

R/C Sportflyer

August, 2002

Next Meeting at Stamm Field – Thursday, August 1 @ 7:00 p.m.

Club Officers

President

John Carnal
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Send newsletter information and items for sale or wanted to the newsletter editor. He's almost always home after 9:00 PM or call his work number, 913-624-2570, it has a recorder, or send via Internet.

Club Web Site: <http://rcsf.freesevers.com/>

Minutes of July 11, 2002 Meeting

The meeting was called to order at 7:00 PM by President, John Carnal. There were 20 members and 2 visitors present. Visitors were John and Rob Clay.

The Treasurer's report and minutes of the last meeting were approved.

Safety: Cliff Miller reminded us to all be careful and keep the flying beyond the safety fence. Dave Klaus brought up the possibility of a rule about starting and running engines near the shelter and pointed at the shelter. There was some discussion of the topic of where it's safe to run engines. General consensus was to not start/run the engines on the grass near the shelter. Plus we need to make sure we are careful about starting engines around people, in general, and not to point the airplane at people when running the engine.

Training: Dennis Tschirhart said that we have quite a few students and good help from the instructors. Many thanks to the instructors for their time.

Jackson County Parks & Rec: Bernie and John Sincox (representing KCRC) attended the last meeting. Bernie requested the replacement of some of the RR ties, having poured pilot pads, elimination of the safety ramps, having the grass mowed and a long term project of a second shelter. He's going to try to find out what the grass was sprayed with and will check on a date for the club to do a Christmas in the Park night. For information, he will ask about how much it costs to buy a Christmas in the Park night.

Field Maintenance: Not a lot to report, mower is in good shape, with the dry weather not putting too many hours on it. Some discussion of how to handle the grass situation, going to try to find out what it was sprayed with so we can plan on the best time and way to handle the areas of dead grass.

Formation: Dennis Tschirhart basically said; yes, need to be doing some!

Delta Darts: The evening before the meeting George Wright hosted a Delta Darts event for about 17 kids from the Evangel Temple. Things turned out great even though rain caused some indoor flying at the Temple, but some of the kids got to go outside after the rain and fly. Some of the club members got to fly some Delta Darts also. Thanks to all that helped, sorry I didn't get the names - Walt.

Web Site: Looks great, got a bunch of nice pictures. So far we have had over 3,000 hits. Thanks very much to Gerard for his work.

Other: Walt Calkins let everyone know that the AMA has recommend bylaws that are required. He will be reviewing the AMA bylaws and comparing them to the club's constitution. Later this year he will be giving the club members specifics and intends to present the changes for a vote late this year or early next year.

John Carnal wants to have some fun combat events; no points, not competitive, just for fun. If interested let him know.

Cliff Albright brought up the situation with cigarette butts on the ground and asked for people to throw them in the trash, not on the ground. They look bad and the filters never go away. The filters look even worse when they're hit with the mower. Plus, lighted cigarettes are a safety hazard around both glow and, especially, gas engines.

Raffle Prize: Cliff Miller won the combination belt/disk sander from Harbor Freight.

The meeting was adjourned at 7:45

Treasurer's Report - This Month

(Note: Mike has been out of town a lot lately, this is based on money collected and bills paid at the July meeting)

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Beginning Balance	\$ 838.41			
<u>Income</u>		<u>Expenses</u>		
Raffle Prize	\$79.00	Raffle Prize	\$64.02	
Shirt Sales	15.00	Postage-Fun Fly Mailings	20.40	
Adjustment	.42	(Payment for raffle prize & postage rounded down to whole dollar)		
Total Income	\$94.42	Total Expenses	\$ 84.42	Ending Balance \$848.41

Beginning Balance	\$ 852.50 - Mower Fund			
<u>Income</u>		<u>Expenses</u>		
	\$ 0.00		\$ 0.00	
Total Income	\$ 0.00	Total Expenses	\$ 0.00	Ending Balance \$852.50

Calendar of Events – Models

- July 20** Cow Patty Fun-Fly at Springfield, CO's "groomed buffalo grass field."
(I seriously doubt anyone from our club would go to Colorado for this, but it was too good not to put in the newsletter - Walt)
 - Aug 1** RCSF Club Meeting - Stamm Field
 - Aug 3** RCSF Fun-Fly
 - Aug 24** Jumbo Squadron Big Bird Fly-In, JACOMO, register at 8:00, flying starts at 9:00
 - Sept 14** KCRC War Bird Fly-in
 - Sept 28** RCSF Club BBQ & Fun-Fly
 - Jan 1, '02** RCSF Freeze Fly - Stamm Field
 - Jun 14, '02** RCSF Fun-Fly (tentative)
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Calendar of Events – Full Scale

- July 23-29** "Oshkosh" - Annual EAA bash, Oshkosh, Wisconsin - www.airventure.org
 - Aug 17-18** Air Show - KC Downtown Airport
 - Sept 6-8** Huff-N-Puff Balloon Rally, Topeka, KS 785-267-1156
 - May 24, '02** Antique Aircraft Fly-In, Atchison (tentative), RCSF invited
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The following has absolutely nothing to do with aviation, but it's another one of those, "it's got to be true, no one could ever think up something like this." I guess, in this case, someone had to, someone with far too much time on their hands and a seriously unbalanced mind...more so than mine! But, believe this or not, there is an American Fancy Rat and Mouse Association. Can't conceive such a thing? Check out their web site at: www.afirma.org. (They even have a web site!) According to the Wall Street Journal, 550,000 U.S. households will have one or more "fancy" white or gray rats as pets. And people sometimes think there's something odd about "grown men playing with little airplanes." I guess when we get too old to do the airplanes we can always get a pet rat. (I'll pass on the rat-Walt)

On a sad note, I'm sure everyone has heard about the crash of a Cherokee at Lee's Summit airport. The pilot of the plane was Pastor Goodwin, who had recently retired from the First Baptist Church of Grandview. For those that may not know, that is the church where we hold out meetings when not at the field. Please keep the church and the pastor's family in your thoughts and prayers. - Walt

I'm not sure how many people are keep up with this, but December 17, 2003 is the 100th anniversary of the Wright brothers first flight. To recognize the event, an organization called "The Wright Experience" is reproducing an historically accurate reproduction of the Wright Flyer with the intent of recreating the first flight on exactly the same time (to the minute!), 100 years later. Hope you find the following article about this project both interesting and educational. Walt. (Attribution: <http://www.avweb.com/articles/wrightexperience/>)

The Wright Experience

Through meticulous research in both history and aerodynamics, Ken Hyde and his team of "aeronautical archeologists" seek to uncover new details on the Wright brothers and their quest to fly. Join AVweb's Peter Yost as we tour the facilities of The Wright Experience, meet the team preparing to re-create the Wright brothers' flight exactly 100 years later, and learn some of what it was like to be an aviation pioneer.

By Peter W. Yost (pyost@avweb.com)

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Regular readers of AVweb are by now familiar with the efforts of several groups throughout the U.S. to re-create the Wright brothers' first flight for the centennial celebration in 2003. One of those groups at the forefront of these efforts is the Wright Experience, based in Warrenton, Va. AVweb has periodically reported (Oshkosh 2000, News Wire May 13, 2002) on the progress of the group, lead by retired American Airlines pilot Ken Hyde, and his team of volunteers and paid staff. The Wright Experience appears to be getting the most attention and support, being contracted by the EAA (with major funding support from Ford Motor Company) to build an accurate reproduction of the 1903 Wright Flyer, and fly it on December 17, 2003, at 10:35 a.m., exactly 100 years to the minute of the first flight. The 1903 Flyer being built by the Wright Experience is the only one sanctioned by the National Park Service to fly at Kitty Hawk on the 100th anniversary. With the centennial less than 18 months away, AVweb decided to visit Warrenton, Va, to talk with Ken Hyde and his crew about their motivation, progress, and plans for the future.

A Wright "Factory" in Virginia

The Wright Experience is headquartered in a two-story hanger complex on Ken Hyde's private grass strip, located in the beautiful horse country of central Virginia. The spacious hanger includes metal and wood shops, engine workshop, and three full-size Wright aircraft reproductions, including the 1903 Wright Flyer, in various stages of construction. Upstairs is office space and a library with a growing collection of books, photographs, copies of diaries, and artifacts on Orville and Wilbur Wright.

Ken's interest in the Wright brothers began well before the current hoopla surrounding the centennial celebrations. In 1992, Ken was contracted by the U.S. Army to build a non-flying replica of the Wright brothers' first production aircraft, the Wright Model B. In the 22 months it took Ken to research and build the Model B, he was surprised to learn that there was still much unknown about the Wrights and their methods for learning to build and fly a heavier-than-air vehicle. Some of this can be attributed to the Wrights' penchant for secrecy, for fear of others stealing their ideas and patents. And some may be due to the fact that Wilbur, the more conscientious of the two for recording the details of their work, died in 1912. It was the unknown facts about the Wright's work that fascinated Ken and inspired him to learn as much as possible about Orville and Wilbur and the aircraft they built and flew. In 2000, based on Ken's growing knowledge of the Wright brothers and his previous experience building accurate reproductions of historical aircraft, the EAA contracted with Ken and the Wright Experience to build a reproduction of the 1903 Flyer, and fly it at Kitty Hawk on the 100th anniversary

What is intriguing about the Wright Experience effort is that they are not just building a reproduction of the 1903 Flyer. The effort is much more than flying a reproduction on December 17, 2003, and then forgetting about the Wrights until another major anniversary. Ken and his team are trying to understand the entire thought process and scientific methods of the Wright brothers as they not only learned to fly, but as they also perfected their flying machines to make them practical. For the Wright Experience team, that means a multi-year effort to follow the Wright brothers' same design evolution, which started in 1899 with kites and gliders, led to the first powered flight in 1903, and evolved to the first practical Wright production aircraft, the Wright Model B, in 1911. This means not only constructing and flying reproductions of the 1903 Flyer, but also the 1902 glider, with which they worked out the intricacies of three-axis control, and the 1904 and 1905 powered aircraft, which had increased horsepower and refined flight controls. It means conducting wind tunnel tests of Wright-designed airfoils, propellers and full-scale aircraft to obtain accurate aerodynamic data. And it means building, finding and using replicas of the same tools and materials (wood, fabric, metals) the Wrights used to construct their airframes and engines.

Historical Accuracy

Touring the Wright Experience workshop/hanger, one can't help but be impressed with the details to which Ken and his team are pursuing in their quest to be as accurate as possible in building their Wright reproductions. On this day, team member Dave Meyers could be seen using the same type of woodworking tools and carving techniques used in the early 1900s to hand-carve a reproduction of the propellers used on the 1904 aircraft.

Seeking as much currently available information on the Wrights as possible, Hyde's group has obtained help from the Wright descendents and museums throughout the country, but there are still many missing parts to the puzzle. Some of the museums are reluctant to release all of their Wright brothers artifacts for study, or even let Ken review them at the museums. To celebrate the centennial, the museums may be planning their own displays within the next few years, and could be looking at their Wright holdings as a possible revenue source for the museum. So like archeologists, Hyde and his team must use what they have obtained, including photos, notes, drawings and diary entries, and look at this data in a different way to deduce what the Wrights were thinking at various stages of their development work. One example of the team's detective work concerns the pitch control handle on the 1903 Flyer. According to the Wrights' notes, the Flyer actually became airborne for a distance of 112 feet for the first time on December 14, three days before the historically-recorded first flight. But being sticklers for accuracy, the Wrights didn't count it as the first powered flight. Their launch track was slightly downhill, and they did not want to consider this as a real flight for fear that people would claim they were helped by gravity. During this "non-flight," they also encountered pitch problems that

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led to one of the skids being broken during the landing. However, nowhere was it recorded how the Wrights solved this pitch problem prior to their first legitimate flight on December 17. Comparing digitally enhanced photos of the Flyer taken on December 14 with pictures of the Flyer on the 17th, Hyde and his group were able to determine that the pilot pitch handle had been lengthened after the December 14 flight. This allowed for better pitch control with less pilot input, due to the increased leverage action of the longer handle. In effect the Wrights had encountered, and then solved, one of the earliest incidents of pilot induced oscillations (PIO).

Wind Tunnel Research

Besides the "classroom" detective work of the Wright Experience, much valuable data and information has been obtained through a series of wind tunnel tests of the 1901 glider, various Wright propeller designs, and the airfoil for the Model B. These wind tunnel tests have been critical to the understanding of the aerodynamics of the Wright aircraft, and also their control characteristics.

Ken Hyde praised the cooperation of NASA and Old Dominion University (ODU), and also the work of Dr. Kevin Kochersberger, an Associate Professor of Mechanical Engineering at the Rochester Institute of Technology, in conducting these tests. Kevin is currently on a teaching sabbatical at ODU, where some of his time is spent working on the Wright Experience. Kevin started working with the Wright Experience in 1999 when Ken realized he needed engineering help to truly understand the aerodynamic discoveries of the Wright brothers.

One of the interesting findings of the ODU wind tunnel tests is that the Wrights were very good at designing and building efficient propellers that were crucial to their efforts to fly. Wind tunnel tests of the Wright's bent-end propeller, used on Wright aircraft from 1905-1915, revealed blade efficiencies close to 80%. (Propeller efficiency refers to the percentage of engine brake horsepower that gets converted into useful thrust horsepower by the propeller.) According to Kevin, this is remarkable considering most modern-day props have increased their efficiency only slightly to around 85%.

During the AVweb visit, Kevin also demonstrated the reproduction of the Wrights' ingenious wind tunnel. Using a simple, but clever, balance system within the tunnel, they were able to determine fairly accurate lift and drag coefficients of nearly 200 airfoil sections beginning in 1901. For those interested in the details of the wind tunnel tests, Kevin has co-authored numerous technical papers.

Engine Development

Besides the development of a workable three-axis control system and efficient propellers that enabled the Wrights to fly, their other major breakthrough was their development of reliable, relatively lightweight engines that produced enough thrust to fly. The Wrights' early aircraft (1903-1905) used a horizontal four-cylinder layout, with horsepower increasing from the original 12 to 21 in several years. Steve and Jim Hay are building the reproduction of the 1903 engine for the Wright Experience, and those who have attended Oshkosh may be familiar with similar reproductions they have built and run at the air show for many years.

Also, a propulsion evaluation of an authentic 1910 Wright Vertical Four engine used on the Model B has been completed, including dynamometer testing. The running of this engine, serial number 20, was demonstrated by Greg Cone of the Wright Experience during the AVweb visit. After a few pull-throughs of the simulated prop, the engine started right up and ran smoothly. This engine was the culmination of the Wright brothers' engine development, producing 35 horsepower and powering the Wrights Model B production aircraft.

Final Assembly

It will be a hectic 18 months before the Wright Experience tries to fly the reproduction again at Kitty Hawk, N.C. In the hangar, the basic structures of both the 1902 glider and the 1903 Flyer are complete, awaiting fabric covering. In another example of their quest for accuracy, Ken and his team want to use the exact same type of fabric as was used to cover the 1903 Flyer. Unfortunately, that type of fabric hasn't been made for years. So Ken has approached several textile manufacturers to see if they can reproduce the original style of fabric.

Fortunately, Marianne Miller Hudec, great-grand niece of Wilbur and Orville Wright, has a section of authentic fabric from the lower-left wing of the original 1903 Flyer that she has graciously loaned to Ken for study. You can still see some stains and a patch on the fabric that Ken has in his office. According to Ken, after approaching several manufacturers, they feel they have finally found one who can faithfully reproduce the fabric, down to the same thread size and weave, to cover the reproduction Flyer.

Pilot Training

Other major milestones planned prior to the centennial flight included wind tunnel tests of the 1902 glider, scheduled to commence in June at the Langley Full-Scale Tunnel in Virginia. It was their flight experience with the 1902 glider that allowed the Wrights to perfect, and ultimately patent, their concept for three-axis (roll, pitch, and yaw) control,

and give them the confidence to proceed with a powered aircraft. Meanwhile, work will continue on the 1903 Flyer, with plans to also put that into the Langley tunnel around January 2003. Ken and his team are even kicking around the idea of having a pilot "fly" the aircraft in the tunnel so they can get a feel for the aircraft before they actually fly it in free flight. If those tests go well, they hope to do actual flight tests starting next spring. While some have claimed that the 1903 Flyer was so unstable that it would be dangerous and foolish to fly an exact reproduction, Ken thinks otherwise: "I don't lie awake at night worrying whether it will be risky to fly. We are following the same approach as the Wrights, and we feel we will have a very good understanding of the aerodynamic and flight control characteristics of that aircraft before we ever attempt to fly it. If it worked for them, it should work for us."

Also, a flight simulation of the 1903 Flyer, with flight characteristics based on wind tunnel data, is also being developed to help train the pilot, or pilots, who will fly the machine. At this time Ken isn't saying who will be chosen to fly the 1903 reproduction first, although he admits that he is certainly one of the candidates. If all goes well with the initial flight tests next spring, they will then take the Flyer reproduction on a tour of the country prior to re-creating the December 17 flight at Kitty Hawk.

After the Party

So what happens after the anniversary flight activities and much of the attention from the press and public subsides? The 1903 Flyer reproduction flown at Kitty Hawk will go to the Ford Museum in Michigan, and Ken's team will build another one to be displayed at the National Park Service museum at Kitty Hawk. Then, if the Wright Experience can obtain the necessary funding, Ken and his team would like to continue to re-create the next five to seven years of Wright aircraft development after their historical 1903 flights. Those plans include building flying reproductions of the 1904 and 1905 aircraft, with which the brothers perfected their engines and control systems, and ending with a reproduction of their first practical production aircraft, the Wright Model B. And after the Wright Experience accomplishes their goal of building reproductions of all the Wrights' aircraft? According to Ken, "My 'Field of Dreams' is to have a living museum where all these reproduction aircraft and artifacts are displayed, and even occasionally flown. A museum where we can continue to do research, but also a place with hands-on displays and shops where school kids can come to learn about the Wright brothers and to touch, smell, see and experience what the Wright brothers gave us." In another effort, Kevin Kochersberger is developing a science curriculum and traveling exhibit based on the Wright brothers' work. Geared towards students in grades K-12, Kevin foresees exhibits and lessons that "...focus on the Wright brothers' scientific methods to solve complex problems using the process of analysis, design, build, and test ... then they would reanalyze, rebuild and retest. And they did this over a number of years. The lesson is that great things aren't accomplished overnight."

Over the next 18 months, we will find out if the hard work of Ken Hyde and his team, plus the other teams attempting to re-create the Wright brothers' first flight, are successful. Though many people have made these various efforts out to be another race "to be the first to fly," it shouldn't be regarded as a great disappointment if some, or all, of them don't get off the ground. Though it would be nice to see them succeed, what really matters is that the original Wright Flyer did take to the air almost one hundred years ago, and in the process, changed our world for the better. The efforts of the Wright Experience and the other teams will help us better understand and appreciate the ingenuity and passion of the Wright brothers. By filling in the gaps of technical knowledge, and helping us understand the thought process of Orville and Wilbur, they are leaving a Wright brothers legacy for future generations and bringing much-deserved attention to the two bicycle makers from Dayton, who many feel were never fully recognized in their lifetime.

-- Peter W. Yost

About the author...

Peter W. Yost (pyost@avweb.com) earned his Private Pilot certificate the old-fashioned way by hand-propping a Taylorcraft BC-12D at a small grass airstrip in southeast Pennsylvania. He has since added a Commercial Glider rating to his collection. As an aerospace engineer, Pete works in developing safety equipment for civilian and military aircraft. So far in his career, he has worked on projects with all branches of the military, with NASA and most major aerospace companies in the U.S., and with companies in England and in Russia. He has been a member of the EAA, Soaring Society of America, and the American Institute of Aeronautics and Astronautics for over 20 years. Much of Pete's flying these days is of the short, up-and-down variety as a tow pilot with the Philadelphia Glider Council.