

NSM



A Quarterly Journal
of the National Soaring Museum
Winter, 1978-79 Vol. 3, Number 1

From the Director

Spring is coming to Harris Hill and the National Soaring Museum as I write this report to the readers of NSM. Clear days and Northwest winds have brought out dandelions, maple leaves, and most enjoyably, soaring pilots. It is wonderful to have sailplanes once again wheeling over the museum. Their presence after a long winter is an elegant reminder for us in the museum that our busy season is hard upon us.

For the past three months particularly, the museum staff has labored hard and productively to get the museum ready for the first summer operation in its new facility. Many days and weeks have been spent in getting the museum's meeting room ready for use. On May 19th, we will be using it for the first time to hold the annual United States Soaring Hall of Fame banquet at which Bill Coverdale and Chet Decker will be honored for their many contributions to the sport of soaring.

Most importantly also has been the work done by the museum staff in developing our first exhibits. Working closely with the outstanding exhibit house Design and Production, Inc. a series of exhibits have been developed that I believe will please both soaring pilots and the general public. The next issue of NSM will take our readers on a tour of our exhibitry that I believe will make all our members proud to be associated with the museum.

Photographic tours are one thing, but being present is something quite different. Accordingly, I hope that all our readers will have a chance to visit the museum soon and that they will feel free to offer their comments and thoughts on how the museum can better communicate with our audience. Glider rides are available for our visitors as is the chance to use the county park facilities in which the museum and glider field are located. A special addition to that park this year is an olympic size swimming pool, so bring your bathing suit and enjoy a day-long experience that will be fun for your entire family.

In cooperation with the Soaring Society of America, the museum and Harris Hill will be playing host to a Home Building Conference over the Labor Day weekend. For many years, readers of Soaring magazine have indicated their intense interest in this aspect of the sport. With this conference, we hope that our respective organizations will be providing a real service to the soaring community. Circle Labor Day Weekend and plan to come to Harris Hill — many of America's top homebuilders will be there, eager to share their knowlege with you. See you at the museum!

Use Your Film Library

ON THE COVER:

The Warren E. Eaton Memorial Soaring Trophy; considered the highest award from the Soaring Society of America. It is awarded each year to the person who has made an outstanding contribution to the art, sport, or science of soaring flight in the United States, as determined by the Awards Committee with the approval of the SSA Directors. See page 7 for related article.

CALENDAR

INTERNATIONAL MUSEUM DAY

The National Soaring Museum is celebrating May 18th, International Museum Day, by announcing the inauguration of the exhibit hall's first season. There will be guided tours, films, soaring activities and the day will culminate with a reception for NSM Trustees, members, guests and Chemung County Museum members. Our reception will be the kick-off for the United States Soaring Hall of Fame Weekend.

ANNUAL SOARING HALL OF FAME WEEKEND

The activities scheduled for the Annual United States Soaring Hall of Fame Weekend run the full gamut. On May 19th there will be the spring NSM Trustees' meeting, an informal Hall of Fame Soaring Contest, sailplane rides for attending Hall of Famers, and the day ending with the Hall of Fame Banquet held in the Museum's facility. The inductees this year are William Coverdale and Chester Decker. The featured speaker will be George Moffat, twice World Champion, author, and one of the best known soaring pilots in the world. The prestigious Joseph C. Lincoln Award, sponsored by the Harris Hill Soaring Corporation, will be presented from among national and international entries for the most popular writing about soaring in 1979. You should have received your invitation by now and we hope that you are planning to join in on our gala festivities, tour your museum, and greet your friends.

SSA/NSM HOMEBUILDERS' WORKSHOP

September 1, 2, & 3 are the dates to circle on your calendar for the Homebuilders' Workshop to be held at the National Soaring Museum and the Harris Hill Glider Field, Elmira, New York. SSA Administrative Assistant John Lee has registration forms and information plackets available for those wishing to attend the event. John is setting up presentations by designers, "hands-on" sessions in wood, metal, and fiberglass fabrication, and flying sessions; as well as presentations and displays by sailplane plan, kit, and equipment suppliers. Contact John Lee (SSA), Box 66071, Los Angeles, California 90066.

SIXTH ANNUAL VINTAGE SAILPLANE REGATTA

In conjunction with the Homebuilders' Workshop, the Vintage Sailplane Association is holding their Annual Vintage Sailplane Regatta on Sept. 1, 2, & 3 at Harris Hill, Elmira, New York. Contact V.S.A., Scott Airpark, Lovettsville, Virginia 22080.

NSM is a publication of the National Soaring Museum, Harris Hill, RD 1, Elmira, New York 14903. Anyone is invited to contribute material and pictures with identification about historical soaring activities, renovation of old sailplanes, soaring pioneers, unusual uses of sailplanes, etc. Manuscripts are subject to whatever revisions, additions or deletions are necessary to make the material conform to the space limitations and standards of NSM. Material that is to be returned must be accompanied by a stamped, self addressed envelope. No compensation other than credit will be made.

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

Editor — Shirley Sliwa

POSSIBILITIES OF SOARING FLIGHT

by Orville Wright

Editor's Note: This article first appeared in the December 1922 publication of the U.S. Air Service.

Foreward by Ralph S. Barnaby, (Capt., USN, Ret.)

(Ed. Captain Barnaby is an Honorary Director of the Soaring Society of America and an Honorary Trustee of the National Soaring Museum. He is a recipient of the Warren E. Eaton Memorial Trophy, the highest Award from SSA and a member of the United States Soaring Hall of Fame. The list of his accomplishments and awards is worthy of an article onto itself. Captain Barnaby is shown below, addressing attendees of the 1972 Hall of Fame Weekend.)



The Editor and Publisher of U.S. AIR SERVICE magazine, in the December 1922 issue of which this article was published, was Mr. Earl N. Findley, a former newspaper reporter and an old and valued friend of Orville's. It was in the Findley home in Washington, D.C. that Orville always stayed during his frequent visits to Washington during the period of time when he served actively on the National Advisory Committee for Aeronautics, and also as Chairman of the Contest Committee of the National Aeronautic Association.

It should be borne in mind that this article was written barely two years after what we think of as the "modern gliding and soaring movement" had been born at the Wasserkuppe in Germany. Though soaring flights of more than one hour had been achieved, they were all "slope soaring" flights. "Thermal soaring" had not yet been discovered. It was not until 1930 at Elmira, New York, during the First U.S. National Soaring Contest that Wolf Hirth achieved and documented the principles of true thermal soaring. And even then it was not until 1947 that the U.S. National Soaring Competition moved from the hill countries to Wichita Falls, and the flat lands of Texas.

It is apparent that Orville recognized the fact that birds were soaring under conditions of no horizontal wind over flat terrain, and postulated correctly, as it later developed, that the surface air heated by the sun-drenched sand was their source of lift. Between watching the turkey buzzards, whose spring migration from the south to their summer haunts in northern Ohio is almost as legendary as that of the swallows to Capistrano, and their later familiarity with both the buzzards and seagulls at Kitty Hawk, the Wrights had been able to study closely the thermal lift effects. To them, however, it was just an interesting phenomenon, possibly for training and sport, but not a means of transportation that might compete with the powered airplane, their main goal. Then again, like most of us at the time this article was written, that is "before Hirth", they did not realize how numerous and large "thermals" are, compared with suitable soaring ridges.

I recall with some embarrassment my own statement in the closing sentence of the last chapter of my book GLIDERS AND GLIDING, published in 1930, which reads:

"There has been a tendency for the management of recent air Meets to hold glider competitions in conjunction therewith, probably hoping to capitalize on the publicity that gliding enjoys. Such efforts are futile as far as the promotion of gliding is concerned. Gliding is a sport of the hills and not of the plains and, sad though it may seem, in the light of our present knowledge it must so remain."

POSSIBILITIES OF SOARING FLIGHT Orville Wright

The soaring experiments of the past year in Germany, France and England have excited much interest in this branch of aviation. Several of these flights have been so sensational as to mislead some into thinking that other means than a motor have been discovered for supporting and propelling an airplane from place to place. Because sailplanes based on standard type airplanes have not always led in these contests others have been misled into believing the data secured from wind tunnel experiments to be erroneous and of no value, and that soaring and gliding experiments will supplant the wind tunnel and laboratory experiments in the investigation of aerodynamic phenomena. In my opinion this is not true. The chief factors in soaring flight are the hill, the wind, the plane and the skill of the operator, ranking in importance about in the order named. The plane best adapted to one hill and one wind condition may be ill-suited to another hill and another wind condition. There is not now and probably never will be a type of soaring plane most suitable for all conditions of wind and hill, any more than there is a most suitable type of airplane for all conditions of speed and loading.

Hentzen's flight of three hours six minutes without a motor is remarkable for its duration only. No new principle of flight was utilized. The longer duration of the flight was due in part to improvements in the glider itself, natural results of the progress made in aerodynamics in the last ten years; in part to the skill acquired in handling aircraft during this period; but especially to the more advantageous topography of the ground over which the flight was made.

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POSSIBILITIES OF SOARING FLIGHT

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For several reasons a ridge is better than a conical hill for purposes of soaring. If the wind is too light for support when facing directly into it, additional velocity can be obtained by quartering across the wind along the top of the ridge. On a conical hill this is scarcely possible, since lateral motion across the face of the hill will bring the machine into currents of air having less and less rising trend as the machine gets farther from the apex of the hill. But another disadvantage of the conical hill is the fact that the current of air is split by the hill, a part of the air flowing around it to the right and a part to the left. This sudden change in direction makes control of the machine difficult - so difficult in fact that often the ordinary controlling surfaces on an airplane are entirely inadequate.

These were the difficulties encountered in the soaring experiments at Kitty Hawk, N. C., in 1911. The machine with which the experiments were commenced had elevators and rudders abundantly powerful for all purposes of power flight, yet under the conditions encountered on the conical face of the Big Kill Devil Hill these controls were so powerless as to allow, on one occasion, the machine to be turned completely over on its back. After the effectiveness of the controls had been greatly increased a number of flights were made of more than five minutes duration, the longest of which was nine minutes, forty-five seconds. This was the record for soaring flight from 1911 till 1921 when it was beaten in Germany by Herr Harth, who remained in the air twenty-one minutes without a motor, and this year Herr Hentzen with a flight of three hours and six minutes.

The French held a soaring contest in August of this year in which the longest flight was five minutes, eighteen seconds — inconsiderable in comparison with the German record, and not even so good as the American record of eleven years ago. But a mere record of time is not a certain criterion of the efficiency of the machine used nor of the skill of the operator, when records are made on different hills and

under different wind conditions, since the wind and the hill are the two most important factors in soaring.

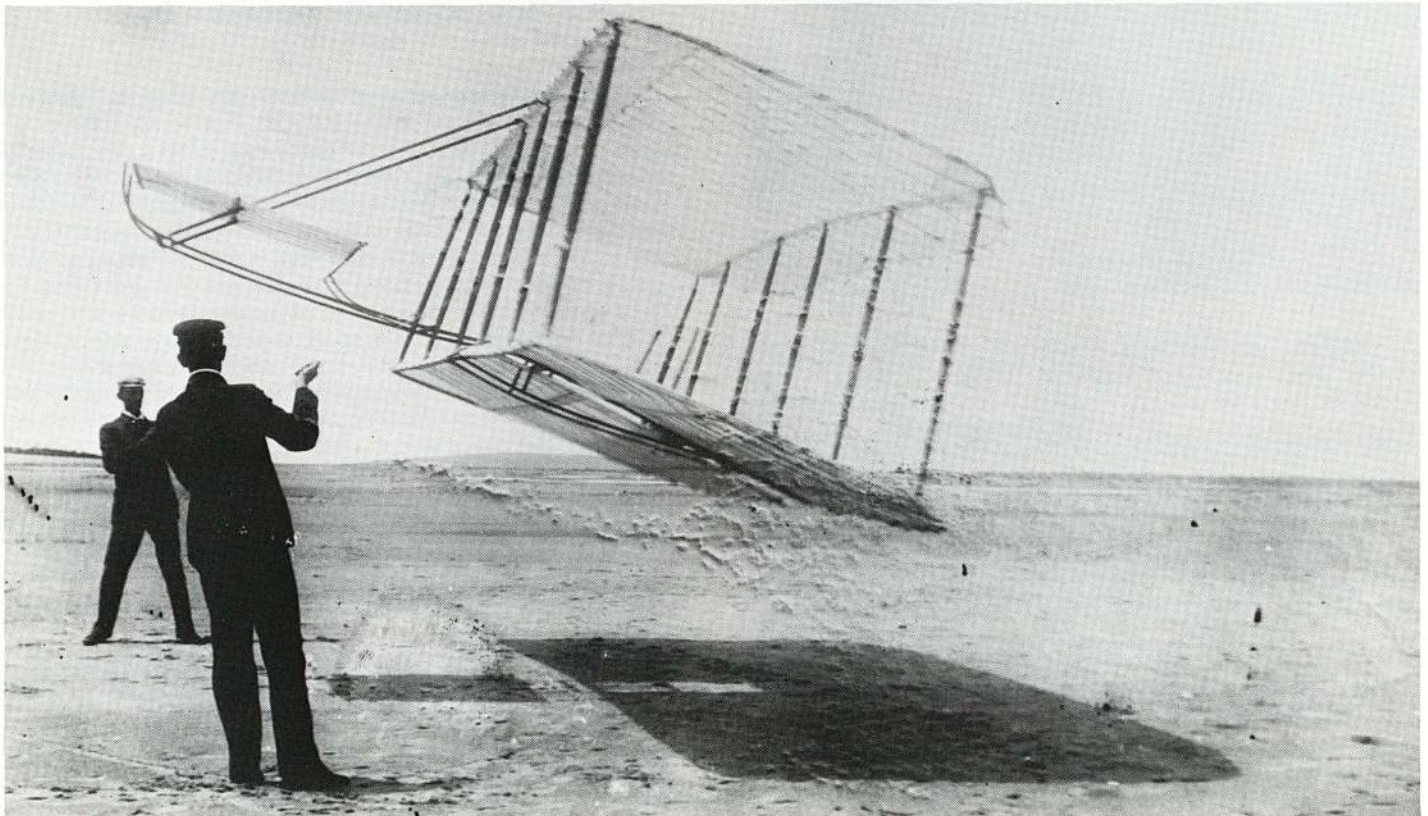
No soaring flight has been made as yet by man, nor, as far as my own observation goes, by bird, in other than rising currents of air. The theory has been advanced that birds sometimes soar in horizontal winds, without any advantage from rising trends, by utilizing the irregularities in the velocity of the wind. Mouillard, the great French pioneer student of soaring flight, in "The Empire of the Air," published in 1881, was the first, I believe, to put forth this theory. He explained the principle as follows: The wind gust is the very essence of the uprise; it is the magic wand, which striking the child's hoop, keeps it upright in rolling, drives it along, or raises it up to overleap elevations on its way. Suppose the toy to be placed on a steep inclined descent; gravity will cause it to roll to the bottom. If beyond this an ascending plane follows, the hoop, urged forward by momentum of acquired velocity, will rise to a height equal to that of fall, minus the losses by friction on the soil and by air resistance. . . .

Let us suppose further, when the hoop is about to ascend, we can displace the ascending plane, in contrary direction to the toy's course, so that the plane shall glide under the hoop, then we would still more assist the ascension.

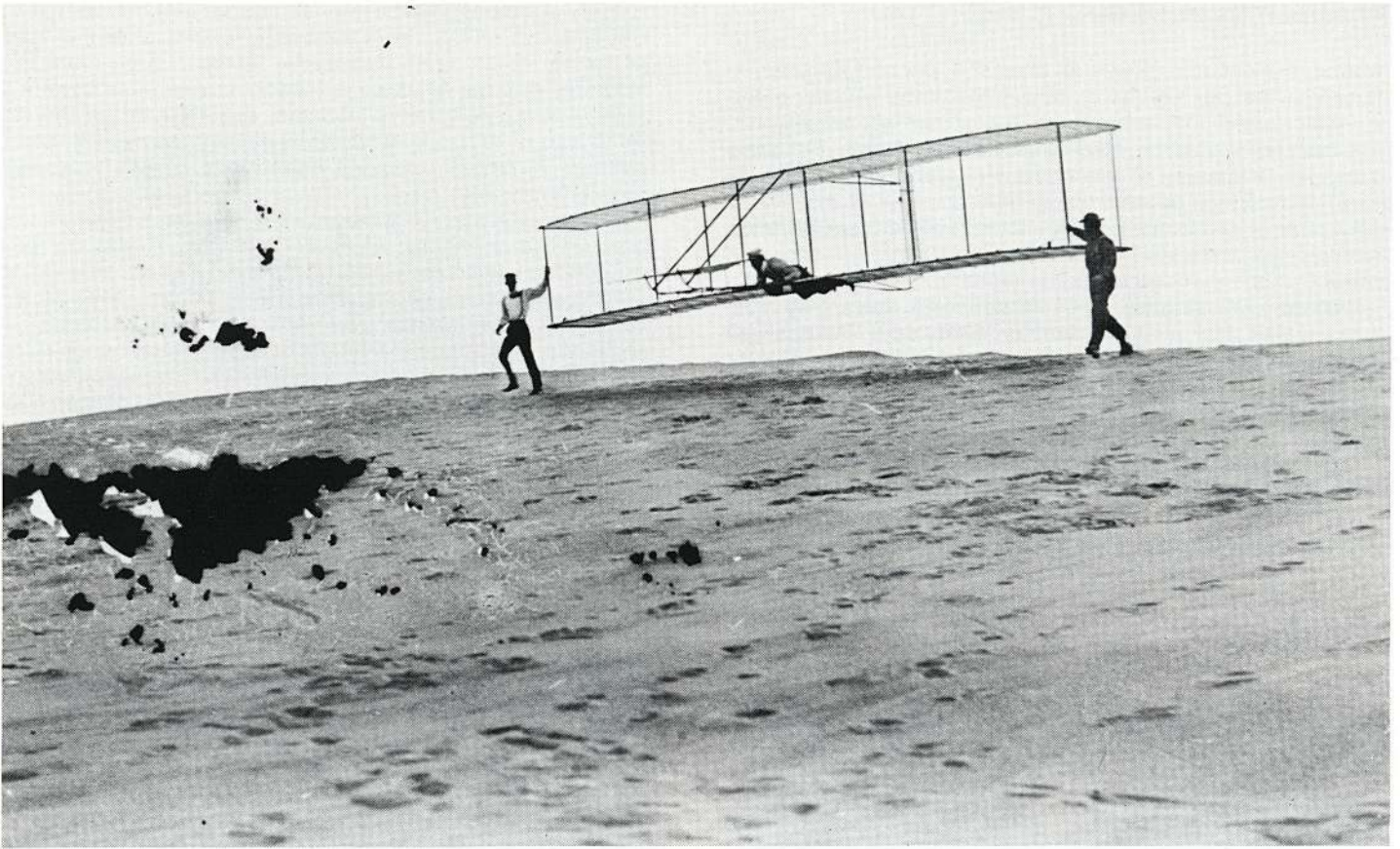
Mouillard here states clearly the principle, which he imagined to be involved in soaring, but he gives no figures to show how great must be the irregularities in the wind to sustain the bird.

In 1893 Dr. Langley published his well-known paper, "The Internal Work of the Wind," in which he supported Mouillard in this theory. He repeated at greater length, though scarcely more clearly, the proposition laid down by Mouillard. Langley furnished some measurements of irregularities found in winds of different velocities, but he made no attempt to calculate the amount of support a bird would be able to secure from them. The rate of acceleration in winds of ten to fifteen miles average velocity, as shown in his charts, was less than five per cent of what would be required to sustain a bird in soaring flight.

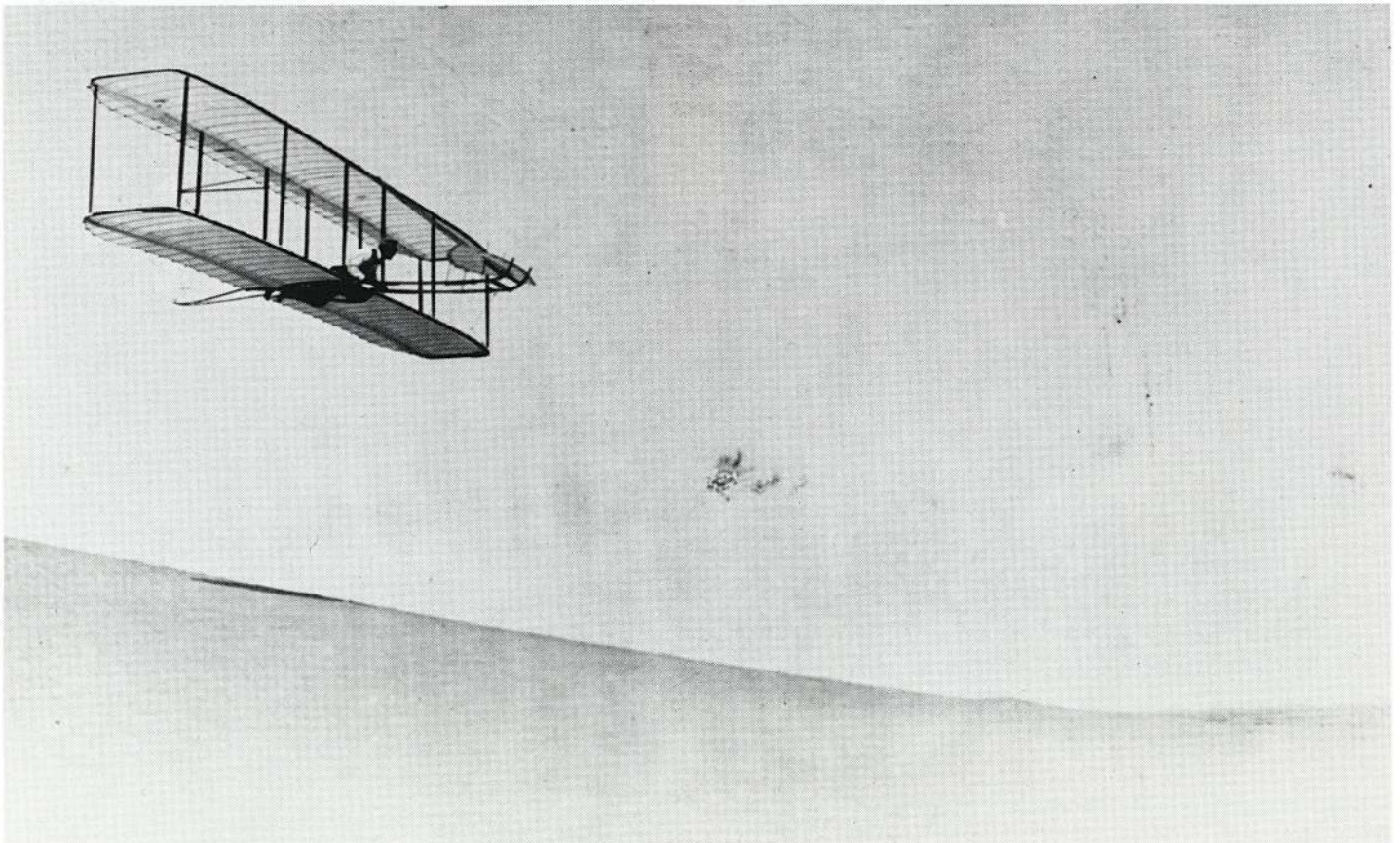
In calm air the buzzard is able to glide on a path descending about one foot in each eight feet forward. In other words, its resistance to forward travel is equal to one-eighth of its weight, and its velocity when gliding on a horizontal course



Orville and Wilbur Wright began their heavier-than-air experiments at Kitty Hawk with this glider in 1901, shown here being flown as a kite.



Start of a glide, October 10, 1902, Wilbur Wright (left), Orville Wright in machine, and Dan Tate (right).



It was in the 1902 glider that the Wrights discovered the basic principles of aerodynamic controls.

POSSIBILITIES OF SOARING FLIGHT

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will be retarded at a rate equal to g (32 ft. per sec.) divided by 8, or four feet per second. It follows that if the velocity of the wind increased constantly at the rate of four feet per second, the buzzard would be able to just sustain itself. But wind gusts are composed of retardations as well as accelerations in velocity. Since approximately only one-half of the time is occupied in acceleration the actual rate of acceleration would have to be much more than four feet per second in order that the average would be equal to that amount.

Soaring in rising trends of air deflected upward by hills, trees, waves, etc., always occurs on windy days. But it is well known that over level ground, where there are no hills or other obstacles to deflect the air upward, soaring is done on comparatively calm days and not on windy days when the fluctuations in the velocity of the wind are greatest.

I have seen thousands of buzzards in soaring flight over level ground on calm, sunny days, but I have yet to see one case of soaring over this same ground on a windy day with the sky overcast. If the bird depended on getting its support from the "internal work of the wind" it would do its soaring on days when the fluctuations of the wind were greatest, instead of on days when they were least. My brother and I calculated many years ago the support to be obtained from gusts of greater intensity than those actually encountered in nature. I believe that anyone who takes the trouble to make this calculation will be convinced that the explanation of soaring flight is not to be found in the internal work of the wind.

On the other hand it is well known that soaring can be done in rising currents of air produced not by objects on the ground, but by the difference in temperature of the air at the surface and that above. These currents of rising air are most frequent on calm days when the sun is shining. We see them in the whirl winds which lift leaves and dust into the air. When you see one of these "whirls" stirring up the dust on a country road, look into the sky, a little to the direction toward which the wind is blowing. You will often find a buzzard circling there. He circles to keep within the area of the "whirl" which increases in diameter with height.

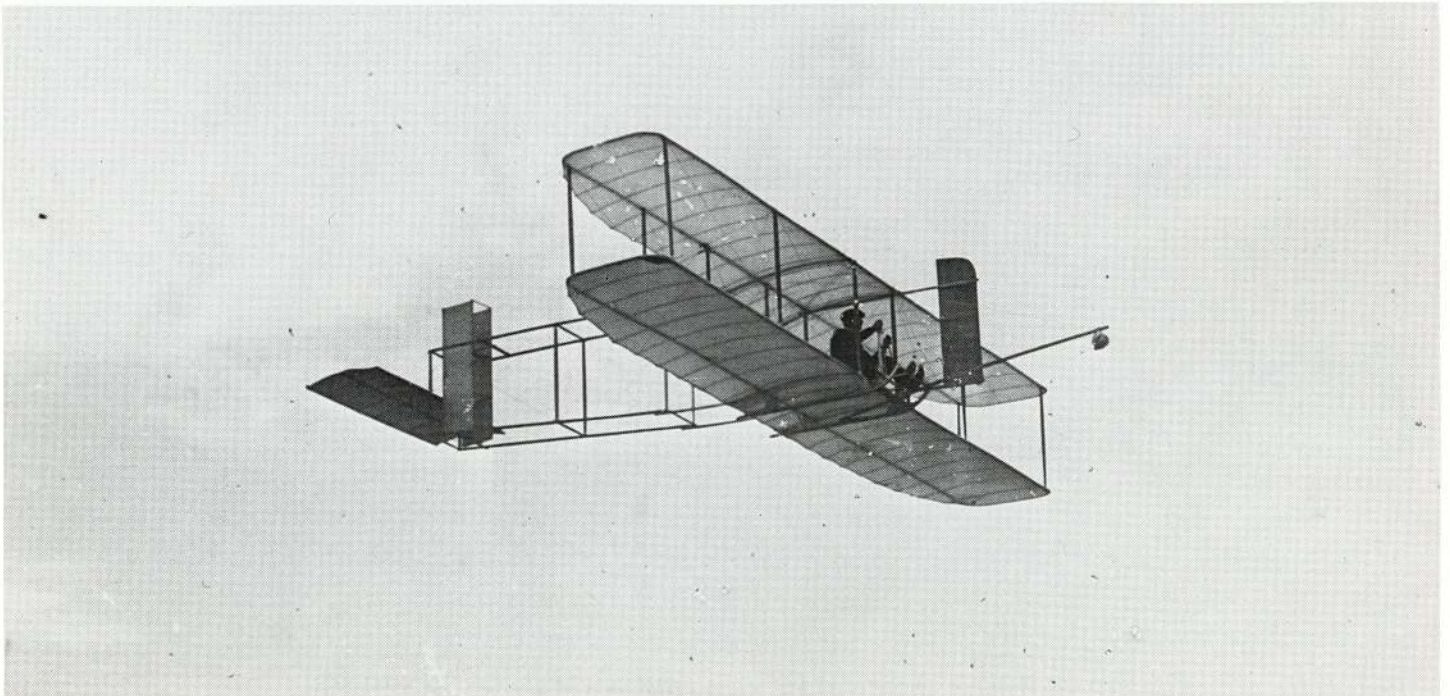
An aviator frequently runs into these rising currents and feels a slight "bump," but as the diameter of the "whirl" is

usually not much in excess of a hundred feet his machine is out of it in a second. With the lightly loaded, slow machines of ten to fifteen years ago these "bumps" were more pronounced and the distance the machine was lifted by one of them was much greater than that experienced by the fast machines of today. In 1910, while training some of the early aviators, I had an unusual experience of this kind near Montgomery, Ala.

I had ascended to a height of a little over one-half mile and was descending when at a height of about fifteen hundred feet I suddenly discovered that I was not able to descend further, although my motor was throttled to the limit and the machine was pointed downward as steeply as I felt it safe to point it. I remained at a height of about fifteen hundred feet for a period of five minutes without making any appreciable descent. Suddenly the machine again began to descend and was on the ground in less than a minute.

The flight was made in an almost perfect calm. The descent was in a spiral of not more than five or six hundred feet diameter. This probably accounted for the long time the machine remained in the uptrend of air. No doubt, if I had steered out of the spiral into a straight course, I would have been out of the rising trend in a few seconds; but I did not think of this at the time. In fact, I was so astonished that I did not think at the time of any reason for the phenomenon. But it is evident the machine was in a whirlwind of unusual diameter, in which the air was rising as fast as the machine could descend. These whirlwinds and other rising trends of air are not present everywhere and on some days do not exist at all. We, therefore, cannot hope to get much use of them as a means of travel.

The news reports of the contests abroad have created in the public mind an exaggerated impression of the importance of this kind of flying. My brother and I, as well as Lilienthal, Chanute and others before us, experimented in this way. We found, however, that while it was a most delightful sport, and furnished a safe and cheap means of acquiring skill in operating an airplane, it was too slow and expensive as a means of obtaining scientific data for the design of aircraft. I feel safe in predicting that it will never rival the powered airplane as a means of transportation nor the wind tunnel as a means of obtaining more exact scientific knowledge in aerodynamics.



1911 Soaring Record: In 1911, Orville Wright set a soaring record of 9 minutes, 45 seconds at Kitty Hawk. Note the bag containing sand used as a counterweight.

Soaring Society of America's Highest Award

It is with pleasure that we announce the recipient of the Warren E. Eaton Memorial Trophy for 1978. It is Museum Trustee and Soaring Society of America Director Ted Sharp from North Hollywood, California. He is the second consecutive Museum Trustee to win the Award; last year's winner being Bernald S. Smith, former President of National Soaring Museum. Ted has been a vice-president of the National Soaring Museum for 6 years and the Treasurer of the Soaring Society of America since 1963. Ted's dedication and outstanding service to both groups is known nation wide and it is fitting that he receive this prestigious award.

It is interesting to note that six of the previous recipients of this award sit on the Board of Trustees of the National Soaring Museum and that most of the recipients are also members of the United States Soaring Hall of Fame.

Mrs. Genevieve Eaton established the Warren E. Eaton Memorial Soaring Trophy in the memory of her husband who

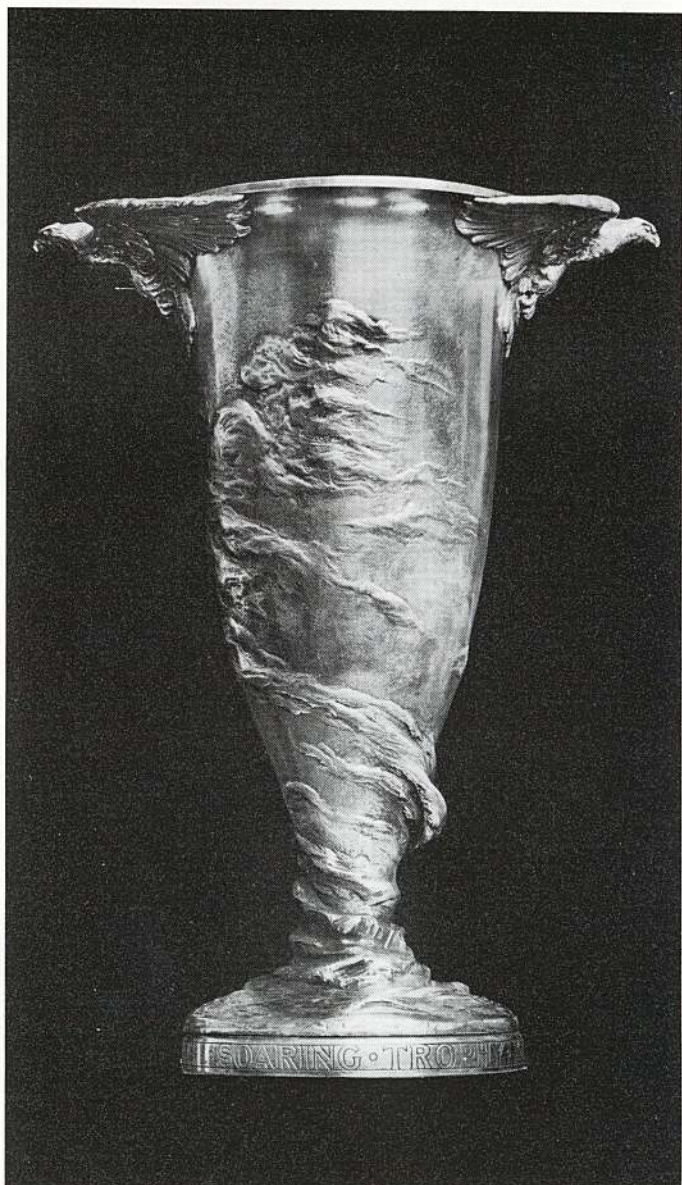
was the founder and first President of the Soaring Society of America. It was her wish that there be an annual recognition of the person who has made an outstanding contribution to the art, sport or science of soaring flight in the United States.

The solid silver Trophy was executed by the noted sculptress, Sally J. Franham; it shows in bas relief spirally ascending cumulus clouds above which Warren Eaton's sailplane, Falcon, soars. (The Bowlus du Pont Falcon is presently on display at the Silver Hill Facility of the Smithsonian's National Air and Space Museum.

The Trophy was first awarded at the Tenth Annual National Soaring Contest held June 24-July 9, 1939 in Elmira, New York. The first recipient was Richard C. du Pont. Mr. du Pont was in his third term as President of the Soaring Society of America at the time of the Award.

Our congratulations to Ted and his family who have been so supportive of his role in the soaring movement.

Shirley Sliwa



The Warren E. Eaton Memorial Soaring Trophy.



Prestigious Award: Ted Sharp shown at his home with the well deserved trophy. Through Mr. Sharp's generosity the National Soaring Museum is proud to be able to display the Eaton Trophy until it is presented again at the next semi-annual meeting of the Directors of the Soaring Society of America in Seattle, Washington, February 27 - March 2, 1980.

50th Anniversary

of

AERO CLUB ALBATROSS

On April 7, 1979 there was a gathering of celebrants to honor the oldest continuously operating soaring Club in the United States, the Aero Club Albatross, and its founder and mentor Gustav Scheurer who is also celebrating his 80th year. To honor ACA you must first know a little about its founder, Honorary President and advisor. Gus assisted in the formation of the Soaring Society of America in the early thirties and has membership certificate No. 28 signed by Warren E. Eaton. He designed and built the first glider launching winch used in the U.S. by using Model "T" Ford components. The Thomas A. Edison Co., of West Orange, New Jersey generously loaned a building to the Club to use as a workshop, and there the first winch was developed and built. In 1933 Gus was invited to discuss winch launching techniques at a meeting of the Directors of the Soaring Society of America in the Hotel New Yorker, New York City. In 1937 Gus was elected a Director to the SSA. He is a member of the Soaring Hall of Fame and a recipient of SSA's Certificate of Appreciation.

To read the Club's record of activity in the April issue of their newsletter "PINIONS", so named by Gus' wife Marion in 1969, it is obvious that the Club has experienced all phases of soaring, training, informal Meets, state gliding competitions, Eastern States Gliding and Soaring Meets, Region 2 Championships, individual owners, syndicates, good days, bad days, hangar flying and all that goes with soaring and an active soaring operation. The names on the list of dedicated, hard working members who have either moved elsewhere or are still active with the Club are well known throughout the soaring community. There is no doubt though that Gus' name is interlaced throughout ACA's history and records of achievement.

The program began with the awarding of F.A.I. (Federation Aeronautique Internationale) Badges and the annual club awards of achievement. The highest award given by the ACA, understandingly, is the Gus Scheurer Award and it was presented by John Dellicker, last year's recipient, to Bob Fitch. Ray Young, ACA Program Director and SSA Director of Region 2 presented Gus with new automobile license plates reading "ACA 50" in honor of the occasion. The program was then turned over to Gus who gave a brief but impressive history of the club. ACA President Jeffery Van Doren then called on members from the audience to say a few words. It was awesome to hear from Herb Ellison, Russ Gehling, John Hulsher, Bill Langley, Henry Orechowski, Ed Randall, Paul Schweizer, and Stan Smith, knowing that in this group there were glider licenses issued with Orville Wright's signature, world record holders, and leading figures in the world of soaring. In all cases they gave tribute to Gus Schuerer, to the Aero Club Albatross, and to soaring.

Shirley Sliwa



ACA founder Gus Scheurer presenting impressive club history. (Article photos by R.W. Reisert, ACA club member.)



Ray Young Region 2 Director of the Soaring Society of America displays Gus Scheurer's gift of New Jersey license plates "ACA 50" commemorating the occasion. Left to right: John Dellicker, Gus Scheurer, and Ray Young.



Left to right: Russ Gehling, Gus Scheurer and Paul Schweizer Region 3 Director of the Soaring Society of America in the spirit of the evening.

Museum's Graphics Wins Awards

The Museum and its advertising agency, Goff Communications, Inc., won top awards in the eighth annual Addy Awards competition of the Southern Tier area of New York State. Museum Director William D. English, Jr. and John Goff of the above mentioned firm collaborated on the award winning materials.

A first place was won in the Business Publication, Black and White category for the two page spread in the December 1978 issue of SOARING for the Museum's membership campaign. Another first place was won in the Printed Materials, Catalogs and Brochures category for the Museum's Membership brochure. A third place was won in the Potpourri category for the National Soaring Museum's billboard. There was a record 232 entries in the competition. Judges were Marc Bodner of WHP-TV in Harrisburg, Pennsylvania, Jeffrey Reinhardt of the Buffalo Courier-Express and Melissa Reinhardt of Faller, Klenk and Quinlan Advertising of Buffalo, New York. Heading the awards committee were Donald Murphy and Jon Wingate, both of WSYE-TV Elmira, New York.



National Soaring Museum's billboard, a third place winner in the Potpourri category.

A century of gliding and soaring history.



First Prize Winner in the Printed Materials Category: showing the cover of the Museum's Membership Brochure.

Silent Wings of World War II

Editor's Note: This article is a reprint from the March 1979 issue of THE AMERICAN LEGION MAGAZINE.

by B.J. McCausey

There are few people who remember the assault glider program of World War II, but there are a goodly number of the Airborne who can account for flying time in the planes. They remember. Especially the Airborne commandos, Pathfinders, and Airborne Infantry in the European Theater, and their equivalents comprising the Airborne, Troop Carrier Squadrons, and the First Air Commando Group in the Southwest Pacific.

The use of gliders in combat was the brainchild of Adolf Hitler. It was highly secret, and under the direct orders of the Fuehrer. The first assault was on Fort Eben Emael on the border of Belgium. After a costly yet successful invasion of Crete, Hitler abandoned the use of the glider.

But by then almost every allied country and branch of service had picked up the idea, and were experimenting with their various designs.

The debut of the German glider was also accompanied by another secret weapon, the "hollow charge." The original discovery by an American scientist, C. E. Munroe, was utilized by the Germans to construct a device that would blow a hole through six inches of steel. The bomb was used at Eben Emael. The Americans had a device using the same principle in the "shaped charge" for the bazooka. The Munroe principle was later used to develop the atom bomb.

The English Horsa and the United States Waco CG-4A were the main glider models sharing alike in the European Theater. Only the Waco flew in the Southwest Pacific and out of North Africa. Glider riders were from all Allied countries at

one time or another. There were even Japanese — the Nisei, in ETO of course.

The CG (Cargo Glider), named the Hadrian by the British, carried a quarter-ton truck and three men, or a 75-mm howitzer with three men, or a Jeep with three men, or a D-2 Bulldozer and two men, or three mules and two mule skinners, or 13 men fully equipped, or supply trailers and various supplies and ammunition.

There were other modifications and designs of the CG numbering as high as 41 models. Loading was accomplished by raising the nose section, inside of which were located the two pilot seats, while propping up the tail section. Cargo load — 4,060 pounds.

The British Horsa Mark I and II carried 28 troops, or two Jeeps and drivers, or two half-ton trucks and drivers, or a 75-mm howitzer and a quarter-ton truck with four men, or a small tank. Cargo load — 7,380 pounds. The Hamilcar carried a Tetrach tank, or a Locust tank, or two armored scout cars, or 40 men. Cargo — 17,500 pounds. Other British models were the Hengist and the Hotspur.

The Germans had the DFS-230 assault glider as their main air weapon. Experiments for other models were of gigantic size, and a small single-man glider-flight interceptor where the pilot lay prone. The glider carried two 30-mm cannons.

Experimental gliders were the order of the day. Countries other than the above mentioned, built at least one model. They were Argentina, Australia, Canada, China,



Pick up of a British Horsa glider. Note bifurcated tow yoke.

Czechoslovakia, France, India, Italy, Japan, Russia, Sweden, and Turkey.

The largest number of glider missions were carried out in the European Theater. Related to or within the missions were innumerable serials and sorties. Many daring flights were made some of which used a "clothes line" arrangement to snatch the gliders off the ground by a swooping tow plane. Mussolini was rescued from his jail in the Abruzzi mountains of Italy by a German glider mission although he was flown out by the only powered plane in the group — a single-engine Storch.

The storybook mission of the gliders was in Burma. The characters were of the Army Air Forces backed by soldiers from all over the area of CBI. The combined operation was centered around a village named Myitkyina (Mitch-i-naw) 200 miles behind the Japanese lines. The three main glider LZ's were called "Broadway" after that street in New York City. Another was "Picadilly" after the one in London, and still another was "Chowringhee" for Calcutta honoring the soldiers from those countries.

The United States Troop Carrier Squadrons and the First Air Commando Group were supported by ground forces of General Stilwell and the famous Merrill's Marauders. Glider riders were Chindits, Kachins, Gurkhas with their kukri knives, Aussies, Tommies, and Yanks who came from Britain, Burma, West Africa, India, China, the United States, and an occasional Australian.

The leaders were Maj. Gen. Orde Wingate who was a student and protege of Lawrence of Arabia. Colonel Cochran, glider leader, was a model for Flip Corkin in the cartoon strip "Terry and the Pirates." Movie actor Jackie Coogan flew a lead glider into a jungle patch in the dead of night to set up landing operations. It was rumored that Mickey Spillane, creator of Mike Hammer, was a glider pilot. The rank-and-file pilots had their complement of writers, artists, and businessmen, and a couple of millionaires thrown in as well.

Glider pilots were dual-rated volunteers, and some came from bomber, transport and pursuit plane outfits. They found the jungles difficult to cope with, and controlled crashes were part of glider flying. The heat and humidity rotted ropes and fabric. Aborts were frequent. Many gliders were lost over the mountains when ropes broke, clearings in the look-alike jungle were mistaken for LZ's, and power troubles plagued many of the tow planes.

One serial of 54 gliders ended up with only three flyable planes. Many gliders were overloaded to twice the specified

weight which demanded landing speeds of over 100 miles an hour in aircraft with normal landing speeds of just over 50 miles an hour. The troop carriers stayed in business anyway with a total of 96 sorties in the area.

World War II was the time aviation came into its own element. Heretofore people of the world observed "the wild, blue yonder" as being "for the birds," and especially the military. Only a scattered few of the millions of soldiers had ever flown in an airplane of any kind. The fighting Gurkhas from India expressed the general sentiment upon seeing the gliders for the first time — "We're ready to fight, and are not afraid to die, but do you know those airplanes do not have motors?"

In addition to the absence of motors was the absence of parachutes. The glider was the only aircraft in the AAF that did not have parachutes for the passengers. The glider pilots, however, were ordered to wear them. Since it was considered bad taste to wear the 'chutes when others had none, the pilots used the packs for seat cushions.

Airborne glider riders who knew what a glider looked like were still not overjoyed with the prospect of commando raids behind the enemy lines in the dead of night or any other time. The names they used to describe the assault planes varied in many languages. The English descriptives probably outnumbered all the others. More English-speaking commandos flew in them.

The more popular pet names were "whispering death," "flying coffins," "sitting ducks" and "gooney birds," while the tow pilots unlovingly referred to their wards as "lead chunks."

In recent years the ranks of the glider pilots have begun to dwindle. Their hey-day came and went with World War II. There are no replacements, and the total never exceeded 7,500.

In order to accumulate records, they have organized the National World War II Glider Pilots Association with a War room museum in Dallas, a growing newspaper "Silent Wings," a flyable CG-4A as a joint project with the Confederate Air Force, and a build-up of nostalgic and sentimental bric-a-brac keepsakes. Each year there is a national convention which is attended by British and German glider pilots. When thirst prevails there are regional mini-bashes. Many non-pilots have joined as associate members. However, when the membership falls to the last 15 glider pilots, the museum will be turned over to a "like organization" which stands to be, at the moment, the 82d and 101st Airborne.

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Clothesline pick up of a CG-4A by a C-47. The C-47 has just received towline loop from station poles. The tension is not yet on the CG-4A.

(Official Photographs: U.S. Army Air Forces)

Czechoslovakia, France, India, Italy, Japan, Russia, Sweden, and Turkey.

The largest number of glider missions were carried out in the European Theater. Related to or within the missions were innumerable serials and sorties. Many daring flights were made some of which used a "clothes line" arrangement to snatch the gliders off the ground by a swooping tow plane. Mussolini was rescued from his jail in the Abruzzi mountains of Italy by a German glider mission although he was flown out by the only powered plane in the group — a single-engine Storch.

The storybook mission of the gliders was in Burma. The characters were of the Army Air Forces backed by soldiers from all over the area of CBI. The combined operation was centered around a village named Myitkyina (Mitch-i-naw) 200 miles behind the Japanese lines. The three main glider LZ's were called "Broadway" after that street in New York City. Another was "Picadilly" after the one in London, and still another was "Chowringhee" for Calcutta honoring the soldiers from those countries.

The United States Troop Carrier Squadrons and the First Air Commando Group were supported by ground forces of General Stilwell and the famous Merrill's Marauders. Glider riders were Chindits, Kachins, Gurkhas with their kukri knives, Aussies, Tommies, and Yanks who came from Britain, Burma, West Africa, India, China, the United States, and an occasional Australian.

The leaders were Maj. Gen. Orde Wingate who was a student and protege of Lawrence of Arabia. Colonel Cochran, glider leader, was a model for Flip Corkin in the cartoon strip "Terry and the Pirates." Movie actor Jackie Coogan flew a lead glider into a jungle patch in the dead of night to set up landing operations. It was rumored that Mickey Spillane, creator of Mike Hammer, was a glider pilot. The rank-and-file pilots had their complement of writers, artists, and businessmen, and a couple of millionaires thrown in as well.

Glider pilots were dual-rated volunteers, and some came from bomber, transport and pursuit plane outfits. They found the jungles difficult to cope with, and controlled crashes were part of glider flying. The heat and humidity rotted ropes and fabric. Aborts were frequent. Many gliders were lost over the mountains when ropes broke, clearings in the look-alike jungle were mistaken for LZ's, and power troubles plagued many of the tow planes.

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weight which demanded landing speeds of over 100 miles an hour in aircraft with normal landing speeds of just over 50 miles an hour. The troop carriers stayed in business anyway with a total of 96 sorties in the area.

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(Continued on Page 16)



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(Official Photographs: U.S. Army Air Forces)

In Appreciation

The National Soaring Museum thanks the Membership for the support and encouragement it has given the Museum during the past year. Without this support the Museum could not serve the soaring community.

The list of members is for 1978 through April 30, 1979. If we have missed anyone or if there are any corrections, please accept our apologies and notify us so that corrections may be made.

We also wish to thank the many friends who have donated their significant soaring data and artifacts to the Museum's growing collection. These contributions will enable the National Soaring Museum to provide visitors with an educational and enjoyable experience and provide for the preservation of soaring's rich tradition.

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 Hubert Smith, Jr.
 Leigh Smith
 Mary Welles Smith
 Norman E. Smith
 Robert Smith

Robert R. Smith
 Stanley W. Smith
 Stephen A. Smith
 Tom Smith
 Gardner H. Snow
 Capt. Cecil O. Snyder, III
 Charles L. Snyder
 Charles M. Snyder
 Wayner R. Snyder
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 John T. Songer
 Gene Spainhour
 George H. Sparhawk
 John S. Sprague
 Ted Sprague
 Tony Spycher
 William Squier
 Gordon C. Squire Joseph Starcz
 Pamela Stark
 Sterling V. Starr
 Richard Steinhilper
 Norris Stephens
 Barry Stepp
 Wayner Stettler
 James Ladd Stevens
 John H. Stewart, II
 Amy L. Stine
 Bartol F. Stone, Jr.
 R. G. Storck
 Richard M. Strang
 Stephan F. Strassmayr
 Capt. R. A. Stratton
 Kenneth J. Stuckas
 Louis S. Stur
 Rudy Stutzmann
 Monty Sullivan
 Ardean E. Sveum
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 Geza & Nicole L. Szurovy
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 Dave Taylor
 Irving Taylor
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 William B. Terry, Jr.
 David Teter
 Michael Teter
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 Terri Therit
 Jim Thomas
 Robert F. Thompson
 Thomas C. Thompson
 Douglas P. Thorne
 Paul J. Todd
 Rick Toomim
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 Daniel Tuck
 Peter Turchan
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 Isacco Valli
 W. G. Van Breukelen
 A. J. Van Den Blink, III
 Kenneth Vance
 John Kim Vandiver
 Allen H. Vannname

Wayne R. Vaughn
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 Heinz Weissenbuehler
 Heinz Weissenbuehler, Jr.
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 Richard Wetmore
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 Lyle W. White
 John H. Whitney
 Maurice P. Whitney
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 Clifford Wilcox
 Jon Wilcox
 Dan N. Williams
 James A. Williams
 Peter A. Williams
 Skip Williams
 Stuart W. Williamson, Jr.
 B. N. Willis
 Dr. Michael Wimsatt
 David Winkler
 James Witter
 Sarah Woerner
 Jerry C. Wolfe
 Austin L. Wolff
 Albertus Wolfkamp
 Brenda Wood
 Gregory Wood
 Walter W. Wood
 Charles Woodruff
 Woody Woodward
 Daniel E. Yarbrough
 John Yarnell
 Cornelia M. Yoder
 Capt. R. A. Young, Jr.
 R. A. Young, III
 Dan Zander
 David Zanze
 Carl J. Zett
 A. L. Zigas
 Keith Zimmerman
 Elmer Zook
 Daniel Zuck

LETTERS

"... I have one request, can you please help me find the address of the family of Admiral Patrick N. L. Bellinger, known of the battle of Pearl Harbor? His father emigrated with his brother in 1862 to America; both are brothers of my grandfather. Unfortunately we have no more alliance with the family in the USA. Perhaps an inquiry in the NSM Journal? I thank you very much, if you can help me."

Sincerely yours,
Otto Bellinger, Staff
WasserKuppen-Museum
71 Heilbronn
Obere Neckarstr. 14
West Germany

"Read with interest your article in the Fall 1978 issue on the TG-2, ("How the SGS 2-8 Became the Military TG-2"). I have been flying TG-2 Serial No. 3 since 1960 when I finished recovering it. I have enjoyed flying it.

The log book just says 366.05 total Army time. I did not realize a group of individuals owned this ship before the Army. It is rigged per spec's and cannot get it to spin. Thought that you might like to know."

Wally Loewen
954 So. Riverview Avenue
Reedley, California 93659

SOARING MAGAZINES: Back issues \$1 each. January 1968 through February 1978 plus some extras and a few earlier issues. List on request. Proceeds will be donated to the National Soaring Museum. R.L. Moore, Rt. 1 Box 5238, Richland, Washington 99352.

OMISSION

To the list of capital donors to the building fund:

Naomi Setz, in honor of
Rudolph F. & Walter H. Setz
George Squillario
R. A. Young, III

My apologies,
Shirley Sliwa

SILENT WINGS OF WORLD WAR II

(Continued from Page 11)

Operation Code Names (European Theater) — Listing is alphabetical.

Anvil (see Dragoon)
Comet Two (British to Nijmegen, cancelled)
Dove (southern France)
Dragoon (earlier Anvil, southern France)
Eclipse (to Berlin, cancelled)
Freshman (to Norway, glider raid)
Fustian (to Sicily)
Granite (German attack on Ft. Eben Emael)
Ladbroke (to Sicily)
Market-Garden (to Holland)
Neptune (to Normandy)
Overlord (to Northwest France)
Repulse (to Bastogne, resupply)
Sealion (German invasion of England, cancelled)
Varsity (across the Rhine)

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