

# The Frequent Flyer

The Monthly Newsletter of Caesar Creek Soaring Club

December 2003

## From Dream to Reality: A Wright Brothers Primer, Part 3

By Thomas Turner

*Editor's note: This is the third of a four-part article reprinted from ipilot.com*

We all know the story of how two bicycle-shop brothers from Ohio built and flew the first successful heavier-than-air aircraft from the dunes of North Carolina on December 17, 1903. This time we'll look at how the Wrights adapted that experience to finally conquer the air.

### Ader's *Eole* and *Avion*

Frenchman Clement Ader began unsuccessful experiments with gliding flight in 1872. He then turned to attempts at powered flight. In 1890 he completed the bat-like *Eole*, powered by a 12-horsepower, alcohol-fired steam engine. Confident, Ader arranged a public demonstration of the *Eole* on October 9, 1890. Witnesses saw the 727-pound machine roll across a field southwest of Paris, and "hop" about 160 feet, a few inches above the ground. The *Eole* could not sustain flight, however, and was never really under control. Crosswinds ended the *Eole's* "flight."

Nonetheless, the French Army enthusiastically paid Ader to develop an advanced version he called the *Avion III*. The airplane never got off the ground during trials, and the order was cancelled. Ader later claimed to have flown the *Avion III* for distances up to 984 feet in 1897, but there is no evidence to back his claim.

### Langley's Aerodromes

Scientist and astronomer Samuel Pierpont Langley was the secretary-general of the Smithsonian Institution. With the assistance of Alexander Graham Bell and other notable inventors of his age, Langley set out on a government-sponsored quest to develop a heavier-than-air flying machine. Like most of his era, Langley started work with small, rubber-powered models to test his theories. He fell into the trap so many others had before him -- unpowered models had to be stable in order to fly; his experiments convinced Langley that a manned machine must also be completely stable, so he failed to see the problem of movement, and made no provision for aircraft control.

### Upcoming Events!!

**CCSC Ladies Holiday Lunch**  
11:30am December 13, 2003

**Invention of the Towplane Party!**  
Wednesday, December 17, 2003  
Time: After flying

**Annual Dinner**  
January 17, 2004  
Kings Island Resort

Caesar Creek Soaring Club  
P.O. Box 918  
Waynesville, Ohio 45068  
(513)932-7627

See our website at:

<http://www.wrightdesigns.com/ccsc>

Nonetheless, his unmanned Aerodrome No. 5 flew half a mile in 1.5 minutes, under steam power in 1896. That same year Langley's Aerodrome No. 6, like all Langley designs was catapulted off the top of a houseboat on the Potomac River. It flew 4200 feet. Its high angle of dihedral allowed the steam-powered, unmanned craft to right itself when disturbed by the wind. On the basis of this flight, the U.S. War Department gave Langley a \$50,000 grant to create a man-carrying airplane. First Langley built a one-quarter scale model, the first aircraft to fly using a gasoline-powered engine. Langley employed engineer Charles Manly to design a huge, 52-horsepower engine, and to pilot the new Aerodrome. Manly's October 7, 1903 flight ended when the Aerodrome was ripped apart from the stress of catapulting from zero to 60 miles per hour in only 70 feet.

After the second attempt at launching a manned Aerodrome failed and killed Charles Manly on December 8, 1903, Samuel Langley was discredited by Congress. The press, and the U.S.

government concluded that manned, powered flight was likely impossible. It would be less than two weeks before the Wright Brothers' first powered flight.

### **Getting it "Wright"**

Wilbur and Orville Wright's father was a church minister and bishop who fostered a love of learning. Their mother was the practical-minded daughter of the owner of a carriage manufacturer. She instilled in her children a desire to labor with their hands and understand how things work.

Traveling frequently, Bishop Wright liked to bring home gifts for his children that would expand their knowledge beyond the limits of their home. After one trip in 1878 the Bishop presented his sons with a rubber-band powered helicopter patterned after the Alphonse Penaud designs fueling a craze in Europe. The brothers made several copies of the toy. Once, when he got into trouble for tinkering with one in school, Orville explained that he and Wilbur were trying to make a helicopter big enough to carry them both.

After recovering from serious injuries in an ice-skating mishap that prevented him from attending Yale, Wilbur entered the printing business with his brother. Neither had finished high school, the only children in their large, education-minded family not to go on to college. After opening two newspapers, the hands-on Wrights began a bicycle manufacturing and repair shop near their Dayton, Ohio home -- inventing the oil-retaining hub and coaster brakes still in use today. Bicycling in late pre-automobile times was big business, and the Wrights prospered..

**Research (advice) and Development:** The toy helicopter's inspiration, however, had not faded with the brothers' childhood. Wilbur and Orville followed press reports of Otto Lilienthal's gliding success. When the German died in 1896, the Wrights were spurred into investigating the possibility of flight themselves. After exhausting all local sources of information, in May 1899 Wilbur penned a letter to the Smithsonian Institution, asking for more details about the development of aircraft. Langley's Smithsonian provided little additional help to the two unknown competitors from Ohio. The Wrights received a much more enthusiastic response to a May 1900 letter to Octave Chanute. Chanute took to the brothers, then aged 33 (Wilbur) and 20 (Orville), providing valuable assistance before and after the Wright's success.

**The Problem of Control:** From their research the Wrights concluded that the one factor that had prevented success to those who had tried to fly before was the problem of controlling an airplane moving in three dimensions. The Wrights devised a method of lateral control called "wing warping," which actually twisted the wing structure to alter lift, thereby banking the airplane and using the horizontal component of lift to change direction. To counter the adverse yaw of the warped wing, the Wright design included an aft-mounted rudder. Pitch control was obtained by a moving surface mounted ahead of the airplane -- which the Wrights called an "elevator." In July 1899 Wilbur successfully controlled a kite in all three axes using his wing-warping control system.

**Why North Carolina?** In 1900 the brothers began building a larger kite capable of carrying a man. They wrote the U.S. Weather Bureau asking for information about locations with consistent, strong winds, deciding on Kill Devil Hills, near Kitty Hawk, North Carolina, as their testing ground. Wilbur left Dayton in September, 1900, assembling the 17-foot-wingspan glider in North Carolina. Orville joined him soon afterward.

**Willing Victims:** First flights of the glider in October were made tethered as a kite, with 10-year-old Tom Tate, nephew of the local postmaster, aloft as "test pilot." On October 18, Wilbur free-flew the glider in the strong Outer Banks winds -- flying up to 400 feet, in 15 seconds -- validating the wing-warping control system and gaining valuable experience for later flights. Successful, the Wrights started back for Dayton, abandoning the glider in the sand. Mrs. Tate cut fabric off the Wright's glider to make dresses.

### **1901**

The Wrights labored over the next several months, returning to Kill Devil Hills in 1901 with a new glider. The 1901 glider, with nearly twice the wing area of the Wrights' 1900 device and sporting a 27-foot

wingspan, was the largest glider ever flown to that time. Two apprentices of Octave Chanute, Edward Huffaker and George Spratt, accompanied the Wrights ... as did Chanute himself.

The large glider did not fly well -- it was difficult to control, and experience showed the flawed nature of Lilienthal's camber calculations. The crew rebuilt the glider on-site to match the previous year's camber. They then flew a single, 389-foot flight, outdistancing Chanute's longest, and returned to Dayton vowing to re-investigate the mathematics of lift. The Brothers were nonetheless discouraged. They were reenergized when Octave Chanute arranged for them to speak at the meeting of the Western Society of Engineers. The resulting presentation, titled "Some Aeronautical Experiments," was well received. In the talk the Wrights showed how Lilienthal's lift tables were wrong. Back in Dayton, they devised an unconventional means of testing new airfoils, using a precursor to the wind tunnel -- a modified bicycle.

A model airfoil was placed on a wheel on one side of the bike, at a five-degree angle of attack. On the other side of the wheel they placed a flat plate. When they rode the bike briskly, if the airfoil created more lift than drag, the wheel would rotate. Hence, they could empirically find the best-lifting airfoil designs. To make even more accurate studies of airfoils, the Wrights designed and built a contained wind tunnel. In the autumn of 1901 they tested over 200 different wing designs, varying camber and chord to arrive at the optimum cross-section to loft a heavy machine. The results of the Wrights' wind tunnel tests were directly applied to the construction of their 1902 glider and the Flyer in 1903.

## 1902

The scientifically derived 1902 glider was an astounding success. After initial control coordination problems with fixed, twin rudders, the Wrights modified the machine to employ a single, moveable rudder. It was the first glider to employ full, three-axis control. Orville Wright used the 1902 glider to make the first controlled turns, regularly flying 500 feet or more -- observed by a growing crowd of the gliding community, including Octave Chanute. Throughout September and October, the brothers flew over 1000 gliding flights, suffering several minor crashes as they taught themselves to fly but gaining experience and confidence that would serve them well the following year. The Wrights had developed the system of aircraft control still in use today. Triumphant, the Wrights returned to Ohio and began the search for the final piece of their puzzle, an engine with which to fly.

**Caesar Creek Soaring Club  
and Soaring Society of Dayton**

**2004 Awards Dinner**

**Please Join US**

Saturday 17 January 2004  
Kings Island Resort and Conference  
Center

Social 6:30 PM

Dinner 7:30 PM

Presentations Afterwards

**Reservations Required**

Please RSVP Dick Holzwarth

937 885 4156

Holzwarth@woh.rr.com

**Caesar Creek Soaring Club  
Ladies Holiday Luncheon**

11:30 am

Saturday, December 13

Hammel House

Waynesville, Ohio

Please RSVP to:

Sandra Holzwarth at

937-885-4156 or

[sholzwarth@woh.rr.com](mailto:sholzwarth@woh.rr.com)

## MINUTES OF SSD BOARD MEETING

November 15, 2003

Those present: Aaron Sorrell, Bill Maxwell, Jim Hurst, Dieter Schmidt, Bob Root & John Lubon.

Absent: Pat DeNaples, Bob Gaerttner and Norb Maurer

The meeting was called to order by president Lubon at 10:02 AM.

Minutes of the previous meeting and the financial report were reviewed and approved.

Last month we talked about selling damaged glider parts. Discussion with Cubby indicates that the parts are more valuable than we thought and we have therefore decided not to sell them. They may be useful for future repair work.

There is no news on the sale of the flail mower.

The small tractor was disabled due to the loss of a pin which rendered the hydraulic system inoperable. This was repaired by Wally Detert and Bill Maxwell. Wally manufactured a new pin and bought some needed parts and the system has been reassembled and is operable. These repairs were made at a considerable cost saving.

The need for replacement of the windows in the club house was discussed, and it was estimated that this could be accomplished for less than \$1000. The board authorized Jack Morari to proceed to make these repairs and to report the expenses incurred.

The board entertained suggestions for a 2004 wish list with the following items mentioned:

1. Replacement of the roof of the main clubhouse.
2. Finish the repair of the clubhouse deck.
3. Install some lighting on the South side of the hangar in the locker area.
4. Bury the power line over the pond.
5. Refurbish the segmented circle which is badly deteriorated.
6. Upgrade the golf carts to have all electronic throttle systems like the new green cart.
7. Investigate buying fairing for the forward cockpits of the 2-33's which would avoid interference of the forward seat belts with the rear rudder pedals.
8. Improve the seat belts on 2-33 135 and 1-26 908 which are very difficult to adjust.
9. Improve the seat belts on the Grob which tend to loosen up very easily.
10. Consider purchasing a second ASK-21.

This is a wish list which will be further discussed (and added to) at a joint meeting of the SSD and CCSC boards to be held at Noon on January 17, 2004 preceding the Annual Awards Dinner.

There will be no December meeting of the SSD Board.

Jim Hurst  
SSD Secretary

**CCSC Board Meeting Minutes  
November 1, 2003**

This meeting was called to order at 9:30 AM. Board members in attendance were Mike Karraker (President), Joe Jackson (VP), Greg Crook (Secretary), Jim Lowe (Treasurer), Dave Menchen (Operations), Bill Parr (Facilities), Dick Holzwarth (Social), Rolf Hegele (Maintenance). Bob Root (SSD Liaison) was also present. Jim Price (PR) was absent. The minutes of the previous meeting and the treasurer's report were approved as read.

Old Business: Dick Holzwarth reported on the results of the recent Oktoberfest party and also reported that he was planning an all day party on Wednesday, 17 December, to celebrate the Invention of the Tow Plane. Rolf Hegele reported that the annual inspections for 16Q and the ASK-21 are past due and therefore the 2-33 will require a ferry permit to be flown to Waynesville airport. Jim Lowe gave his treasure's report and presented year-end tax issues that should be addressed. Jim also presented the delinquent accounts and it was agreed by this board to review more accurate facts in this regard at the next board meeting. Jim also agreed to order SSA calendars so we could offer those to our membership at discount. Dave Menchen will assume the duties of the Chief Towpilot effective immediately and he will contact several members who have been waiting to be added to our insurance policy and assigned to a crew. A safety review committee report was provided by Joe Jackson and those results were accepted by this board were recommended for approval by the membership. Joe also presented several modifications to our UOP's and those items were also accepted by this board and recommended for approval by the membership. Bill Parr provided a report on the recent clean-up day activities.

New Business: Bob Root provided a report of damages to the John Deere tractor and of Bill Maxwell's progress at making those necessary repairs. Mike Karraker made a formal appeal to club members to participate more actively in the business operations and board activities of this club. Greg Crook thanked the current board members for their service to the club and made a recommendation to next board that they consider removing the wire fence at the east end of our runway for reasons of safety. Dick Holzwarth requested assistance from everyone so that he may update the WMGM trophy with the names of the winners for this contest from 1991 forward. It was then motioned and passed to adjourn this meeting at 12:10 PM. Our next meeting will be held on 6 December at 9:30 AM.

Submitted by Greg Crook, CCSC Secretary

**The CCSC Bookstore**

As you know, the display case in the clubhouse contains training manuals, logbooks, CCSC t-shirts and other items for sale to members. Access to this locked cabinet has been limited, as only a few members have a key. To address this issue, all CCSC instructors now have access. A key is located in the instructor's file cabinet (top drawer, first file folder) so if you wish to purchase an item, your instructor should be able to assist you. Please be sure to record your purchases on the log sheet provided.

A supply of the new "Glider Flying Handbook" has just been received. This new training manual, released last summer, is published by the FAA, and was written by a group of experienced flight instructors from the glider community. It is comprehensive, well-written and very nicely illustrated. Like most soaring publications, it is a little pricey, however, SSA offered us a club discount. It is available to our members for \$25 a copy, instead of the \$34 retail price.

Rich Carraway

## UOP CHANGES

The following changes to the CCSC Uniform Operating Procedures (UOPs) were approved by the CCSC Board of Trustees on November 1, 2003.

Change #1:

Modify section 2.1, Crew Chief's Authority, to clarify the purpose and membership of the safety review committee as follows:

(a) Change the 8th paragraph of section 2.1 to read as follows:

“The loss of pilot-in-command privileges will be in effect until a safety review committee has reviewed the circumstances surrounding the incident, and the CCSC Board takes appropriate corrective measures or seven days elapse with no action being taken.”

(b) Add the following new section 2.1.1:

**2.1.1 Safety Review Committee**

A safety review committee will be formed to review all disciplinary or safety incidents occurring at CCSC. Incidents to be reviewed by the safety review committee are: grounding of any CCSC member by a Crew Chief, any incident resulting in significant injury to any person or resulting in more than \$500.00 damage to CCSC aircraft or equipment, any forced outlanding by a CCSC aircraft while being flown on a local flight, and any other incidents as determined by either the Safety Officer or the CCSC Board.

The purpose of the safety review committee is to thoroughly review the incident in question, ascertain all the facts, determine possible courses of action, and report to the CCSC Board along with recommendations for any action to be taken. Responsibility for implementing any corrective or disciplinary action in response to the incident rests solely with the CCSC Board.

The safety review committee is chaired by a Safety Officer appointed by the CCSC Board. The membership of the safety review committee will normally consist of the Safety Officer, Chief Instructor, Chief Tow Pilot, and Director of Operations, or other membership as determined by the Safety Officer as appropriate to review the incident. The safety review committee may solicit input from CCSC members or other persons associated with the incident as required to conduct the review. Upon completion of the review, the Safety Officer reports the results along with recommendations to the CCSC Board.

Change #2:

Add a new rule requiring all private sailplanes operated from CCSC to maintain a minimum of \$1,000,000 liability insurance.

(a) Revise section 2.9 to read as follows:

**2.9.1 Liability Insurance**

All privately owned sailplanes operated from CCSC are required to maintain a minimum insurance coverage of \$1,000,000 per occurrence for property damage and personal injury liability. CCSC members must provide proof of insurance to the Crew Chief upon request. It is recommended that members keep proof of insurance in their sailplane at all times to comply with any such requests. Crew Chiefs must refuse tows and/or takeoffs to any member that cannot provide proof of insurance.

**2.9.2 Ground Handling**

< Insert previous text from section 2.9 here >

Change #3:

Update flight record card procedures to include requirement for Instructor sign-off prior to flight for student solo flights.

(a) Add the following paragraph to section 4.8, Flight Record Cards:

“For student solo flights, the Flight Record Card must be signed by a CCSC Instructor immediately prior to launch.”

Change #4:

Revise section 4.2, Pilot Qualifications, to clarify the requirement for completing a field flight review.

(a) Change the fifth paragraph to read as follows:

- Within the proceeding 3 months have logged at least 1 flight in a club or privately owned sailplane at CCSC. Members not meeting this requirement must receive a CCSC field flight review consisting of at least one dual instructional flight with a CCSC Instructor with logbook endorsement. Approved contest entrants or guests are excluded from this requirement.

In accordance with the CCSC By-laws, the above changes will become affective 30 days after being published in the newsletter unless written objection is received from at least 20% of the membership within 15 days of the changes being published.

Revised copies of the UOPs will be posted on the CCSC web site in Adobe Portable Document Format (PDF) at <http://www.wrightdesigns.com/ccsc/index.shtml>.

### Classifieds

**For Sale:**

Rolladen Schneider LS-6b, Half share, Asking \$22,500. Contact Greg Crook at 513-494-1350 or email [gregcrook@att.net](mailto:gregcrook@att.net).

**For Sale:**

Dutchman Travel Trailer, **Price Reduced to \$6500**, 1991, 30', \$8000 OBO. Currently on site at the CCSC campgrounds. Contact Greg at 513-494-1350 or [greg.crook@att.net](mailto:greg.crook@att.net).

**For Sale:**

Security 150 parachute, chair-type. Also Raine Winter barograph, 10 km.  
Contact Kent Sorrell 937-855-7135

**For Sale:**

One share of Redwings SGS 1-26. Contact Stewart Trefzger at 513-561-5579 or e-mail at [strefzger@worldnet.att.net](mailto:strefzger@worldnet.att.net)

**For Sale:**

1/2 share in 6V, N178K, 1972 ASW-15. \$7500, contact Gil Stengel 513-233-2103 or [gstengel@fuse.net](mailto:gstengel@fuse.net)

**For Sale:**

26' Kencraft 1966 Travel Trailer. Located at the glider port. \$1500.  
Call Gloria Dalton at 704 394-0401 or e-mail [gbdalton@juno.com](mailto:gbdalton@juno.com).

Submissions for *The Frequent Flyer* should be sent to:

[aaronsorrell@ameritech.net](mailto:aaronsorrell@ameritech.net)

- or -

Aaron Sorrell  
128 McDaniel St.  
Dayton, Ohio 45405  
(937) 220-9026

## Crew Schedule

Date	Crew Chief	Tow Pilots	Instructors	Ground Crew
1st Sat & 3/29	G. Daugherty	J. Armor T. Hudson	R. Hennig W. Miley	J. Beaupre, J. Chiles, A. Colvin, P. Nord, Dave Edwards, J. Lowe, A. Sorrell
1st Sun & 3/30	M. Karraker R. Carraway	M. Maurer N. Maurer D. Schmidt	A. Swanson	W. Van Breukelen, M. Jett, W. Schmid M. Munz, B.& B Towne, J. Miles, D. Rawson J. Sorrell, S. Tagariello, T..Lynch
2nd Sat & 5/31	R. Root D. Staarmann	R Anderson	J. Price J. Hurst M. Williams	J. Antrim, J. Biernacki, B. Connolly, D. Colvin, W. Detert, S. Trefzger, J. Benner, J. Inman
2nd Sun & 6/29	D. Menchen T. McDonald	L. Kirkbride F. Hawk T. Holloran	G. Wade T. Rudolf	R. Anderson, Ed Dorosz, M. & L. McKosky, K. Menchen, J. Muth, P. Pedersen, R.Sexton, M. Debeque, J. Smissaert, T. & G. McDonald, H Goebel, E. Tete
3rd Sat & 8/30	R. Hegele R. Griffiths	D. Green A. Widner	B. Gaertner C. De Berry	B. Boesel, R. Weaver, D. Klenbanow T. Bresser, P. Vintrup, D. Rivers
3rd Sun & 8/31	J. Morari B. Paar	B. Oagley	R. Eckels * B. Gabbard	S. Estell, K. Sorrell, J. Koons, M. Keller K. Robertson, S. Shields, T. Bonser R. Reinhart, J. Macnicol
4th Sat & 11/29	J. Miceli J. Murray	T. Bales G. Byars S. Day	J. Jackson ** T. Bales	T. Spillane, C. Lohre, H. Meyerrose, E. Saladin, B. Stoops, A. Dignan, D. Corni
4th Sun & 11/30	R. Holzwarth M. Statt	F. Paynter R. Scheper	J. Lubon	C. Burns, R. Cedar, G. Crook, B. Kish, J. Jordan, P. Lubon, G. Stengel, G. Berneir

\* Designated Examiner

\*\* Chief Instructor

**If you are not assigned to a crew and would like to be, contact Dave Menchen at  
513-779-0821.**

**Former Floating Crew members should contact Dave Menchen  
for crew credit information.**