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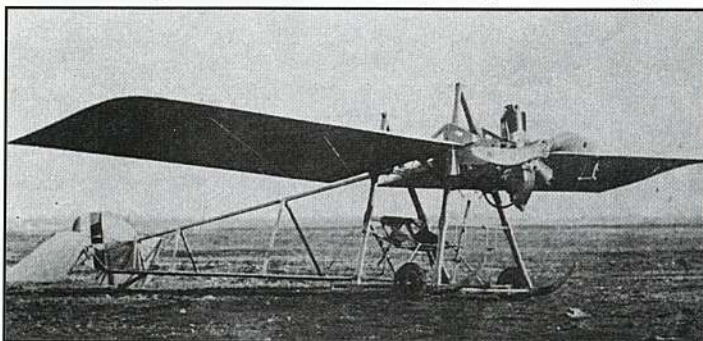
Motorgliders until 1945

While motorgliding is sometimes thought to be a relatively recent adjunct to the soaring movement, the concept has been around for almost as long as practical gliding.

Germany's "Father of Gliding," Otto Lilienthal, England's Percy Pilcher, and America's Octave Chanute and Augustus Herring, all envisioned some sort of power device fitted to their glider designs. The basic difference in their approach to powered flight and that of the Wright Brothers was that the Wrights built their early aircraft for gliding, without the idea of adding an engine to an existing airframe. From this experimentation, they engineered a separate configuration for their 1903 "Flyer" to include a powerplant. The engine was not an "add-on" to an existing glider design.

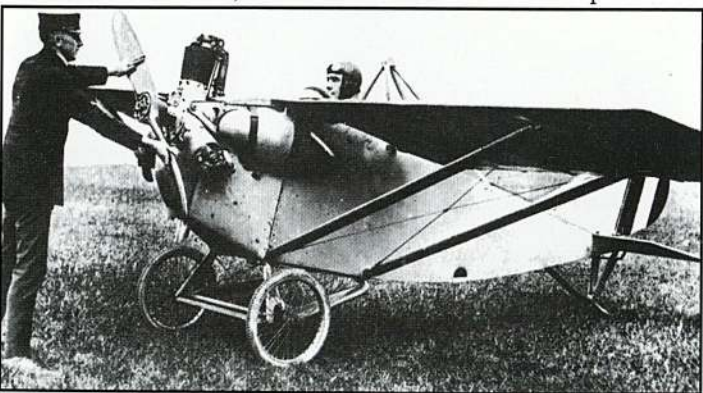
In 1918, the U.S. Naval Aircraft Factory in Philadelphia came up with the SA-1 (ship's airplane-1). It looked remarkably like a more heavily-built version of Alberto Santos-Dumont's 1909, "Demoiselle." Pete Bowers in his "Uncle Sam's Military Midgets," appearing in the Summer 1968 Air Progress *Homebuilt Aircraft*, describes them (only two were built): "Designed by the Navy...they were intended to fly from platforms built over the forward turret guns of battleships. As much ultra-light as motorglider, the SA-1's used wing warping for lateral control, with the control wires to the rear spar also doubling as flying and landing wires." They had a 27-foot, 8-inch wingspan, a gross weight of 695 lbs., and a 55-horsepower Lawrence engine.

According to Bowers, the "military midgets" were supposed



Philadelphia Naval Gun Factory 1918 SA-1 (Summer 1968-Air Progress *Homebuilt Aircraft*)

to fulfill missions that the standard-sized, contemporary ships couldn't handle. "They were tiny scouts that could be stowed aboard submarines, lightweights that could take-off as described above, and flying motorcycles that could land on country roads and deliver dispatches." A total of 42 midgets of varying designs, including biplanes and floatplanes, were built. By 1927, they had outlived their usefulness, and most were converted to experimental



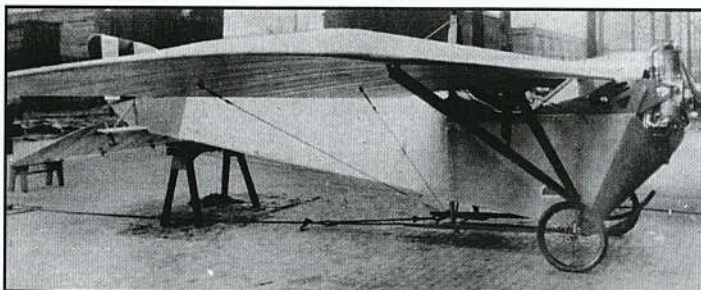
Loening "Kitten." Designed in 1917, in its landplane form, to fly from platforms on battleships. (Ibid.)

DETAILED SPECIFICATIONS ON 14 MILITARY MIDGETS										
Airplane	Span (ft/in)	Length (ft/in)	Wing area (sq ft)	Empty weight (lbs)	Gross weight (lbs)	Powerplant and hp	High speed (mph)	Climb (ft)	Fuel (U.S. gals)	
Caspar U-1	23-7	20-4	153	795	1128	Siemens 60-hp @ 1600-rpm	90	4700 in 10 min	—	
Cox-Klemin X-1	18-0	19-3	99	678	1028	Lawrence L-4 60-hp @ 1800-rpm	103	5100 in 10 min	12.0	
Dayton-Wright Messenger	19-3	17-6	106	476	676	De Palma 37-hp	85	3000 in 10 min	12.0	
Driggs Dart	27-0		70	326	511	Wright-Morehouse 28-hp @ 2500-rpm	—	—	—	
Land Loening Kitten Sea	21-11.5	13-11	72	360	584	Lawrence L-3 55-hp @ 1600-rpm	100	8600 in 10 min	6.5	
	25-1.5	17-4	116	525	765	Lawrence L-3 55-hp @ 1600-rpm	100	6000 in 10 min	12.0	
Longren	27-11	19-7	189	695	1195	Lawrence L-4 60-hp @ 1800-rpm	87	3600 in 10 min	—	
Macchi M-16	19-8	13-10	121.5	352	572	Anzani 30-hp	82.5	3500 in 10 min	—	
Martin, Glenn L MS-1	18-0	18-1	99	657	1007	Lawrence L-4 60-hp @ 1800-rpm	100	4200 in 10 min	12.0	
K-III Martin, J. V. K-IV	17-11.8	13-3.5	105	350	—	A.B.C. Gnat 45-hp @ 1950-rpm	—	—	9.0	
	24-2	17-0	145	691	985	Lawrence L-4 60-hp @ 1800-rpm	82	4300 in 10 min	10.0	
Naval Aircraft Factory SA-1 SA-2	27-8.6	21-8	144	425	695	Lawrence L-3 55-hp @ 1600-rpm	65	7950 in 10 min	12.0	
	30-2	20-3	156	520	810	Lawrence L-3 55-hp @ 1600-rpm	70	6050 in 10 min	15.3	
Sperry Messenger	20-0	17-9	150	623	862	Lawrence L-4 60-hp @ 1800-rpm	95.7	700-fpm	10.0	

(Ibid.)

radio-controlled flying bombs, "then called aerial torpedoes," Bowers noted.

Professor Edward P. Warner was an advisor to the Massachusetts Institute of Technology, Aeronautical Engineering Society entry at the 1922 international glider meet at Clermont Ferrant, France. There, Edward T. "Eddie" Allen piloted the M.I.T. built "Kiwi," the first American glider to fly in international competition. Professor Warner said in the August 21, 1922, edition of AVIATION, "The American glider, if equipped with a five horsepower motor, can take to the air at any time and from any given position,



Naval Aircraft Factory SA-2 in 1919 with enclosed fuselage. (Ibid.)

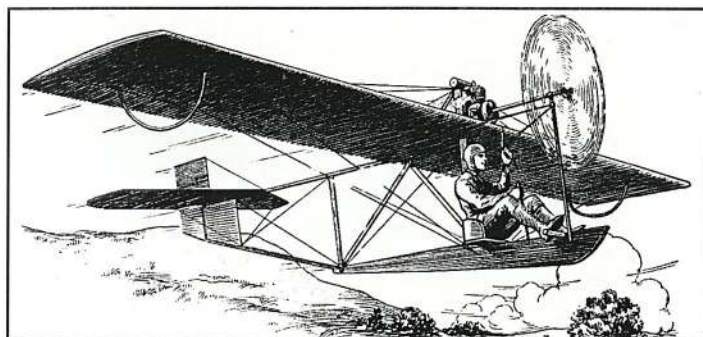
whether flat lands or hills." Well-known contemporary pilots, Boussotrot, Paulham, Coupet and Sardier agreed with this opinion.

In a paper, "Gliders and their Value to Aeronautical Progress," given at the 1922 London Air Conference, Col. Alex Ogilvie, C.B.E., said, "There are possibilities in the use of gliders for the purposes of training of pilots and there are certainly possibilities in the development of sporting machines of 15 to 20 hp., capable of horizontal flight with 5 hp., and doing 100 miles or so to the gallon." (Col. Ogilvie was with Orville Wright at Kitty Hawk, NC, in 1911, when Orville made his record setting 9 minute and 45 second soaring flight. The world's only known full-scale reproduction of that ship, often referred to as the Wright Glider #5, is on display in the National Soaring Museum's main hall.)

Reporting on the results of the remarkable glider flights of Harth, Klemperer, Messerschmitt, and Martins at the 1921 German

Wasserkuppe meet, the February 20, 1922, *Aviation* carried the following on "Auxiliary" Soaring Aircraft: "In the meantime German experimenters are seriously considering the possibility of building soaring aircraft with small auxiliary power plants. They are of the opinion that it would be possible to build a single seat soarer having 160 square foot wing area, and a 5-8 hp engine, for a gross weight 330 lbs. For a two-seater there would be required a wing area of 270 sq. ft., and an engine of 12-18 hp., with a gross weight not exceeding 550 lbs. These characteristics are based on the Aachen type of construction." The article added that "Soaring aircraft have much greater possibilities, provided they are fitted with an auxiliary engine, for it is this development which will eventually lead to the low-priced popular airplane."

Commenting on George Barbot's 1923, two-way flight across the English Channel in a tiny 15 hp Dewoitine motorglider, the leading WWI French ace, and then president of the French Aero-



Northrup-type glider with 3 hp engine. (*Flying and Gliding Manual*, 1931)

nautical League, Capt. Rene Fonck said, "The aerial flier is not progress; it is a step back. Airplane progress does not lie in the direction of decreased horsepower, but rather in increased speed."

In Britain, Percy Pilcher's "Hawk" was the glider to which an engine addition was planned. (*British Gliders and Sailplanes*, 1922-1970, by Norman Ellison) Pilcher's 1899 idea was that the small powerplant would enable him to reach an altitude from which he could soar. He designed a 4 hp oil engine for the purpose. It had a 4-foot diameter pusher prop, mounted behind the pilot. Unfortunately, in October of 1899, Pilcher died from injuries he sustained in a crash with the "Hawk" before the engine had been fitted.

Many tabbed the 1920s and '30s, "The Golden Age of Flight." Oceans were being spanned, and vast plates of continents were being explored by air. It seemed that youth the world over were in a frenzy to fly. Correspondence aviation schools sprung up like spring dandelions; staid universities began emphasizing aviation engineering curricula. Early on, it was discovered that the least expensive way of learning to fly was by glider. It was excellent basic training for transitioning to power flight.

Rarely a year would pass without most popular science or mechanics publications featuring a series on how to build and fly a glider. Materials didn't cost too much. High school manual training classes buzzed with enthused youth constructing something that their instructor, himself barely qualified, assured them would fly. After a few tentative five- or ten-second hops, which typically resulted in some structural damage either to the ship or to the pilot, the question would arise, how to extend this exhilarating new sensation of flight. The obvious answer: attach a small engine.

In a 1923 *Aviation* article, "Light Planes and Gliders," Edmund T.

Low Powered Airplanes and Gliding Experiments

Symposium of Conflicting Opinions Regarding their Value
As Voiced by the French Press

By Ladislav d'Orcy

The recent two-way crossing of the English Channel by Georges Barbot on a Dewoitine light plane, and his subsequent flight from the French coast to Paris, a distance of 160 miles, has brought forth in the French aeronautical press a great number of conflicting expressions of opinion. It may be remarked for the benefit of those who do not read these publications that the French aeronautical world, ever since the Combegrasse gliding meet, has been divided into two almost hostile camps on the question of gliding experiments and light planes.

Those who sponsored that meet—the French Aeronautical Association and the weekly *Les Ailes*—point with pride to the fact that as a result of these experiments France succeeded within less than a year in increasing the world's glider duration record from 3 hr. to 8 hr., far outstripping thus the remarkable German achievements of 1922. These circles also emphasize the fact, which is doubtless true, that the advent of the Dewoitine light plane, with its extraordinary economic performance, has been a direct consequence of the Combegrasse meet.

The opponents of this glider and light plane movement are very dogmatic in their views. They claim as a body that the tendency toward more economic airplanes not only lacks any practical value, but that it even will lead to the construction of dangerous, under-powered flying machines. Some go so far as to say that the glider movement was engineered by Germany for the purpose of detracting France's attention from the construction of "better airplanes" which, in their opinion can only be accomplished by an increase, and not a decrease, in horsepower. It may be seen from this example that opinion in France is wrought up over this question to the point where dispassionate criticism becomes almost impossible.

It is true, that some advocates of the light plane make extravagant claims; but in the adverse camp the views are so obviously biased against anything that smacks of gliding and "economical flight" that their arguments often reach the heights of absurdity.

"A Step Backward"—says Captain Fonck

A striking example of the extremes to which the anti-glider school will go in its opposition to "economical flight" is furnished by a recent interview of Capt. René Fonck, the leading French Ace, who represents the Department of Vosges in the Chamber of Deputies and is president of the French Aeronautical League. The latter body, a popular association counting some 40,000 members, is devoted to the upbuilding of French air power and aerial supremacy. It has branch organizations in the principal cities of France and her Colonies, and is an influential body.

In the opinion of Captain Fonck the "aerial flier" is not progress; it's a step backward.

"Airplane progress does not lie in the direction of decreased horsepower, but rather in increased speed," Captain Fonck declared. "Show me an invention whereby man can fly 500 kilometers an hour; tell me of an experimenter who flew across the Atlantic from London to New York between sunrise and sunset, and I will be the first to praise his contribution to the science of the air."

"But Barbot is taking us back to where we started when Blériot flew across the Channel in 1909. Blériot had an 18-horsepower engine; Barbot has a 15-horsepower. But consider the improvements which have been made in automotive engine construction since 1909. And think of the difference between the wobbly poorly constructed airplane of Blériot and the 1923 gliding plane which Barbot flew."

"The future of aviation lies in increasing the power of the motor and the speed of the plane without decreasing its weight."

Low-Powered vs. Under-Powered Flight

We have italicized Captain Fonck's last sentence to show the type of argument some of the foremost opponents of the light plane use against low-powered flight. The anti-glider school frequently claims that low-powered flight is synonymous with under-powered flight, when as a matter of fact it is nothing of the sort. Blériot's 18 hp. plane to which Captain Fonck refers was under-powered, for it had no reserve power whatsoever. But an airplane that can safely be using but two-thirds the power of a 15 hp. engine—such as the Dewoitine—is obviously a safer machine than one which requires for horizontal flight 80 hp. out of the 100 which the engine develops, for the light plane will have 50 per cent reserve power as against 25 per cent for the more heavily engine ship. Furthermore, if such a light plane has a *L/D* of say 16—a figure which some of them almost attain—it will be much safer to land than the heavily engine type of plane which, as a rule, has a gliding angle not much in excess of 8. Assuming that both ships glide at the same speed, the light plane would glide twice as far, but as the latter, being more lightly loaded per wing area, would also glide slower, it follows that the light plane will have an immense superiority over the heavy ship in choosing its landing place in case of engine trouble.



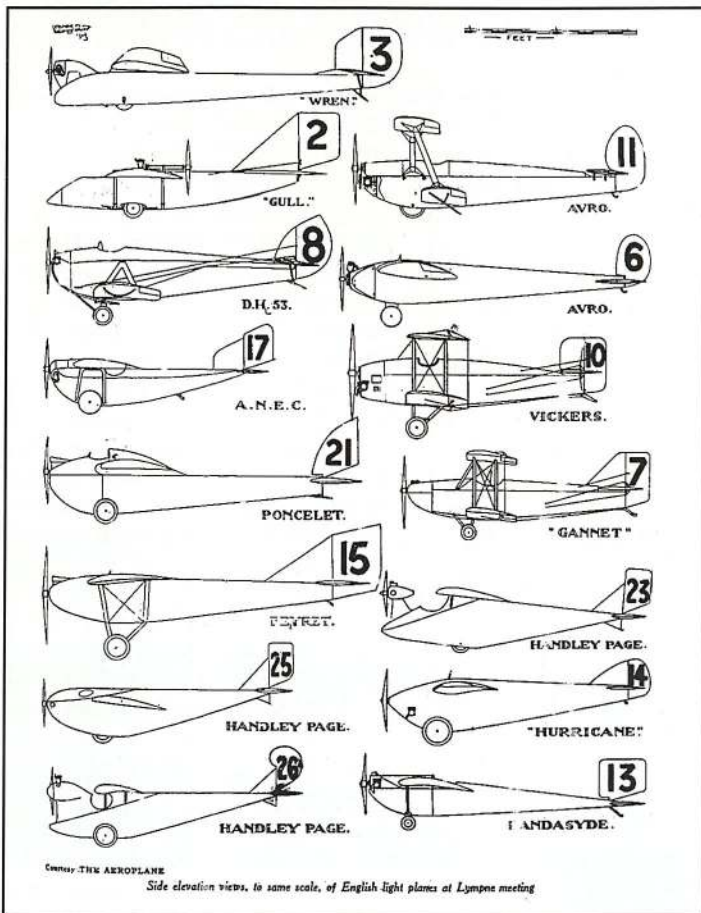
Photo Kadel & Herbert
Georges Barbot, pilot of the Dewoitine light plane holding the 15 hp. Clerget engine with which the little ship is powered

"If war were declared tomorrow what would we do for aircraft?"

Continued from page 3

(Eddie) Allen described the Baumer Aero Company's modification of the famous German Hanover Technical School's "Grief" glider to a light plane. "A 21 cubic inch Douglas engine was mounted at the center of gravity, immediately behind the pilot's seat. The chain driven drive shaft supported by light streamlined struts attached to the fuselage extended over the pilot's head, to the propeller." Allen reported that the power required to maintain horizontal flight was figured to be 3.9 horsepower.

The November 19, 1923, edition of *Aviation* magazine covered the English Light Plane Meeting at Lympne, in which 28 entries

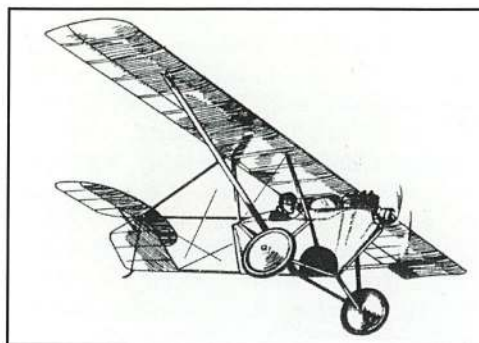


Side view, same scale, English light planes and motorgliders at Lympne Meeting. (*Aviation*, November 19, 1923)

competed for prizes in speed, altitude, economy, and reliability. Reliability trials were run over a 12.5 mile circuit, first prize going to the entrant making the greatest number of laps. The engines of the competing ships were limited to a maximum cylinder capacity of 750 cubic centimeters, but otherwise designers were given complete freedom in the design of their ships. From the accompanying illustration of some of the Lympne entrants, it becomes apparent that the line between light plane and motorglider was almost non-existent. The Lympne results were: best mileage, 87.5 mi./gal.; best speed, 76.5 mi./hr.; and best altitude, 14,400 ft. An Avro monoplane covered 80 laps of the course, a total distance of 1,000 miles. Another Avro, a biplane powered by a 3rd hp motorcycle engine, flew consistently well at the meet.

The Beardmore "Wee Bee" made its appearance the following year. It was powered by a 32 hp Bristol Cherub engine. It was considered one of the most successful ultra-light/motorgliders yet produced.

Writer John Underwood tells us the story of Etienne Dormoy, father of the "Flying Bath-tub" in the February, 1969 *Air Progress*. Powered by a 20 hp converted motorcycle engine, Dormoy's mini-



1924 Dormoy "Flying Bath-tub," with 20 hp Henderson motorcycle engine. (Rolfe & Dawydoff, "Airplanes of the World")

mum structured aircraft was described by Underwood as "what appeared to be little more than a broomstick body and a pair of closet doors for wings." It was October 6, 1924, and the tiny ship was entered in the first cross-country race for light planes in the United States. Automaker Eddie Rickenbacker, the nation's leading WWI ace, offered a prize for a 140 mile out and return from Dayton, OH, to Columbus.

French-born Dormoy emigrated to the U.S. in 1913 and returned to Paris during WW I where he volunteered for the flying corps. In 1917 he was transferred back to the States as a liaison engineer for S.P.A.D., (Societe Pour l'Aviation et ses Derives) and in 1921 was hired by the U.S. Air Service Engineering Division at McCook Field (later, Wright-Patterson AFB). In 1924, he was made assistant chief engineer.

Underwood described it, "The starter's gun went off and the midgets were on their way. Twenty miles outside of Dayton the Mummert had to land in a field, the carburetor of its throbbing Harley-Davidson having come adrift. A few minutes later the speedy Driggs-Johnson went down near Clinton with a clogged fuel line, giving Dormoy a comfortable lead."

Dormoy flew on to Columbus's Norton Field, then headed back toward Dayton victorious, having finished an hour later with a 70-mile-per-hour average.

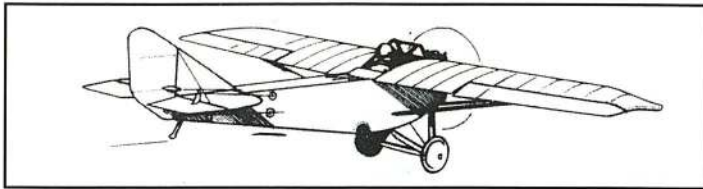
In 1928, Jean Roche built the immediately popular Aeronca C-2. It was not a motorglider; however it looked like one. Many of those who flew the C-2 said that it seemed to handle like one. This should not be too surprising, since Roche in 1923, designed a glider, the GL-2, for the Army Air Service, at McCook Field. The Aeronca C-2 had a 28 hp flat twin engine and was available in one- and two-seat configurations.



1929, Wilbur Wright Field, Fairfield Air Depot, Dayton, OH. Ralph S. Barnaby (with goggles) and Felix Roche, son of Aeronca designer, Jean A. Roche, in the cockpit of the original Aeronca C3. (NSM Multi-Media Archives)

L.D. Montgomery's experience with a later model, the C-3, was related in the January 1940, *Soaring*, "Storm Soaring in an Aeronca."

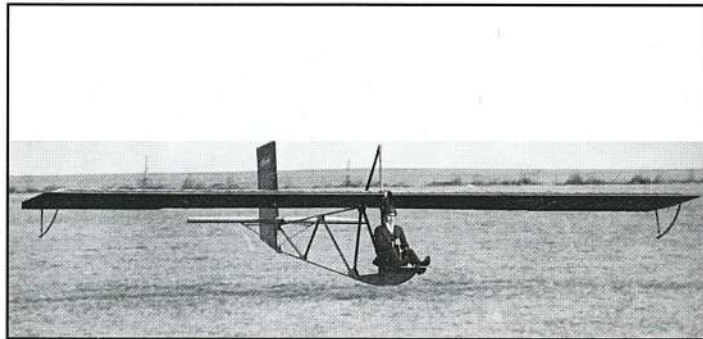
Montgomery took off to investigate the lift that might be associated with a small thundershower. At 800 ft. he encountered a strong thermal, and throttled back to 1,200 rpms. (cruising was 2,250 rpms for this ship.) In a fairly tight circle his reading went from plus 10 ft.



1925 "EPPS" with 17 hp Indian Chief motorcycle engine representative of many amateur-built U.S. light planes and motorgliders of that time.. (Rolfe & Dawidoff, "Airplanes of the World")

per sec., to 15, to 20 (Sink rate was 7 ft. per sec., flying straight and level at 60 mph.) "It seemed like only a minute before I was at 2,000 ft.," Montgomery wrote. Later he said that, following a squall line, he topped out at 4,000 ft. before the lift gradually diminished.

In an attempt to keep his company from going bankrupt during the depression, Clyde Cessna designed and built the CG-2, a \$398 training glider. (*Cessna Guidebook*, Vol. I, by Nayborn and Pickett) The CG-2, had a 32 ft., 2 in. wingspan and an 18 ft. length: 300 were built in 1929 and 1930. In April 1930, the Cessna Powered Glider,



Cessna CG-2 training glider. 300 were built between 1929 and 1930. (*Cessna Guidebook* Vol.I, 1911 through 1944)

CPG-1 was modified from the CG-2. It had a 10 hp Cleone engine mounted behind the pilot on the fuselage. With a 5 qt. fuel capacity, it was the forerunner of the Baby Cessna light plane/motorglider. Only one CPG-1 was built.



1930 Cessna CPG-1, Experimental. A modified CG-2 with a 10 1/2 hp Cleone engine. (Ibid.)

The Baby Cessna was basically a "covered" CG-2. It was an attempt to develop a truly low-priced "everyman's" airplane. Clyde's son, Eldon Cessna, converted the CG-2 glider by enclosing the fuselage, making a tiny cabin, adding a 25 hp Cleone front-mounted engine, a landing gear, and a re-worked cantilever wing. Only one Baby Cessna was built in 1930.

Around this time, the Amphibian Glider Company was running ads captioned, "You build or buy your first amphibian glider. Power if you want it. A flexible plan to suit your need." The complete parts knocked down ready to assemble cost \$285, without motor or motor mount. Complete, with motor or motor mount, \$485, F.O.B. factory.

Continued on page 6

From Glider to Motorglider



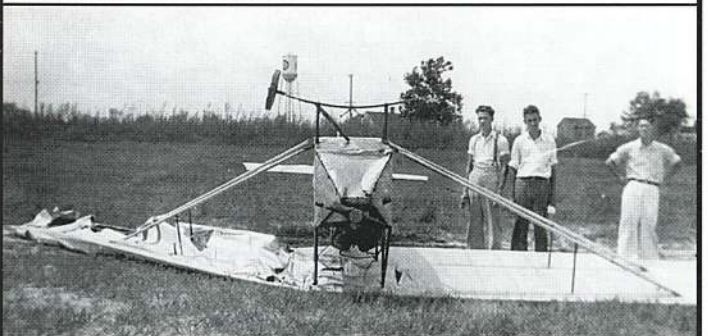
Single place glider CAA #11544, designed and built by Sanders V. Hudson Jr. at E. Durham, NC, "minus a single braze or rivet, using only bolts and clamps," January to Aug. 10, 1932. Flew 700+ flights - Rebuilt in Spring 1934 into a motorglider.



First flight of 11544 with Sanders V. Hudson Jr. in the cockpit, Aug. 10, 1932. "Was so busy getting the glider assembled, he has not shaved or combed his hair in three days." Empty 208 lbs., gross 393 lbs - L/D approx. 12 to 1 - spars, longerons, ribs, white pine.

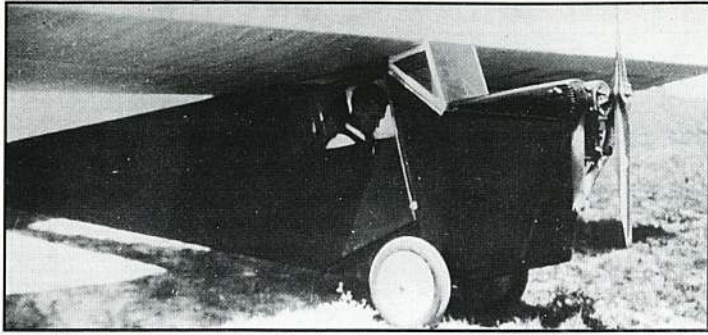


Glider 11544 after conversion to motorglider Summer 1934, Durham Airport. "Climb 40 ft. per minute in still air - 1,000 ft. density altitude on 8.59 gross horsepower. 11544 was thought to have the lowest hp for any flight ever from dirt airport and roads in the southeast U.S."



Motorglider 11544 at E. Durham airport after cracking up on take off August 12, 1934. "We always thought this was the result of sabotage by dairy truck driver who waited to see us crack up!" Pilot Joe Powell, center, was uninjured even though the ship did not have either seat belt or shoulder straps. (NSM Multi Media Archives)

Continued from page 5



The "Baby Cessna" was basically a covered CG-2 with a 25 hp Cleone engine, a conventional landing gear, and a cantilevered wing. (Ibid.)

Completely assembled with 25 hp Jacobs motor, \$785, F.O.B. factory.

Even modelers of the 1930s found motorgliders attractive enough to build in miniature. The *National Glider and Airplane News* carried plans for a rubber-powered generic primary glider, complete with wire skid.

NOW/

you may build or buy your first amphibian GLIDER!




**Power, if you want it.
A flexible plan to suit
your need**

No longer need you wish for an Amphibian Glider—a ship that you can fly as a training or soaring glider, or as an airplane, off, on and over land and water. Now your hopes may be realized—readily and at minimum expense.

Here, for the first time, is a real "Amphib" that you may build or buy and fly, with or without power. For example, the complete parts knocked-down ready to assemble cost only \$285.00, without motor or motor mount. Or you may buy it complete without motor or motor mount for \$485.00 F.O.B. factory. With motor and motor mount, the price for the complete assembled job is only \$785.00 F.O.B. factory. Powered with a 25 H.P. Jacobs motor with pusher prop adds only 60 pounds to the weight.

Fuselage-Hull—Single step boat hull with center keel landing skid. Veneer diaphragms connected by spruce longrungs. Hull covered with plywood and doped fabric. WINGS—Two outer and center section, airplane construction internally braced, fabric covered. Weight, 219 lbs.

Our plan is flexible. If you prefer, you may secure the complete blue-prints, together with the complete Hand Book, for only \$3.00. Choose the plan that interests you the most, and mail the coupon. We are offering you a real opportunity.

AMPHIBIAN GLIDER CO.
1265 Broadway, New York City

I desire to () build () buy an AMPHIBIAN GLIDER
() with () without a motor mount. \$ (one year) one pay
for \$ () no third payment on () complete () knock-
down and assemble monthly. Mail coupon and pay
coupon for a copy of handbook or reduce \$1.00.

Name

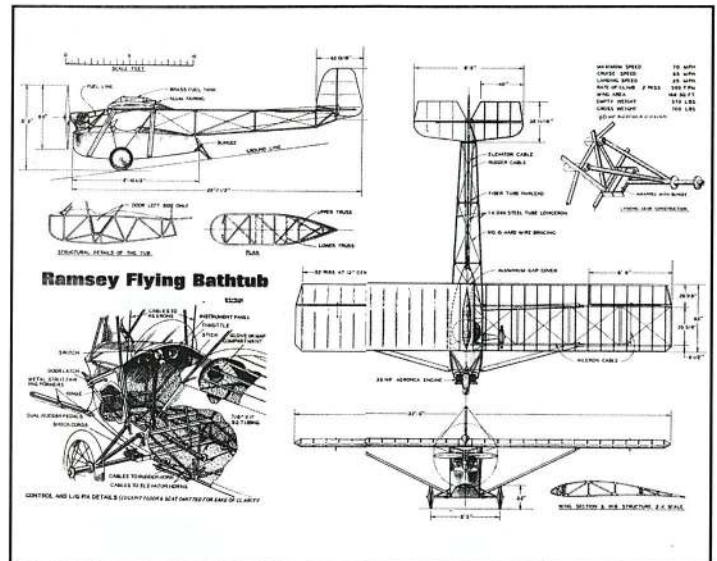
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1931 Amphibian Glider Company magazine ad.

Another "Flying Bathtub" was designed and built in 1931 by W.H. Ramsey, Minneapolis, MN. The Winter/Fall 1966-67 edition of *Air Progress Homebuilt Aircraft* reported that Ramsey was one of Northwest Airlines' top pilots. Probably more light plane than motorglider, the "Bathtub" was unusual in that it was a side by side two-seater. It was powered with the rugged and reliable 30 hp Aeronca flat twin and had a 32 ft. wingspan. Fuel consumption at cruising speed (60 mph) was 2 gal. per hour.

Not to be outdone by powered land/lights, Harry Booth of Freeport, L.I., in 1931, designed and built a light flying boat. He solved the problem of cheap power by using a Johnson outboard motor, which was placed in the bottom of the boat hull. From this

position the engine works a vertical shaft geared to a pusher propeller with the gearbox set into a cutaway space bringing it in line with the trailing edge of the top wing. Booth figured that the novel craft could be built for \$1,500 and another \$100 or so for the outboard. (Depression era prices, of course.)



(From Summer, 1971 *Air Trails Homebuilt Aircraft*)

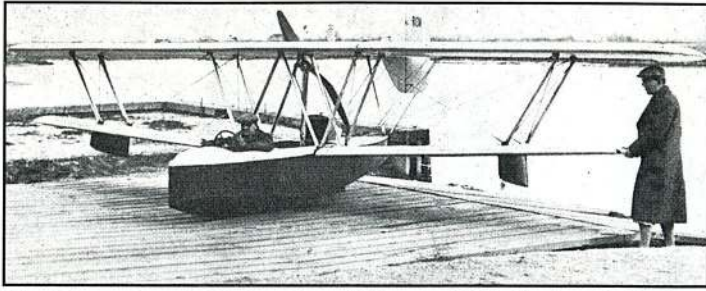
A Northrup Primary glider was fitted with a 25 hp Henderson motorcycle engine installed ahead of the wing. To maintain balance, the pilot's seat was relocated aft, under the wing. The wings of this experimental motorglider folded when the ship stalled at the top of a loop. (No report on the condition of the pilot.)

Of course, anything that moves in three dimensions seems to attract the bizarre. The 1931 edition of *Flying and Glider Manual* ran a photo story on stuntman Clyde Schlieper in a motorized Crawford primary glider, taking off from a speeding motorboat, flying over the water for over a mile, then making a successful landing on the same racing speedboat. The same magazine also described how to convert a Northrup primary by adding a 3 hp Smith Motor Wheel motor. It was claimed "that sufficient power can be developed to keep the glider in the air, once it has been launched." Further, the article said that the rugged little 4 stroke, 38 lb. engine would always run and furnish its own ignition from the flywheel magneto.

The 1943, "Penguin Motorized Practice Glider" was touted as a little machine that afforded the builder all the thrills of flying, without ever having left the ground. Its controls performed the same functions as a full-sized ship. As in the Crawford primary, the "Penguin" used the Smith Motor Wheel engine.

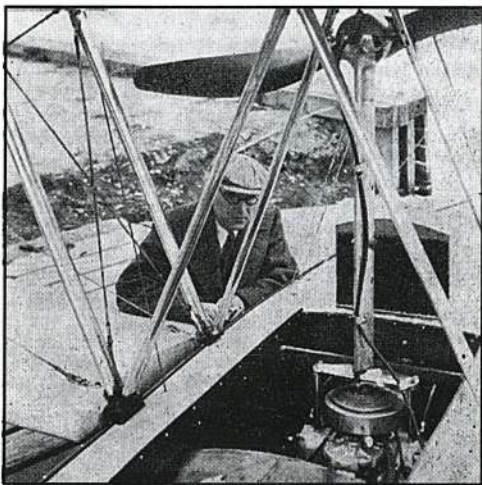


Jay Buxton's two-place "Transporter" sailplane after addition of a 35 hp engine - top speed 65 mph. 1934, California (NSM Multi-Media Archives)



The Harry Booth Flying Boat(March, 1931 *National Airplane and Glider News*)

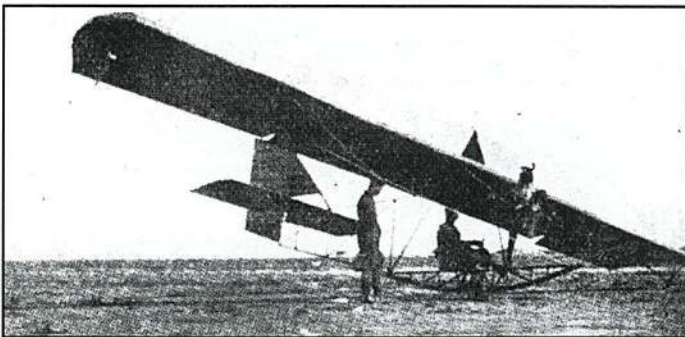
The evolution of light planes and motorgliders in the 1920s and 30s created a demand for very light, economically running engines. Some were converted outboards, some started life in motorcycles; even auto engines were regularly aircraft-modified. Several manufacturers designed engines especially for light planes. Reliability was an objective not always attained with some of these designs. Most of the ships to which these engines were fitted had light



enough wing loadings, so that even with power-off, they had respectable glide angles. The 1965 *Air Progress Homebuilt Aircraft Annual* illustrated some of the better-known

Johnson out-board engine in the bottom of the Booth Flying Boat. (Ibid.)

powerplants of those days. Sixty years ago, pioneering sailplane pilot Lewin Barringer, wrote "Power Soarer," in the February 1938 *Soaring*. He discussed the use of the sailplane equipped with an auxiliary engine. "After all, we use an engine in an auto winch or



The Crawford Glider with S-R-3 Szekely engine (*National Power Glider*, September 1930)

airplane tow launching, so why not incorporate a small engine into the sailplane itself to make it possible to take off and climb to an altitude where thermals can be caught? By doing this we will eliminate a great deal of the trouble of a ground crew as well as the danger to other craft of using long tow ropes at an airport." After listing all the advantages, he closed by saying that "The handwriting is on the wall; small aircraft engines applied as auxiliary units to sailplanes will do much to make soaring a popular sport by making it thoroughly practical for the average, busy individual."

The same 1938 issue carried an article, "Power Sailplanes, the

Next Step in Soaring," by trailblazing sailplane pilot, Peter Reidel. (At that time Reidel was attached to the German Embassy in Washington D.C. Post-WWII, he emigrated to the United States.) A photo showed the author carrying an engine on his shoulder, demonstrating its lightness and adaptability. Reidel outlined his ideas, saying that, "a power sailplane is a compromise, but that a compromise is better than no solution at all:

1. Wheels on which the aircraft can be rolled.
2. A skid, so that good landings can be made in rough places.
3. An engine so that without additional aid it can taxi to posi-

tion, take off and after soaring to some distant field, fly back to its home port in the evening.

4. Good soaring quality, so that flights can be made.

5. A two-place cabin. It is good to have a companion, and the joy of one is doubled when shared by two. Single-place power planes cannot be sold readily."

He speculated, "Every time I see a map of the United States, I visualize a power soaring flight across the country in 20 stages, always following the prevailing winds. Every morning, five minutes of power, then a cross-country flight of from five to seven hours. I am curious to see who will be the first to accomplish it."

By 1944/1945, William Hawley Bowlus developed the "Bumblebee," Model BB-1, an auxiliary-powered, two-place version of the "Baby Albatross." Later renamed the "Dragonfly," the ship was built by the Nelson Aircraft Corporation. The molded plywood pod with a 16 hp engine installed at the aft point was widened to allow a side-by-side seating arrangement, with dual stick control.

Aero-historian Richard H. Benbough, a recognized authority on Bowlus-built aircraft, wrote, "The 16 hp engine on the prototype Bumblebee was found to be inadequate and was replaced on pro-



1943 "Penguin" motorized practice glider used to accelerate pre-flight training (Acme Newspictures photo from the NSM Multi-Media Archives)



Stuntman Clyde Schlieper in his motorized Crawford Primary taking off from a speeding motorboat. (1931 *Flying and Gliding Manual*)

Continued on page 8

Continued from page 7

duction models with a four cylinder opposed, two-cycle, 20 hp engine with a fixed pitch 42-inch wooden propeller. A ratchet wire starter mounted to the crankshaft allowed either pilot in the cockpit to start the engine." Bumblebee's wing-span was 47 ft. 4 in. With a net weight of 585 lbs. and a gross weight of 940 lbs, its maximum L/D was 18 at 50 mph.



Peter Reidel demonstrates the weight of a power sailplane engine. (January/February 1938 *Soaring*)

Benbough said that the Bumblebee was the first auxiliary-powered glider to be produced in the United States.

About this time, the Schweizer brothers Ernie, Paul and Bill, began a motorglider experiment. The following is excerpted from Paul A. Schweizer's soon to be published book, *Sailplanes by Schweizer*.

"Ernie obtained a 12 hp. Andover motor and mounted it with a pusher propeller on a pylon above the center section of a SGS

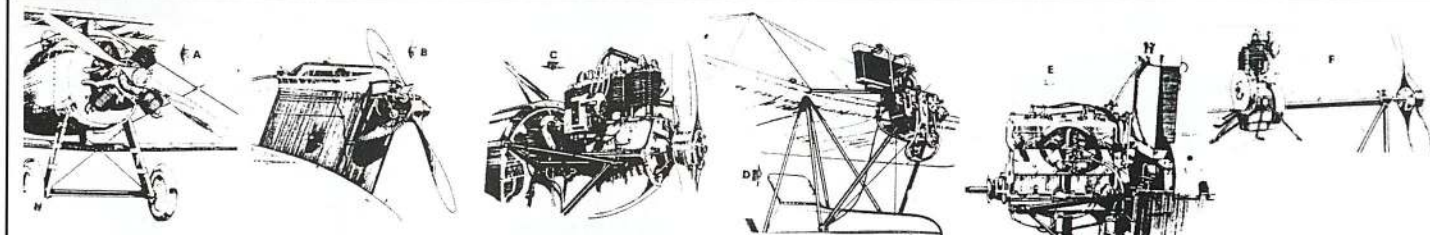
ON THE COVER:

William Hawley Bowlus (left), designer of the 1944-45, auxiliary-powered, "Bumblebee," Model BB-1, is pictured with builder Ted Nelson, president of the Nelson Engine Company. The under-powered "Bumblebee," had a 16 hp, 4-cylinder, 2-

cycle engine. The dual-pilot controlled ship featured a retractable tricycle landing gear. A recognized authority on Bowlus and his designs, Richard Benbough, Spring Valley, CA, said that "Bumblebee" was the first auxiliary-powered glider to be commercially produced in the United States. (NSM Multi Media Archives)

1-19, with the idea of making a self-launching sailplane. The motor, which was the auxiliary power supply from a WWII B-29 bomber, was not powerful enough. The 1-19 could just get off the ground but then could only cruise about 10 feet high over the airfield, to the annoyance of the airport management. The 'ground effect' reduced drag sufficiently to get airborne, but to climb any higher proved impossible. Only once, when a powerful thermal came along, Frank Hurtt was able to climb to 2,000 feet. After these trials the motor was removed and the 1-19 returned to its glider status."

In 1982 the Schweizer Aircraft Corporation produced the SGM 2-37 motorglider. The 2-37 was the progenitor of a series of some of the most reliable and versatile motorgliders and special-mission aircraft built in this country.



When Louis Bleriot flew across the English Channel to complete the first overseas flight, his frail monoplane was equipped with a 25-hp Anzani "Y" type radial engine which would be regarded today as an ultra-low-power lightplane plant. The development of lightplanes as a distinct class occurred during the early '20's and created a demand for very light aero-engines—a type not then generally available.

Fig. A. First bona fide U. S. lightplane engine, the Irwin Meteormotor, X-type radial weighed 60-lbs, developed 20-hp at 1,900-rpm.

Fig. B. This diminutive flat-twin A.B.C. engine was quite able to take off and fly the 1923 Wren with a nominal rating of something under 3-hp!

Fig. C. Heath-Henderson motorcycle engine conversion. Popular during mid-'20's. This 20-hp engine proved efficient for 1-seat lightplanes.

Fig. D. First converted outboard-engine installation. The Ramsey-Evinrude conversion was ingenious attempt to adapt a standard water-cooled outboard motor.

Fig. K. The 7-hp Blackburn motorcycle engine was widely employed as super-lightplane powerplant; shown here is 1925 Gnosselius Gull.

Although converted motorcycle and even auto engines continued in widespread use during the early '30's, the growing interest in lightplanes (notably in the U.S.) led to an increasing demand for bona fide light aero-engines. The Pietaenpol-Ford Model "A" and "T" conversions were especially reliable, if somewhat heavy, powerplants. Flat twins and inverted Y-type radials predominated in early designs; present lean toward flat 4's.

Fig. E. Pietaenpol-Ford "A" conversion developed 40-hp at 1,600-rpm, could be serviced anywhere by auto mechanics. A Model "T" conversion was produced by this same talented amateur constructor.

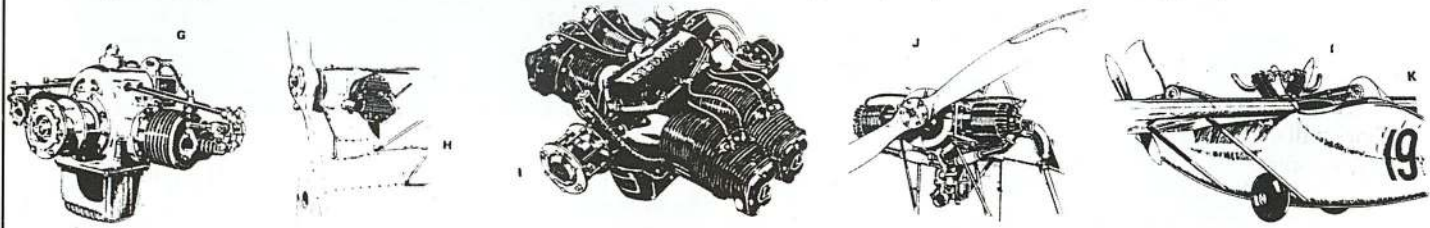
Fig. F. Hickman-Smith engine converted to powered glider use.

Fig. G. 30-hp Wright-Morehouse flat twin was U. S. counterpart of earlier (1924) famed Bristol Cherub.

Fig. H. Early model Aeronca flat twin developed 30-hp at 2,500-rpm; lent itself admirably to simple installations.

Fig. I. Typical example of modern design was the 65-hp series 0-145 Lycoming flat four. Specific weight was 2.51 pounds per horsepower. Its reliability was almost 100 per cent.

Fig. J. Long Harlequin flat twin used standard Harley-Davidson motorcycle engine cylinders. Developed 30-hp; wt., 90-lbs.



The above Bowlus/Nelson "Dragonfly" was an advanced and modified "Bumblebee" and became the first type C.A.A. certificated power-glider in America. (The Civil Aeronautics Administration was the forerunner of the present Federal Aviation Administration.) At one time the "Dragonfly" held the unconfirmed power glider International Record for distance, goal, and altitude. A total of seven were built. (May/June 1950 *Soaring*)



Above, the first two-place "Hummingbird" featured side-by-side seating and was equipped with a 36 hp engine that retracted into a redesigned plywood fuselage. (May/June 1949 *Soaring*)

Right, the Nelson "Hummingbird" PG-185B was the 1953 final variant of Nelson Aviation Company's "Hummingbird" series. It was a two-place, two-wheel tandem self-launching sailplane with a 45 hp retractable engine and an all moving horizontal tail. Ted Nelson, right, Harry Perl, left. The NSM's "Hummingbird" is presently on display as part of the 1998 Motorgliders and Self-Launching Sailplanes exhibit. (NSM Multi-Media Archives)



Left, test pilot Frank Hurtt at the controls of an experimental modified Schweizer SGS 1-19. It had a 12 hp WWII Andover engine with a pusher propeller mounted on a pylon above the wings' center section. (From Paul A. Schweizer's soon-to-be-published book, *Sailplanes By Schweizer*)

United States Soaring Hall of Fame Membership Reaches 101

William C. Sproull and Thomas L. Knauff Inducted at The National Soaring Museum, May 2nd



William C. Sproull, Bloomington, MN, and Thomas L. Knauff, Julian, PA, were inducted into the United States Soaring Hall of Fame following a reception and banquet May 2, hosted by the National Soaring Museum.

Directors of the Soaring Society of America elected Sproull and Knauff for "achievements in a noteworthy manner in soaring, and for making noteworthy contributions to the sport of soaring."

NSM President Jeff Byard, Atascadero, CA, welcomed the 85 plus attendees who arrived from all over the country. He acknowledged Bernald S. Smith, Fremont, CA, for winning the 1997 Warren Eaton Award, the highest given by the SSA, for a second time. He was first awarded this honor in 1977.

Before the evening's presentations, NSM Director James W. Swinnich recognized the passing of Franklin Hurr. "He was a long-time soaring pilot, a WWII sailplane and power instructor, and con-

United States Soaring Hall of Famers welcome the new 1997 inductees. (standing, left to right) William Schweizer, Elmira, NY, 1984; Edgar Seymour, Rochester, NY, 1995; Bernald S. Smith, Fremont, CA, 1984; E. Gene Hammond, Minooka, IL, 1996; Paul A. Schweizer, Elmira, 1955; Floyd J. Sweet, McLean VA, 1963; (seated) Doris Grove Knauff, State College, PA, 1988; 1997 inductees, Thomas L. Knauff, State College, PA and William C. Sproull, Bloomington, MN; Virginia M. Schweizer, Elmira, NY, 1971. Present but not pictured, Hal M. Lattimore, Fort Worth, TX, 1989.

tributor to the SSA and the Museum. Frank designed one of the logos for the International Sailplane Vintage Meet. He worked tirelessly along with his wife, Betty, on NSM exhibits, and on numerous SSA logos. He will be missed."

The Director also mentioned the passing of Dr. Frank Gross (Hall of Fame-1995) and of his long-time commitment to getting youth into soaring, and his national and local Gross Sky Ghost Youth Achievement Awards. The Gross Sky Ghost, America's first two-place glider, is in the NSM collection. Swinnich called Justin Poet, Horseheads, NY, to the rostrum to receive the 7th Annual Gross Sky Ghost Youth Achievement Award. Poet, a high school senior, won last year's annual Snowbird Contest, and was recently accepted at Embry-Riddle Aeronautical University.

This year's recipient of The Hugh Whitney Scholarship, was Diana Winebold, Pine City, NY. It was awarded to one who "has the same love of soaring as Hugh and has the same motivation and opportunity to pursue the sport." The stipend is to be used for additional flight time and rating advancement. Winebold, a high school sophomore, was introduced to soaring at the Eileen Collins Aviation Camp two years ago and wants to attend the United States Air Force Academy. She is part-time staff person at NSM.

Larry Sanderson, Hobbs, NM, president of the Soaring Society of America, spoke of the difficult time every year that the SSA

NSM Director, James W. Swinnich presents the Seventh Annual Gross Sky Ghost Youth Achievement Award to Justin Poet, Horseheads, NY, a high school senior.



Diana Winebold, Pine City, NY, a high school sophomore, winner of the Hugh Whitney Scholarship. (Staff photos)

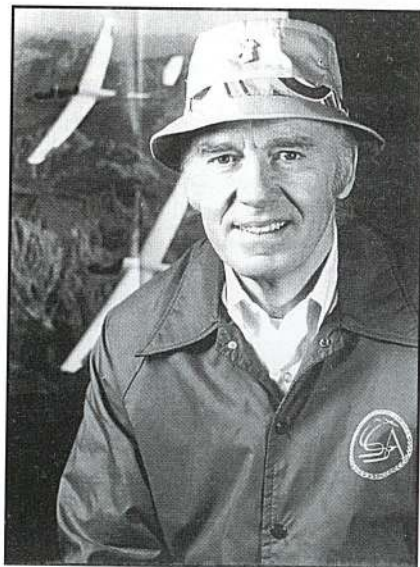


board has in electing people to the Soaring Hall of Fame because of the high caliber of the persons nominated. "There are certainly more than two people a year who, in their lifetimes or in the course of a decade, have made contributions worthy of recognition. Not all can be recognized. It just can't happen." He asked the audience to turn to the reverse side of the program that carried a listing of all the Hall of Famers to-date. He said that they represent those who are not listed as well.

Speaking of the inductees, the SSA President noted their differences. "Thomas L. Knauff is one of the world's most accomplished soaring pilots and teachers; one who taught soaring on a very personal level. The other, William C. Sproull, has done every important job in the SSA...the quintessential right man at the right time. The things that he has done for us, we, as well as future generations, will benefit from."

Introducing Sproull, Sanderson, who is a close friend as well as a 14-year associate, said, "He's disturbingly educated (M.B.A., Ph.D.). He's very Scots, very frugal; which has had a great positive effect on you in the Soaring Society over the years."

Sanderson related a mugging incident that occurred following a board of directors meeting in Hobbs, NM. "A fellow jumped into the car and attempted to steal Bill's wallet. Now most of us would just sit there as somebody ripped the wallet out of our pants. Not my Scots friend. My Scots friend proceeded to grab this fellow, and engage in a wrestling match to secure his wallet back." At that point Sproull reached into his pants pocket and pulled out the wallet for all to see, saying, "Same wallet." Amid the audience laughter, Sanderson quipped, "Which in a way tells you that Bill's service to us is not only



William C. Sproull

in a glider, or in a teaching role, or in a towplane. He's the right man, at the right place, at the right time."

Through 14 years, Sanderson said he has had the opportunity to work with Sproull as the Society's financial affairs turned from a sea of red ink to a sea of black ink. He said that the SSA is as healthy now as it has ever been. The administrative functions run now as well as they ever have in the history of the organization. Sanderson added that this was due in no small part to Bill's volunteering for the board of directors, and taking jobs that other people didn't want. "When they look at the Society twenty, thirty, and forty years from now, the fact that it is healthy and strong will be due in a great part to the work that Bill Sproull has done for all of us. He has worked for generations to come."



Hall of Fame Master of Ceremonies, Larry Sanderson, Hobbs, NM, President of the Soaring Society of America.

As a Naval aviator, Sproull flew 78 missions in Korea, and has been in soaring since 1974. He is a member and past president of the Minnesota Soaring Club. He served as an SSA board member from 1982 to 1997, and as president in 1988 and 1989. He is past chairman of several SSA committees and founder of the SSA Eagle program. Currently, Sproull is secretary of the SSA, an SSA trustee, and board member of the SSA Foundation. He has a Silver "C", a Diamond Goal Badge and is co-owner of an LS-6 (YV) along with Harry Meline, Edina, MN.

Sanderson said that it was with pride and high personal regard that he introduced Bill Sproull, "A great friend of yours, and a great personal friend of mine."

Continued on page 12

"...Just soloed!" Sproull, right, Whiting Field, Pensacola, FL, with roommate, Graham "Skip" Skea clipping Sproull's tie. (Sproull collection)



Sproull receiving the Distinguished Flying Cross in 1951, from Cmdr. Wm. Hardaker, Commanding Officer, VP-47, Alameda, CA.(Ibid.)



Aboard the U.S.S. Cabot, waiting to fly, November 1949. (Ibid.)

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Moving to the rostrum, William C. Sproull said that when Ed Byars (Clemson, SC) called and told him that he was going to be inducted into the Hall of Fame, it took about three or four days for it to sink in. Paying high tribute to Larry Sanderson and how they have worked together, Sproull said that he just wanted to reflect on a few things that had influenced his life to do what he had done and what he had gotten out of soaring and soaring people.

"I've often wondered exactly how I'd gotten interested in flying, but I knew it had an awful lot to do with my dad," he said. His father was a WWI aviator and journalist, and at the war's end was invited to write a history of the U.S. Army Air Service in that conflict. Growing up in Detroit, with its proximity to Willow Run, Sproull had a chance to meet some WWII pilots and get to know them. He read Terrance Horsey's book on soaring flight cover to cover. "There were names in there that I'd had an opportunity to meet," he said.

In 1946, while still in high school, he bicycled or "rode his thumb" out to the airport where he got his first glider ride, from a winch launch, "and I knew that it was something that I wanted to do." While still in high school he soloed in power and later signed up for Naval flight training. After Pensacola and carrier-qualifica-



Sproull in the Mosquito. (Ibid.)

tion at Corpus Christi, he arrived at San Diego in June 1950, just as the Korean War broke out. "Six of us were on the next NATS airplane out to Japan," he said. "Being assigned to a PBM(-5) flying boat squadron turned out to be a really interesting experience." They flew long hours, entirely at night, well north of North Korea and well south of China, "all of which was below a thousand feet," he added. Following that, he returned and finished his aeronautical degree at Michigan. His further aviation interests led him into flight control and commercial auto-pilot ventures, working with Cessna, Beechcraft and Air Commander. "One of the real joys was my involvement in the acquisition by Honeywell of the Sperry Flight Control System business."

Later, he chanced to be in Phoenix and stopped at Turf Soaring. After a soaring flight there, his world really changed. "I found out about the Minnesota Soaring Club, and before very long, I found myself a joint-owner of a sailplane with Harry Meline."

Sproull told of he and Meline's efforts, along with the members of the Minnesota Soaring Club, in putting together the purchase of an airport and forming Stanton Sport Aviation, to facilitate Soaring Minnesota, promoting national and regional contests. Sproull mentioned the fun it was to see other people participate and



Sproull checking out Tom Knauff in the LS-6; partner Harry R. Meline (Edina, MN) standing. (Ibid.)

get involved in soaring.

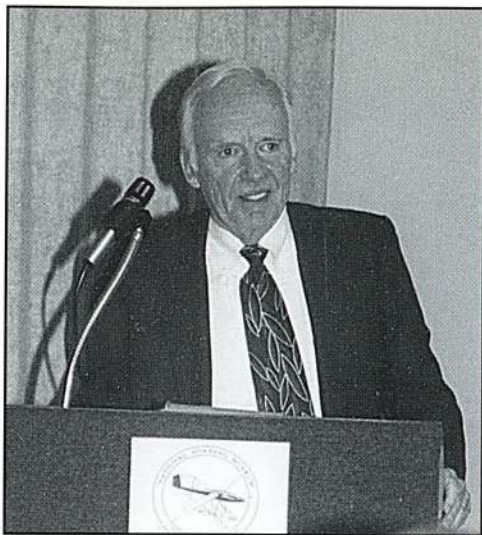
While expediting permission for German World Champion Ingo Renner to be written into Sproull's insurance in order to fly in competition here, Sproull found that there was a U.S. minimum hours requirement. Seems the authorities were worried about problems developing from low-time sailplane pilots' inexperience. After a trans-Atlantic exchange, Renner replied, "I think I have 15,000," which satisfied all concerned. Sproull roomed with both Renner and Doug Jacobs, and commented that he had a chance to study the contrast of soaring styles of these two world-class pilots. "But," he said, "that's a whole nuther discussion that I'd like to share with you; not tonight."

He laughed as he mentioned another distinction he had: checking out Tom Knauff in his LS-6. Knauff came to Minnesota, and Sproull had taken him out to the field to meet everybody, and to fly the LS-6. While Tom probably had flown almost every engineless aerodyne that could be towed, winched or bungeed aloft, he'd never flown that ship. And the new Hall of Famer jokingly showed a photo to prove it.

Sproull said that there were four areas that had been very satisfying to him or had influenced him throughout his life. One was the transition in the SSA from when it was located in Santa Monica. "I can't say enough about the professionalism of the staff in Hobbs and how it has grown, matured, and really represents our



Sproull with wife Nancy, right and daughter Sherry Auer at the Hall of Fame induction ceremonies. (Staff photo)



Sproull addressing attendees at the U.S. Soaring Hall of Fame gathering.

sport so well.

"The second thing that happened in this tour of 14 or 15 years in which I have been involved, is the transition from volunteerism to what I call professional management." Sproull said that the SSA grew up with a group of dedicated people doing things on their own time, and then, some time ago, the Society became too big to

depend on them. "Larry has had a tremendous role in that; and a lot of credit also must be given to Hal Lattimore."

The third one was bringing the financial situation of the SSA into order, that Larry Sanderson alluded to earlier.

Fourth, Sproull said his greatest source of pride was the transition of individuals doing their own thing on behalf of soaring to an SSA Board that works effectively as a team. "The people on the Board today all have brought individual values that have been shared by all, and their contributions to soaring are very important," Sproull said.

He summarized with three points. "When I first got up in a sailplane...it became a defining moment. Somehow, something turns you on. The second thing I saw from both my Navy and soaring experiences is this dedication to cause. The third, and probably most important thing is the people and the values that we share. We all have the same thing at heart. It's in our decision-making process." He closed by relating the story about the ugly dog whose owner persistently entered the mutt in prestigious dog shows. The owner was asked why he did this, when he knew that the mongrel had no chance of winning. The owner replied, "I know that, but boy, he gets to associate with some great dogs!"

"...And that kind of summarizes my involvement," Sproull said. "The real fun is being associated with some great people. Thank you very much."

Sanderson next called on power and sailplane pilot Dr. Paddy Welles, Horseheads, NY, who led a quartet introducing Tom Knauff.

Welles, whose husband, Tim, is an SSA board member, a competition pilot and holder of past and present sailplane records, mentioned a line in a non-aviation magazine, *Psychology Today* about flight. "Every human being is haunted by a dream of flying." She then asked, "Who has not, as a child, climbed on top of a garage and thought, 'Could I do this? Do I dare?'" She added that most of us stop as children... until we grew up and discovered airplanes and sailplanes. "But there are a precious few who don't stop as children; they don't ever stop. They leap, literally, into their dreams...And Tom Knauff is one of those who made that flying leap." She said that Knauff has led the way for many through his instruction, articles, books, and talks. Mentioning several examples of his advice and training, she said, "Tom, you've saved my life so many times, although I've never been in a glider with you."

Next Welles turned the rostrum over to Chris O'Callaghan, Fairfax St., VA, "who has been in a glider with him," she quipped. "Tom taught him how to fly, and, according to O'Callaghan's wife,

(Right) Paddy Welles, Horseheads, NY, "Tom, you've saved my life so many times and I've never even been in a glider with you."



(Left) Chris O'Callaghan, Fairfax, VA, "Knauff changed the way I looked at the world."

(Right) Wally Miller, Colorado Springs, CO, presented slides, "Tom Knauff... About an inch-and-a-half aft of neutral."



(Left) Doris Grove Knauff, "I could write a book about Tom and his accomplishments."

(Staff photos)

really in a way, has raised him."

After relating a few soaring anecdotes, O'Callaghan said that the one thing that Tom Knauff has done that may be different from anyone else is that he fosters an atmosphere of learning and desire. It is an atmosphere of willingness to turn people loose to do things in gliders that they would not have ever done without his being there. "I'm eternally grateful; he changed my career...(smiling) not necessarily for the better. He changed the way I look at the world. Thank you, Tom."

Wally Miller, Colorado Springs, CO, was called upon next by Welles who said of the Air Force Colonel, "He has every kind of CFI, CF-2, CF, before and after his name; it would take 10 minutes to mention them all."

Miller's segment consisted of a slide presentation, entitled, "About 1 1/2 Inch Aft Of Neutral," referring to the position of the control column on take-off. The talk-related to flight instruction axioms that are imperatives used by Miller in his flight instruction at the U.S. Air Force Academy and also by Knauff.

Miller said that Tom Knauff has flown one of the National Aeronautical Association's ten most memorable flights. "He's absolutely a world-famous instructor, teacher, lecturer, aviation businessman and all those things that are in the SSA Safety Foundation Course." He noted that Knauff has been an SSA member of 34 years, set five world records, 47 national records, published seven books, "...and the list goes on and on." The slide presentation illustrated some of the instructional areas that were mentioned.

Continued on page 14

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Miller said that as far as Tom was concerned you teach it right the first time, because unlearning a bad habit is very hard. The results can be fatal. "He concentrates on simple concepts and essentials in everything that he does."

Miller then invited a lady to the rostrum, "who was inducted into the U.S. Soaring Hall of Fame 10 years ago, and who knows Tom Knauff best of all, his wife, Doris."

With a bright smile, Doris F. Grove Knauff said that she could write a book about her husband, "But which chapter would they like? One of her earliest recollections of Tom was as a nine year-



Doris and Tom Knauff at the 1998 Hall of Fame Banquet. (Ibid)

old boy running down the street launching a kite. In 1972 she started flying power planes, then took a glider ride at the Nittany glider club where Tom was a member. In 1975 Tom was looking for a partner to start a commercial glider operation. Most of the men he approached had good paying jobs and were reluctant to join the enterprise. Doris finally went up to him and told him that she would be a partner with him in the proposed soaring operation.

She said that she has admired and respected Tom's ability to listen to differing opinions on flight instruction as well as other



Knauff's acceptance talk at the Hall of Fame induction. (Ibid)

subjects in a professional, intelligent and friendly manner, "...and be big enough to say, 'You know, you're right'." They have been business partners for almost 25 years. "With the dedication, hard work, time and knowledge that he has given to soaring," she said, "I have seen Tom become the world-renowned flight instructor that he is today. He's very deserving to be in the U.S. Soaring Hall of



In 1976, Knauff invited Derek Piggott, renowned British sail-plane writer, instructor, and movie advisor, to sample the Appalachian Ridge soaring conditions. Unfortunately the weather grounded the project. He flew with Knauff during later American visits. (Knauff collection).

Fame."

As the applause died down, Knauff said, "For those who fly, time began when Orville discovered why an aircraft needs a rudder, and in 1911, when he made the first significant soaring flight of 9 minutes and 45 seconds."

Knauff said that it was 32 years later that he had his first aviation experience throwing his foster brother's model airplane from



Knauff holding a barograph by the Nimbus 3, after setting his 1983 distance, out and return 1,000 mile world soaring record. (Knauff collection)

the porch roof for an unsuccessful attempt at flight.

He said that 36 years after flight-time began, he had his first success at flight, flying a paper glider. He added, "I'm alive today because of the structural failure of a self-designed and constructed



Knauff at the old Ridge Soaring office in the late 1970's (Knauff collection)

boy-carrying kite. I'm sure that had I lived on a farm, I would have been seriously injured from leaps off the barn roof, umbrella in hand."

As a youth he read that eight hours of dual flying were required to solo. Saving his pennies caddying, he got up very early one morning and bicycled some distance to Lock Haven/Piper. He planned to finish the eight hour requirement in one day. Cycling back and forth would take too long.

"Flying obsessed my life," he said. "The achievements that I've enjoyed are the results of my continuing curiosity of the aircraft and the environment that we fly in. And I feel as we all must, very privileged beyond our wildest dreams." Tom and Doris Knauff have soared for thousands of miles at many sites around the world, ridge soaring off New Zealand's Mt. Cook, and near a not-so-inactive volcano in Iceland while watching the birth of a geyser explode in the distance. "But [those experiences] pale to insignificance on meeting people who have become our friends."

There was a small boy whose pain of cancer was interrupted by a visitor from the sky. Knauff mentioned the Mississippi farm-

ers, who the previous night heard over the radio about a couple who were supposed to have been abducted by space aliens. The frightened Mississippians were certain they were next, when the gray-colored, snowmobile-suited Knauff landed at the farm, and exited from that odd looking "spaceship." It surely looked like an airplane but it had no engine. There was the lady on whose farm he out-landed, down in Texas. Passing the time on her porch, awaiting his crew, Knauff asked, "How big is your farm?" The lady responded, pointing, "About 40 miles that-a-way."

Why does he fly gliders: "...Because it makes my life interesting. During the journey of life Doris and I have taken the path less traveled, and it has indeed made all the difference."

He said that his failures were just as common as his successes, "including my inability to convince others on how to make our sport safer." Over the years, numerous people who have had incidents had called and credited their survival to something that Knauff had taught, or an article that he had written.

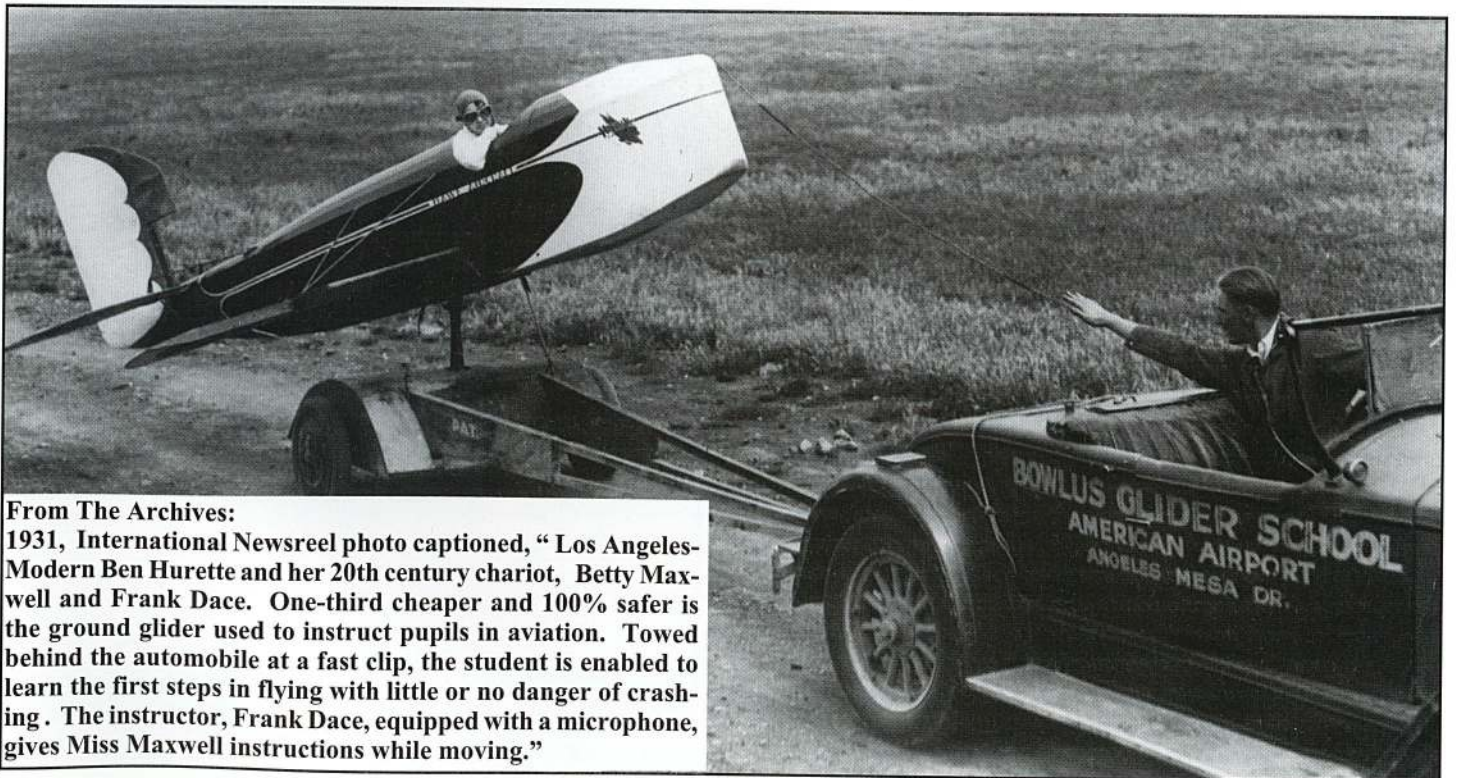
He said that his and Doris's personal success in their gliderport goes back 34 years to their glider club; nobody died, and we've had only one student accident. "It's an accomplishment that I'm immensely proud of."

Through the couple's interest in genealogy, Knauff discovered that his bloodline included a trace of Algonquin Indian. In homage to his Algonquin heritage and the passage of time, he invited the gathering to join in singing a melody in that language. He said that the song was about peace and contentment. He gave the rough translation as, "The harvest is in. We are all here together tonight, our bellies are full, everything is fine with life."

Knauff said his accomplishments were not his alone. "I relied on many of you in this room and others to originate, help, support, edit ideas and skills. And a special thanks to Doris, who supported me through a lifetime."

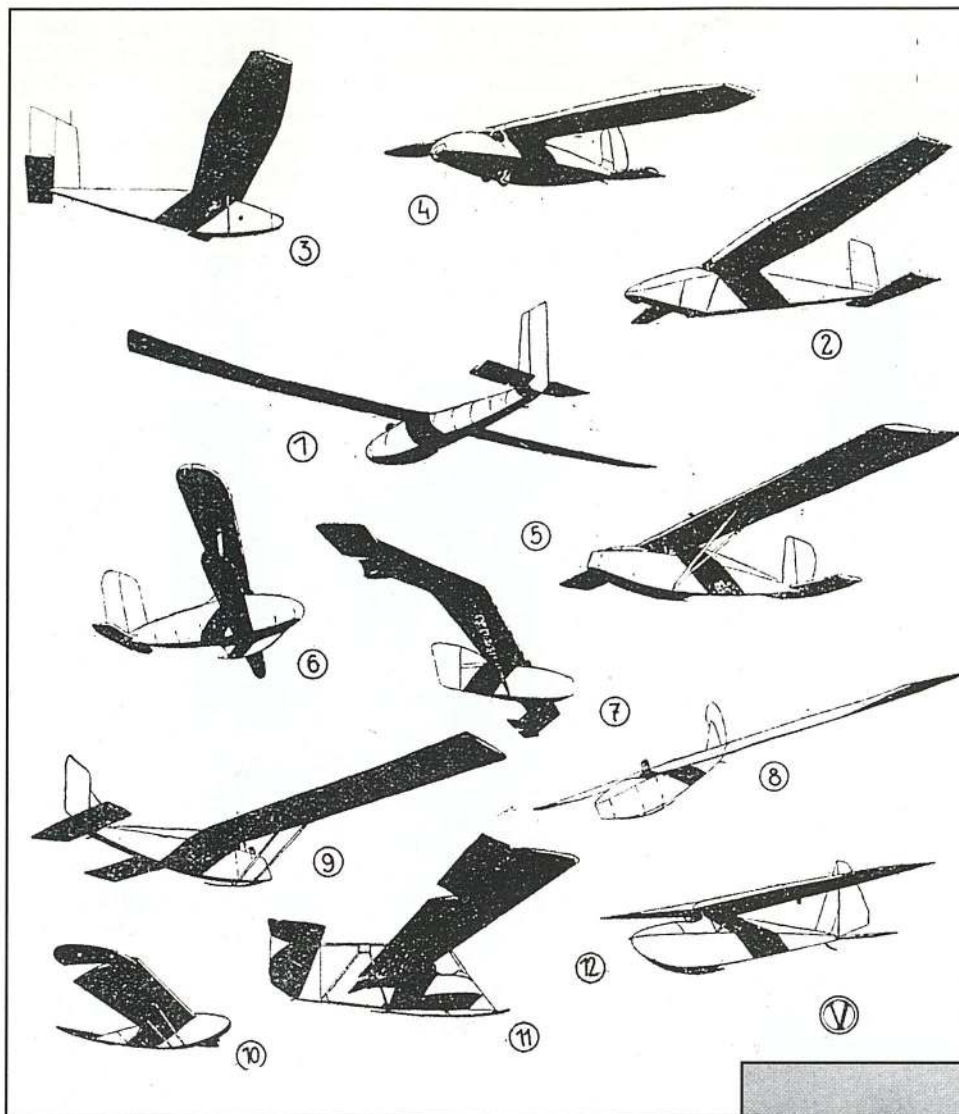
He said that the ultimate reward that anyone could expect in a lifetime is recognition by one's peers. It can be as a pat on the back, applause at the end of a speech, or induction into the United States Soaring Hall of Fame.

He closed saying, "I thank you, one and all for the honor that you have bestowed on me."



From The Archives:

1931, International Newsreel photo captioned, "Los Angeles-Modern Ben Hurette and her 20th century chariot, Betty Maxwell and Frank Dace. One-third cheaper and 100% safer is the ground glider used to instruct pupils in aviation. Towed behind the automobile at a fast clip, the student is enabled to learn the first steps in flying with little or no danger of crashing. The instructor, Frank Dace, equipped with a microphone, gives Miss Maxwell instructions while moving."



Some 1923 Rhon Gliders: "These silhouettes reproduced by courtesy of *Letectvi*, of Prague, show some of the more interesting machines taking part in last year's (1922) competition on the Wasserkuppe." (NSM Multi-Media Archives)

1. The Darmstadt "Konsul" is the machine on which the longest glide was made.

2. Arthur Martens' "Stolch" was one of the best designed and constructed machines of the meeting.

3. "The Messerschmitt 1923."

4. "Esenlaub V."

5. "Margarete."

6. The Heidelberger "Kurpfalz."

7. The Berlin "Charlotte."

8. The "Erfurt."

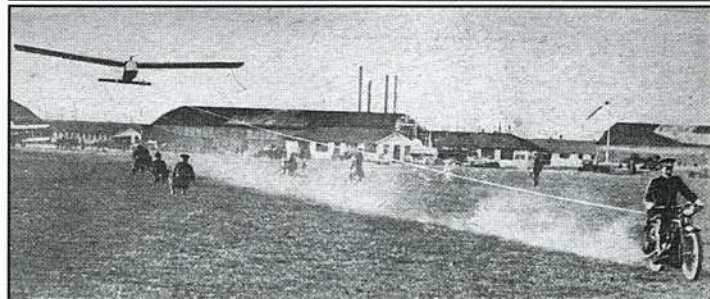
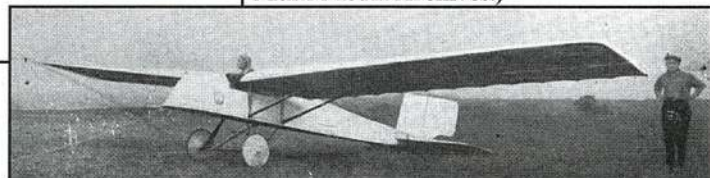
9. The Baden-Baden "Nimm mich mit" (Take me with you).

10. "Speta."

11. "Hols der Teufel."

12. "Der Dessauer."
(From H.E.M. Gliding Scrapbook, NSM Multi-Media Archives.)

Right, A Nordman glider, piloted by Arthur Heinrich being motorcycle launched at the Belleclaire Country Club, Bayside Long Island, probably 1923, (Ibid).



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