Island, NY."



Top right: A SOVFOTO shot of a Russian twin-engine tow plane with an 11-glider tow, dated October 1941.



1927, Berlin Germany - Students under the direction of the Lufthansa Passenger Plane Company Personnel, carrying a demonstration glider to the top of a steep hill for launching.



Above: "Dale Drake, after completion of aero tow from Reedley to Long Beach, California, behind Lloyd O'Donnell's Fokker Universal, probably 1929." The first such aero tow in the United States?