

NSM

A Quarterly Journal
of the National Soaring Museum
Winter 1988-89 Vol. 11, Number 3



1989 CALENDAR OF EVENTS

Date	Event	Location
May 18	International Museum Day	NSM
May 26, 27, 28	1989 Exhibit Opening 50th Anniversary Schweizer Aircraft Corporation 25th Anniversary of the first 1,000km flight by Al Parker Evolution of the National Soaring Museum United States Soaring Hall of Fame Induction Ceremonies and Banquet National Soaring Museum Trustees Annual Meeting	NSM
May 27, 28, 29	Vintage Sailplane Regatta / VSA Annual Meeting	NSM/Harris Hill
June 5-11	National Soaring Week	NSM
June 14, 15	NASA SARSAT Exhibit	NSM
July 1-4	Schweizer Aircraft Invitational Regatta for Schweizer sailplanes	Harris Hill/NSM
August 16	Twin Tier Hangarfest Pilots Outing	Harris Hill
Sept. 2-9	Soaring Society of America Region III Sailplane Championships	Harris Hill/NSM
Sept. 8, 9, 10	Museum Expansion Dedication and Festivities 16th Ralph S. Barnaby Lecture Soaring Society of America Directors Summer Meeting National Soaring Museum Trustees Fall Meeting	NSM
Oct. 7, 8, 14, 15	Fall Foliage Weekends	NSM/Harris Hill
Oct. 14	4th Annual "Kiteciment" Kitefly	NSM/Harris Hill
Nov. 24, 25	46th Annual Snowbird Sailplane Regatta	NSM/Harris Hill
Dec. 8	Community Soaring Committee Luncheon	NSM
By Reservation	NSM Educational Outreach Programs "History Of Soaring" "The Wright Brothers and the Beginnings of Soaring" "The Glider War, 1940-45"	As Requested

From the NSM Gift Loft

Here is your special video tour of The National Soaring Museum narrated by actor, writer, director and sailplane pilot, Cliff Robertson. You will see the largest exhibit of contemporary and classic sailplanes in the world and rare NSM archive film clips of some of the soaring pioneers and their gliders. Experience the romance and adventure of silent flight with this 27 minute jewel. Order now; fill out the coupon and mail it, along with your check or money order, to NATIONAL SOARING MUSEUM, Harris Hill RD #3, Elmira, NY 14903



\$29⁹⁵

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ISSN # 0892-0516

NSM is a publication of the National Soaring Museum, Harris Hill, RD3, Elmira, New York 14903. Phone (607) 734-3128. 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

Director — Shirley Sliwa

Editor — Bill Gallagher

The National Soaring Museum is an affiliate of The Soaring Society of America and, as such, is the official repository for all its artifacts and memorabilia.

FROM BC TO SOARING "C" THE CAVALCADE OF FLIGHT

The march of visionaries, gifted engineers and charlatans through the annals of recorded history probably contains as many different approaches to solving the riddle of flight as the numbers of those joining the quest.

These pioneer aeronauts were laughed at, castigated, and sometimes even tried for witchcraft; but nothing could impede man's irreversible thrust toward flight. William Cowper, in a letter to the Reverend W. Unwin said, "I would . . . make it death, for a man to be convicted of flying, the moment he could be caught Historians would load my memory with phlegm, and stupidity, and oppression; but, in the meantime the world would go on quietly, and if it enjoyed less liberty, would be at least more secure."¹

Some of the research was simplistic, such as that of George Faux, an English farmer, who, at the age of 62, was convinced from his observation of birds, that lift was generated from the front edges of their wings. Therefore, he concluded, he could attain the same result using his bare arms.

In 1862, he leaped from the tallest building in his village, fittingly enough, the public house, flapping his bare arms. No bones seemed to have been broken on impact, and when he regained his composure he muttered, "I'm really a good flyer, but I cannot alight very well"² At the other end of the spectrum, the Wright Brothers exemplify the thorough, methodical, investigation and experimentation that finally gained for them their ability to fly the world's first powered, controlled aircraft, December 17, 1903, at Kitty Hawk, NC.

Wilbur, in a Sept. 18, 1901, lecture to the Western Society of Engineers said, ". . . . If you are looking for perfect safety, you would do well to sit on a fence and watch the birds; but if you really wish to learn, you must mount a machine and become acquainted with its tricks by actual trial"³

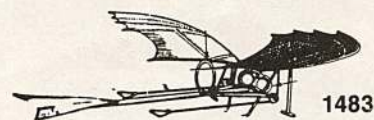
The following is an abbreviated glance back through aero-time, from the earliest known mythological accounts of flight to the first organized American National Soaring Contest in 1930.

B.C. c. 2000	When the father of Chinese Emperor Shun ordered him to the top of a granary and then set it on fire, the youth grabbed two wide-brimmed reed hats, jumped and floated safely to the ground.	1655	Robert Hooke builds an ornithopter device, which left the ground and was probably the first to have done so.
c. 1500	Persian King Kai Kawus was said to have had a flying throne borne aloft by four hungry eagles that flopped frantically in an effort to reach slabs of meat impaled on spears mounted just beyond their beaks.	1670	Jesuit Father Francesco de Lana de Terzi publishes his design of a flying gondola, and suspects that, "A beneficent Providence would not permit the development of a flying machine by reason of the disturbance it would cause to the civil government of man. No ship or castle would be safe from the depredations of rampaging aircraft hurling fireworks and fireballs on a hapless populace cowering below."
c. 852	Legend of English King Bladud, father of Shakespeare's King Lear is killed when he attempts to fly from a tower.	1678	Besnier attempts to fly with leg and arm-worked flappers.
A.D. 852	The Moor, Armen Firman jumps from a tower in Cordoba, Spain.	1680	Borelli publishes his writings on the inadequacy of muscle power for human ornithopter flight.
1020	Oliver, or Eilmer of Malmesbury, monk, astrologer and mechanic, jumps from Malmesbury Abbey and "flew for more than a furlong" before breaking his legs.	1709	Brazilian born Fr. Bartholemeu deGusmao builds and probably tests a model version of his "Passarola" glider.
13th Century	Windmills are used in Europe for the first time.	1742	De Bacqueville attempts to fly with two sets of wings across the Seine River.
c. 1250	Roger Bacon writes about the possibilities of building flying machines.	1749	Alexander Wilson, Professor of Astronomy at Glasgow University, first to scientifically use kite to record cloud temperature.
1326	Walter de Milemete depicts a windsock kite with small wings dropping a bomb on a besieged city.	1752	Benjamin Franklin studies electricity flying a kite in a thunderstorm.
c. 1420	Joanes Fontana illustrates a rocket-powered bird.	1754	Michael V. Lomonosov reputed to have flown helicopter model in Russia.
c. 1483-1505	DaVinci, in a body of work comprising some 500 sketches and 3500 words describes the parachute, the ornithopter, finned projectiles, the first powered airplane in history and bird flight. Despite his advanced thinking, his research was not published until the late 1800's.	1764	Melchior Bauer designs a fixed wing flying machine. Branded a fool by a counselor to King Frederick the Great, Bauer abandoned his experiments. He was vindicated when his use of dihedrally set wings became standard in later aircraft.
1507	John Damian attempts to fly with wings of feathers from the ramparts of Sterling Castle in Scotland.	1768	J.P. Paucton's "pterophore" is the first concept for a convertiplane with a helicopter screw and propulsive screw.
1589	First description of a kite in Europe (della Porta).	1772	Canon Desforges designs and builds his "voiture volante" flying machine.
1595	Fausto Veranzio illustrates a parachute design based on a ship's sail.		
1638	Books on moon travel published by Bishops Wilkins and Goodwin.		

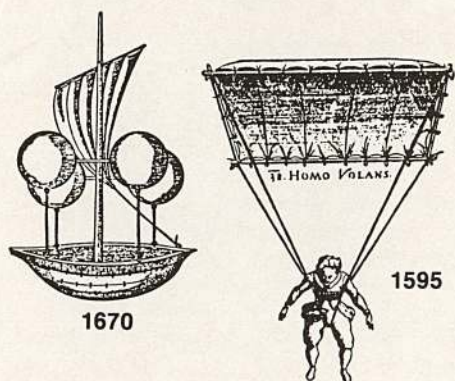
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(Continued from page 3)

- 1781 Karl Friedrich Meerwein builds a glider/ornithopter which is said to have made a short glide.
- 1782 Montgolfier brothers fly their first paper bag hot air balloon.
- 1783 World's first balloon voyage by DeRozier and D'Arlandes in a Montgolfier hot air balloon, Paris.
- 1784 First balloon voyage in Britain (Lunardi). Launoy and Bienvenu build model helicopter. First attempt to propel a full-size aircraft with an airscrew (Blanchard, on his balloon at London).
- 1785 First English Channel crossing by air, England to France (Blanchard and Jeffries in a balloon).
- 1794 First military aerial reconnaissance by the French army (from hydrogen balloon at Maubeuge).
- 1796 Cayley flies his model helicopter, adapted from that of Launoy and Bienvenu.
- 1797 First human parachute descent made from a balloon (Garnerin).
- 1799 First design of a modern configuration aeroplane, incorporating fixed wings, tail-unit control surfaces, and an auxiliary method of propulsion (Cayley).
- 1804 Cayley tests airfoils on a revolving arm. Cayley flies a model glider of modern configuration with cruciform tail.
- 1805 Congreve tests first modern rocket missile.
- 1808 Cayley invents the spoke/cycle-type tension wheel.
- 1809 Cayley designs and flies an unmanned, full-size glider.
- 1809-1810 Cayley lays the foundation for modern aeronautics with the publication of his papers. "The whole problem is confined within these limits, viz. to make a surface support a given weight by the application of power to the resistance of air."
- 1822 Pockock flies a kite carrying his young daughter, and seven years later tests a kite-drawn carriage.
- 1843 William Samuel Henson publishes his design for the Aerial Steam Carriage, the first airscrew propelled, fixed-wing airplane. Four years later, he tests the first powered model which does not fly.
- 1848 John Stringfellow builds a steam-powered monoplane that is incapable of flight.
- 1849 Cayley tests his boy-carrying glider.
- 1853 Cayley's "coachman glider" makes an uncontrolled flight carrying his coachman. Cayley designs a stretched rubber motor for models.
- 1856-1868 Jean-Marie LeBris tests two full-size gliders. Designs based on soaring birds.
- 1857-1858 Felix DuTemple successfully tests the first powered flight of model airplane. Wenham tests multiplane glider and suggests greater lift from high aspect ratio wings.

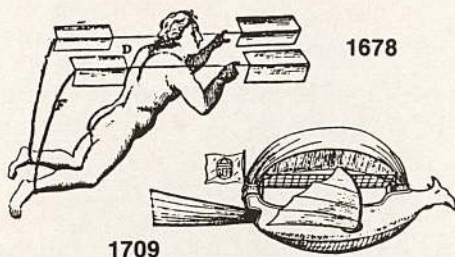


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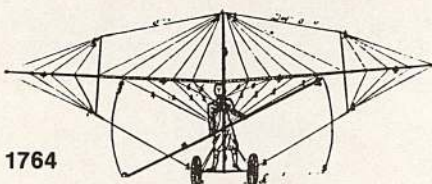
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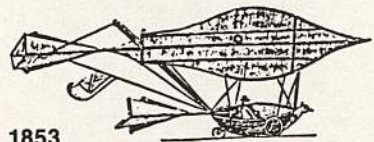


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1709



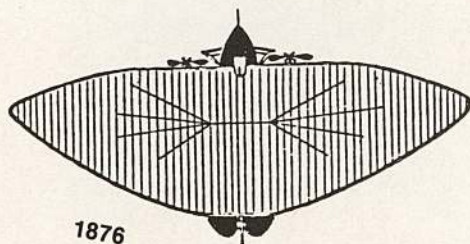
1764



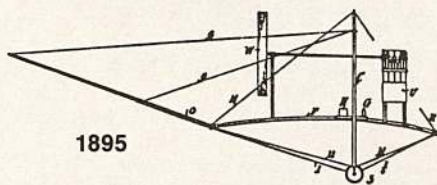
1853



1856



1876



1895

- 1871 Alphonse Penaud flies rubber powered model monoplane ("planophore") that demonstrates inherent stability. First wind tunnel experiments by Windham and Browning.
- 1871 J.G. Household said to have successfully flown a glider in South Africa.
- 1874 Felix DuTemple builds the first man-carrying powered airplane to take off, but does not fly.
- 1876 Penaud designs and patents a full-size amphibian airplane with retractable landing gear.
- 1879 Victor Tatin flies his compressed air-powered twin air-screw model.
- 1881 Louis Pierre Mouillard publishes "L'Empire de L'Air."
- 1883-1886 John Montgomery, Otay, CA tests his first gliders which are unsuccessful.
- 1884 Alexander Mozhaitski, Russia, builds the second man-carrying powered airplane which takes off but does not fly. Horatio Phillips patents his double surfaced, cambered wing airfoil.
- 1887 Lawrence Hargrave, Australia, invents the rotary engine.
- 1888 First gasoline engine to power Wolfert's full-size airship in flight.
- 1890 Clement Ader, France, designs "Eole" the first full-sized powered, piloted aircraft to take off, but it did not fly.
- 1891 Samuel P. Langley, U.S. tests his first steam driven tandem-winged model.
- 1891 Otto Lilienthal, Germany, first successful piloted gliding flights.
- 1893 Lawrence Hargrave invents box kite.
- 1894 Capt. B.F.S. Baden-Powell invents practical manlifting kites. Octave Chanute, U.S., publishes "Progress in Flying Machines," the first scientific and authoritative history of aviation. Sir Hiram Maxim, Britain, invents a full-sized steam powered biplane which is rail launched, but does not fly.
- 1895 Percy Pilcher flies his glider, "The Bat" for 20 seconds in England. He also designs a power flying machine.
- 1895-1899 James Means, U.S., publishes "The Aeronautical Annual."
- 1896 Octave Chanute, U.S., designs biplane hang glider using Pratt truss type of rigging that was successfully flown at Miller, Indiana. (A) Lilienthal killed in gliding accident.
- 1899 Wright Brothers invent a system of wing warping and use it for roll control on their kite.
- 1900 Wrights fly the #1 Glider at Kitty Hawk, NC.
- 1901 Wilbur Wright explains his wing warping technique at a Chicago lecture to the Western Society of Engineers.

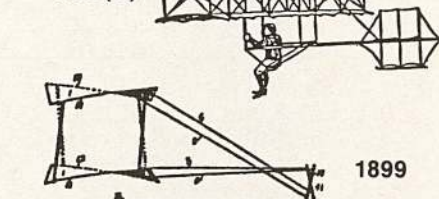


1890



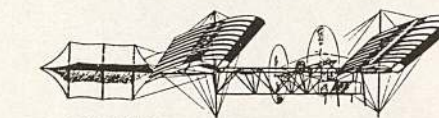
1891

1896(A)



1899

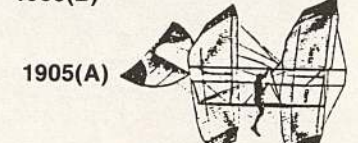
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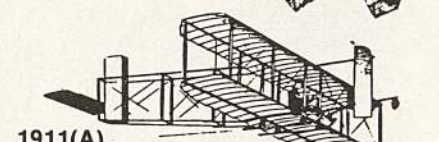
1903(A)



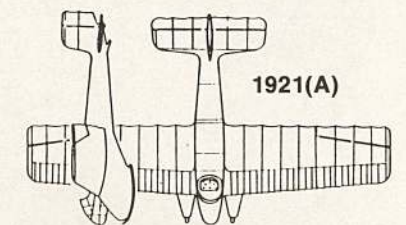
1903(B)



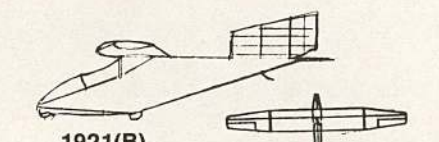
1905(A)



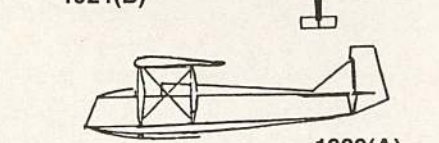
1911(A)



1921(A)



1921(B)

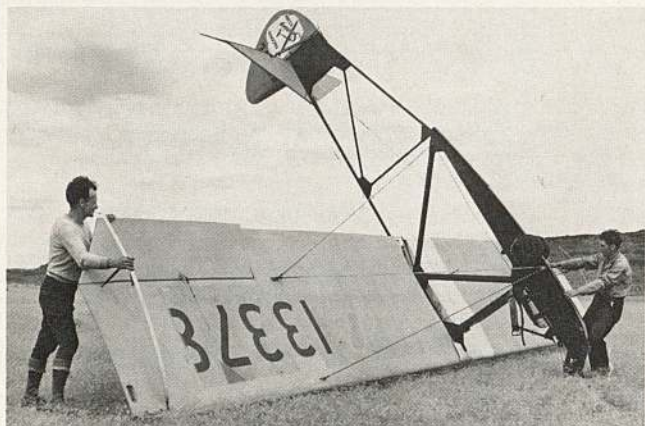


1929(A)

- 1902 The Wrights make almost 1,000 flights in the Glider #3. The first #3 had fixed vertical rudders, the second had an interconnected wing warping and rudder control system.
- 1903 Langley's full-sized powered "Aerodrome" crashes twice in the Potomac after a catapult launch from a barge. (A) Orville makes the first sustained, controlled power flight in the Wright Flyer, Dec. 17, 1903. (B)
- 1904 Samuel Franklin Cody constructs man-lifting kites adopted by British Army. Wilbur Wright flies the first circle in an aircraft.
- 1905 Dan Maloney pilots John Montgomery's "Santa Clara" glider which was released from a balloon at 4,000 feet. Cody flies an aileron, hot air equipped kite. The Federation Aeronautique Internationale (F.A.I.) for internationally regulating the various aspects of aviation was founded by Comte Henri de La Vaulx.
- 1906 The Wright patent covering roll and yaw axis control is published.
- 1907 Paul Cornu devises first man-carrying helicopter in free flight.
- 1908 Orville Wright first public flight at Fort Myer, VA.
- 1909 Jose Weiss builds a successful glider based on a bird form. Louis Bleriot flies across the English Channel from Calais to Dover in his modified Bleriot No. XI. First great aviation meet held at Rheims, which provided technical and governmental support for aviation.
- 1910 Junkers patents cantilever flying wing. First two-way aircraft communications by radio. Eugene Ely safely takes-off from the U.S.S. Birmingham, Hampton Roads, VA.
- 1911 Calbraith Perry Rodgers flies across the U.S. in a Wright EX from Long Island, NY to Long Beach, CA. First use of the aeroplane in warfare by the Italians against the Turks. Orville Wright soars 9 minutes and 45 seconds in his Glider #5. for a world record at Kitty Hawk, NC. (A)
- 1912 Glenn H. Curtiss successfully flies the first flying boat. First parachute jump from an aeroplane, Berry, U.S. Wilbur Wright dies of typhoid fever. Hans Gutermuth, Germany, flies his "Darmstadt" glider on the Wasserkuppe for 1 minute and 20 seconds.
- 1914 First Zeppelin raid on Antwerp Belgium.
- 1916 Porte "Baby" carries a Bristol "Scout" for the first airborne launch.
- 1919 Junkers invents airfoil wing flaps.
- 1920 Orville Wright and J.M. Jacobs invent split flaps. Oskar Ursinus, Germany, publisher of "Flugsport" invites Germans experimenting with gliders to participate in a competition at the Wasserkuppe. The winner is Wolfgang Klemperer flying the "Schwarze Teufel" (Black Devil).

ON THE COVER:

"Lee Holman, Shipping Inspector at Boeing in Seattle, starts a pupil at the controls of a (Tacoma Soaring Club) primary glider." Monkmeier Press Photo Service pictures from the NSM Multi-Media Collection.



"Trials of a beginner — but noody gets hurt. The would-be pilot (right) lifts the light trainer back on its wheels."

(Continued from page 5)

- 1921 Wolfgang Klemperer, Germany, flies the "Blue Mouse" 13 minutes on the Wasserkuppe.(A)
Willy Martens flies the "Vampyr" for 15 minutes at the Wasserkuppe.(B)
- 1922 Edmund (Eddie) Allen, who later became a famous Boeing test pilot, attends three national meets; the French at Combrasse, the British at Itford and the German at the Wasserkuppe. The French meet at Combrasse was the first to have an American entry. Allen submitted a detailed report on all three to the Mass. Institute of Technology (MIT).
- 1923 Floret soars for 7 hours and 3 minutes in a Hanriot glider.
Akaflieg Darmstadt designs the first successful long span, cantilever winged sailplane, "The Konsul."
Juan De la Cierva makes the first flight in a practical gyroplane.
- 1925 Massaux soars in a Poncelet for 10 hours and 29 minutes.
- 1926 Dr. Adolph Rhorbach, U.S., along with H.A. Wagner, discover the concept of "stressed skin" aircraft construction.
- 1928 F. Stamer flies the first rocket propelled aircraft, a canard type glider.
- 1928-1929 Edward J. Evans founded the Evans Glider Club of America, which later becomes the National Gliding Association, the forerunner of the present Soaring Society of America.
- 1929 Dr. Alexander Lippisch designs the sailplane "Wien" which has highly tapered cantilevered outer wing sections.
Robert Kronfeld makes one of the first cross country flights using thermal as well as ridge lift.
Ralph S. Barnaby becomes the first American to break Orville Wright's record with a 15 minute and 6 second soaring flight at Cape Cod, earning the first U.S. issued "C" soaring certificate.(A)
William Hawley Bowlus, U.S. soars for 1 hour and 21

(1929
contd.)

- 1930 Jan. - Charles and Anne Lindbergh both qualify for their "C" certificate in a Bowlus Model A "Paperwing" sailplane at Point Loma, CA.
Jan. - Ralph Barnaby, flying a Prueffling glider, is launched from the Navy airship, "Los Angeles" over Lakehurst, NJ.
Early Spring - Klemperer, Martin Schempp, Warren Eaton & Jack Sperry, search for national soaring contest site. Klemperer suggests Elmira, NY.
April - May - Frank (Speed) Hawks, in his especially modified Franklin "Eaglet" is towed 2,800 miles across the U.S. by a Waco 10 biplane.
April - Jack Barstow, U.S. flies a Bowlus sailplane 15 hours and 12 minutes, Point Loma, CA.
May - First U.S. Mail carried by glider, at the Bayside Glider Contest, Bayside, Long Island, NY.
July - Jack O'Meara, in a Baker-McMillan Cadet II, soars for 1 hour and 34 minutes over South Mountain in Elmira, NY.
Sept. - The first national soaring contest is held in Elmira. 25 pilots and 14 sailplanes & utility gliders participate. The contest is won by Albert Hastings. Wolf Hirth, using a spiraling technique on ascending columns of air, (thermals) flies his Musterle 33 miles in a cloudless sky during the first National Gliding Contest.

Bill Gallagher

FOOTNOTE REFERENCES

1. Aviation, An historical survey from its origins to the end of WWII, Charles H. Gibbs-Smith, Her Majesty's Stationery Office, by William Clowes & Sons Ltd., London & Beccles. Quotations on Flying, pg. 219.
2. The Compleat Birdman, An illustrated history of man powered flight, Peter Haining, Clarke, Doble & Brendon Ltd., Plymouth, England. Lib. of Cong, Catalog #76-26718, Chap. 1. pgs. 13-14.
3. Wind and Sand, The story of the Wright Brothers at Kitty Hawk, Lynanne Wescott and Paula Degen, Harry N. Abrams, Inc., Publishers, New York ISBN 08109-09189 - "1901", pg. 42.

BIBLIOGRAPHY FOR FROM BC TO SOARING "C" THE CAVALCADE OF FLIGHT

- American Heritage. Editors of "The American Heritage History Of Flight," 1966.
- Dawydoff, Alexis. "The Romantic History Of Soaring." 1947. 14th Annual National Soaring Meet. Wichita Falls, TX. program.
- Gibbs-Smith, Charles H.. "Aviation - An Historical Survey From Its Origins To The End Of WWII." 1970. "The Invention Of The Aeroplane (1799-1909)." 1966.
- Moolman, Valerie and the Editors of Time-Life Books. "The Road to Kitty Hawk, The Epic Of Flight." 1980.
- Schweizer, Paul A. "Wings Like Eagles - The story of soaring in the United States." 1988.
- Simons, Martin. "The World's Vintage Sailplanes, 1908-1945." 1986.
- Teale, Edwin. "The Book of Gliders." 1931.
- Wescott, Lynanne and Paula Degen. "Wind And Sand - The Story Of The Wright Brothers At Kitty Hawk." 1983.
- Wragg, David W. "Flight Before Flying." 1974.

FROM THE EDITOR:

The Museum's 1988 accomplishments were recounted during last December's Community Soaring Committee Luncheon at the NSM. The 120 attendees previewed "The Living Treasure House," a 26-minute tape on the background, activities, and exhibitry of the NSM. The show is narrated by actor, writer, director, and sailplane pilot, Cliff Robertson. The Museum's expansion progress was updated and a summation of the Museum's outreach programs was presented.

It is surprising how the Museum brings out the friendliness of people, especially those who have been associated with some aspect of flight. They convey a sense of being "home", and sometimes offer interesting comments on their aviation experiences.

One fellow casually mentioned that he was a retired Pan-Am flight engineer and one of his first trans-Atlantic trips was in a pre-WWII Sikorsky S-42 flying boat. He had a vivid recollection of the flight, because he witnessed two sunrises during the 28 hours from Ireland to the States, via the Azores.

The founder of the Royal Canadian Air Cadets soaring program, Col. Roy Windver, RCAF (ret.) of Hawkesbury, Ont., along with Capt. R.G. Loretto, Air Canada, of Port L'Orignal, Ont., visited the Museum and briefed us on their plans to expand the soaring movement in Canada.

We are constantly gratified by the loyalty and determination of some of our R.S.V.P. (Retired Seniors Volunteer Program) helpers. It was on one of the few extremely cold January days that Willis and Margaret Edger volunteered to help us address and zip the Fall NSM. Staff was just getting settled in the day's routine, when lobby-receptionist "Missy" Storch poked her head in the office and asked if we were expecting anyone this early, because there was a man and woman PUSHING their car toward the Museum. We looked out and sure enough, there were Willis and Margaret shoving their Lincoln-sized Ford toward the

Museum....Uphill! We charged out of the building, admonishing them for not letting us know of their plight.

The Edgers are not young; they are retired and can remember some of the early 1930's Harris Hill soaring events and personalities.....But they certainly are young at heart! The Ford?...Frozen gas line.....OK by mid-day. Thanks Willis and Margaret.

If you visited the NSM before last Fall, you may have missed an addition to the 1988 motorglider exhibit focus: the Nelson PG-185 B Hummingbird. Soaring Hall of Famer Ted Nelson's famous ship was still in license, October 1988, when it was donated to the Museum by Edward F. Knight, Perrysville, OH. It still sported Ohio Aircraft Registration stickers from 1962 to 1988 on its rudder.

Designed by Harry Perl and Ted Nelson, the Hummingbird is a development of Nelson's first motorglider, the Bowlus/Nelson Dragonfly (1945). The Hummingbird is a two-place, tandem ship with a 54-foot wingspan and a glide ratio of approximately 25 to 1 (at 55 mph). The innovative 68-pound, 49-hp, two-stroke, Nelson engine retracts into the fuselage when not in use, thereby cutting the drag for soaring. With its bright red fuselage, yellow wings and tail, the Hummingbird makes a colorful and historically significant addition to the Museum's m/glider collection.

Staff and volunteers are hard at work with the Exhibit Committee, preparing diagrams, layouts and materials for the 1989 Exhibit Focus. The 50th Anniversary of the Schweizer Aircraft Corporation; the Evolution of The National Soaring Museum; the 25th Anniversary of the first 1,000-kilometer flight by Al Parker and the 60th Anniversary of the first American "C" badge, won by Ralph S. Barnaby. The "89" exhibitry should provide Museum members and visitors with a stimulating and diverse look at silent flight. Have you purchased your "Expansion Brick of Recognition," yet? It's a great way to become a part of soaring history....

DAVID COMSTOCK REMINISCES ON HIS HOMEBUILT KARTS, "BUGS" AND AIRCRAFT — 1928-1932

NSM readers will recall that in the last issue, an item appeared in the "From the Editor" section, describing David Comstock's reminiscences of his boyhood experiences in locomotion and flight.

Though recovering from major surgery, SSA'er, Elderhostler, and NSM member, Comstock, Milford, CT, took time to send us the high points of his impromptu talk that we were not quick enough to get on tape.

At the age of 9, living in Roundup, Montana, Comstock constructed an engine-powered "kart." The year was 1924.

"I bought the 1/2 hp, 2-cycle gasoline washing machine engine for \$13.50, the entire contents of my coin bank." Except for the welding of a sprocket on a shaft, which his father did, Comstock constructed the "gas wagon" himself. "With a belt drive and pushing by my assistants, to get up speed," he said, "I could do 15 mph down Main Street, the only paved street in town..." This may well have been the first "kart" in a sport that has since burgeoned world-wide.

His next project was a Model T Ford "Bug" which he completed at age 11.

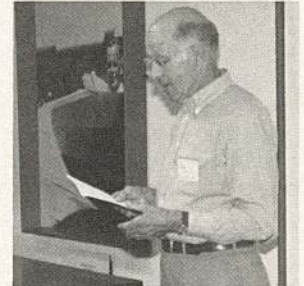
By age 13, in 1928, 7th grader Comstock started to look skyward, and began construction of his glider #1.

It had a 23-foot wingspan and was completed in 9 months. Comstock wrote that this ship was modern in that it had a two-wheel landing gear (heavy duty baby carriage-like wheels) and a steel axle bound to a wooden cross member with automobile inner-tube rubber strips for cushioning during landing. The tail surfaces included a fixed stabilizer, movable elevators and a movable rudder; no fin. There were ailerons for lateral control; "No wing-warping for this baby," he commented.

(Continued on page 8)



14 year old builder-pilot, Comstock in front of Glider #1, Roundup, Montana, 1929.



Lecturer Comstock, Milford, Connecticut, at the NSM, September, 1988.



"Me at the controls of the world's first 'Kart,' summer, 1924," David Comstock.

(Continued from page 7)

He continued, "The first flight trials were made on the main street of the town (Roundup, Montana, pop. 3,500) at 4:30 in the morning. That was an hour when the streets were empty, the word traffic was not in common use, and the town Constable was home asleep.

"My friend, a boy three years older, and somewhat heavier and stronger, and I were naive enough to have the belief that a single person pulling on a rope could launch a glider into flight. Well, the obvious now, it didn't work. The boy had his father's Buick touring car and a tow was tried.

"With the automobile tow, it became obvious that something else was not right. Although the wheels left the pavement, full elevator down would not lift the tail skid.

"The next trial was made somewhat faster, perhaps 20 to 25 mph, and things really began to happen. Although the tail continued to hang low, the front end of the glider rose 2 to 4 feet off the ground and the glider went into a slow wide-sweeping oscillation, from one side of the main street to the other, and from one row of lamp posts and plate glass windows to those on the other side of the street.

"Through sheer luck, a landing was accomplished with no damage done to the glider. There was still no sign of life on Main Street and no one was the wiser, not even the Constable.

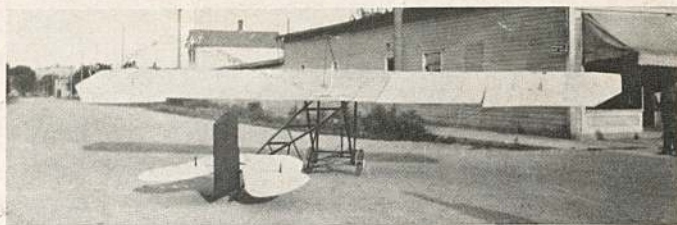
"We towed the glider to a section of prairie near town where there was some room to maneuver. One short tow conclusively demonstrated that the glider was tail heavy, the wing was too far forward. Rebuilding would have to be done to move the wing center of lift to the rear and over the center of gravity of the ship and pilot.



Glider #1, with builder-pilot Comstock and friends, Roundup, Montana, 1929.

"By this time, a third kid had joined us. I was driving the car with a helper holding onto each wingtip. It was a beautiful sight to see the pilotless glider come alive and skip over the prairie, airborne. Suddenly, a gust of wind hit the glider and as the front end rose, the kids could no longer hold it down. The glider rose 60 ft. straight up in the air, did a wing over and dove into the ground. Since no one was in the glider, there were no injuries. The glider, after the crash, was loaded into the back seat of the car in pieces.

"Much was learned; it was a costly lesson. For myself, I felt as if someone had kicked me in the stomach.



Comstock Glider #2, Roundup, Montana, 1931.

"Rebuilding of the glider was started the following year (1930) and was completed in 1931, when I was 16, and had finished my second year of high school. Glider #2 was like the first glider, except the wing was moved aft for balance in accordance with some experimentation and calculations. The flight was made off a low hill into a wind with six kids pulling on the tow rope. The glider did not soar, but a short flight was accomplished with a good landing.

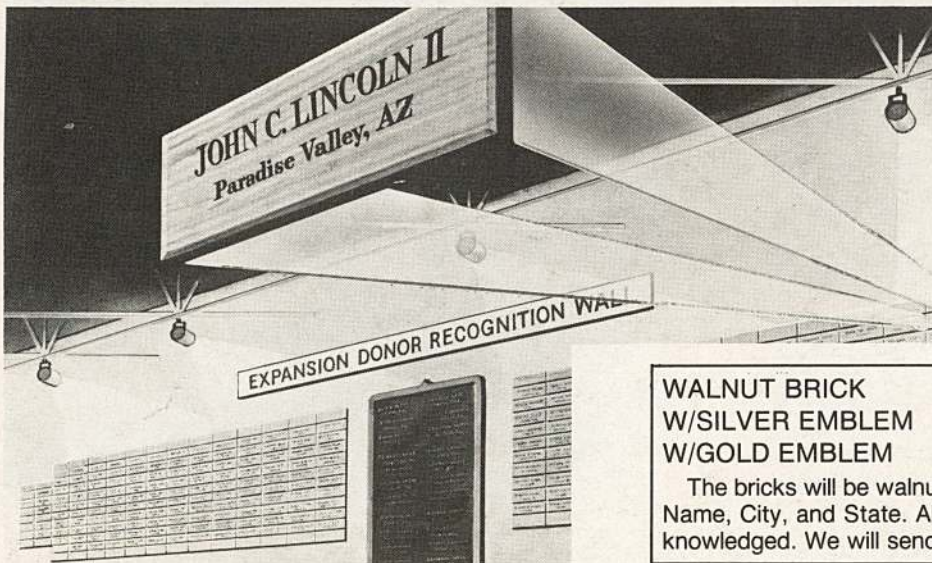
"The next trial was made with my father towing me with his Willys Knight automobile. I had equipped the glider with a release hook and pulled the release when an altitude of 50 feet had been obtained. The feel of flying was 'special.' It was thrilling and in this open ship of sticks and wires it was obvious that there was a real element of danger.

"The glider was not much on 'gliding,' in fact it had a glide angle something like a stone; the pilot had to be very fast at getting the stick back and the tail down when approaching the ground. In the several flights made, not once was the glider damaged on landing.

"The glider was retired and suspended on the ceiling of my father's blacksmith shop. My father never really fully comprehended the degree of danger involved in flight trials of such a primitive glider."

In the summer of 1929, encouraged by his glider training, Comstock and a friend purchased a 1918 Model English AVRO biplane, equipped with an 80 hp LeRohne rotary engine. "Through exercising this on the ground in slow, then fast taxi runs, I learned to fly in 6 weeks," he remarked. Next, came the construction of a 2-place Pietenpol, monoplane powered with a Model A Ford engine. Starting with the scrapped Ford engine block, which he rebuilt, the undertaking was finished in 9 months. This was in 1932 when Comstock was 17. He flew this ship for five years without accident or damage of any serious nature.

Comstock closed with some advice for young people, "You might say for young people of all ages," he said, "... to learn and to use the power of perseverance is all important. The psychology embraced in the children's book, 'The Little Engine That Could,' is profound. It is not that I got off the ground in a man carrying glider at an early age, by persevering and by literally hanging in there, but that anyone, irrespective of age, can achieve a great deal if he will persevere and 'pay the price'."David Comstock



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