

**Column: Condor Corner**

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### **Introduction**

In this issue of Condor Corner, I will be reporting on this year's Ralph S. Barnaby Lecture, embedding a snippet from my buddy Nyal, introducing yet another installation of "My Condor Story", and shamelessly plugging my presence at SSA – Reno 2014.

### **Ralph S. Barnaby Lecture**

Each year since 1973, the National Soaring Museum (NSM) has sponsored the Ralph Stanton Barnaby Lecture, usually in conjunction with an NSM Board meeting held somewhere in the country. The most recent lecture was held October 19, 2013 in Denver, CO where the boards of both the NSM and SSA were meeting. The local soaring community was also invited to attend.

The webpage (<http://soaringweb.org/Awards/barnaby.html>) describes the R.S.B. Lecture as "*given by distinguished soaring personalities, who have made significant contributions to the history of motorless flight.*" If you look at the list of folks who have given the presentation over the years, you quickly realize this description is no exaggeration. Imagine then the mix of emotions (surprise, excitement, confusion, anxiety) when I received a request from Peter Smith, NSM Director, asking if I would be willing and available to present the 2013 Barnaby Lecture.

To be fair, I must disclose I was not the NSM's first choice. #1 had bowed out for undisclosed reasons and Director Smith had to scramble, at what probably seemed to be the last minute, to find a replacement. Frank Paynter and I had relatively recently done some consulting with the NSM on the museum's use of glider flight simulation, so my name popped into Peter's head. I suspect, however, my primary credential (as a trained educator) was a known ability to put together a pretty decent presentation in a short period of time. After getting over the blow to my ego of not being NSM's first choice, and not being one to pass up an opportunity to advance the cause of simulation-based flight training in high places (no Denver pun intended), I quickly accepted Peter's invitation before he had a chance to realize what he had done.



### **Condor Demonstration – Ralph S. Barnaby Lecture 2013 – Denver, CO**

In Denver, after thanking the NSM for sponsoring the R.S.B. Lecture and, in my case, for seriously relaxing the “distinguished personality” requirement, I provided the relatively small, but influential, audience with a short history of the contributions of glider flight simulation to the soaring community, including

- dramatic improvements in the quality and efficiency of glider flight instruction
- greater availability of glider flight instruction via training at-a-distance
- improved flight safety via SSF resources and proficiency training
- helping to ensure the future of the sport (EAA Kidventure)

Time will tell whether my efforts to advance simulation-based flight instruction will ever be characterized as having “*made significant contributions to the history of motorless flight*”. I am honored to be listed among the genuinely *distinguished soaring personalities* who have given the Ralph S. Barnaby lecture. It would appear I am the first educator to make the list. May I not be the last.

### **Nyal’s Squib**

#### ***About the Author***

Nyal Williams started flying in a J-3 Cub in 1953. In 1954, while serving in the Army in Europe, he learned to fly primary gliders off a winch. He began instructing in a TG-3 in 1965 before there was such a thing as a CFGI. Nyal has provided glider flight instruction for the Tarheel Soaring Society and Strawberry Hill soaring operation in his native North Carolina, and the Central Indiana Soaring Society (8 years as chief instructor). He has

also done motor-glider instruction in a Katana Extreme. He has been an SSA member for 58 years and has twice been designated the SSA-Region 4 Most Productive Instructor. Nyal earned his Diamond altitude, goal, and distance pins, all after the age of 75, and in 2010 received the F.A.A.'s highly prestigious Wright Brother's Master Pilot Award.

Nyal recently moved back North Carolina where he currently provides simulation-based glider flight instruction at-a-distance to glider rating candidates all over the country. I consider him a great friend and mentor.

### ***Reluctance***

***by Nyal Williams***

Some glider pilots, and even glider instructors, are made uneasy by the Condor soaring simulation. I know this first-hand because I experienced the same uneasiness when I first tried it. We don't like to look inept, and even foolish, at something we think we have mastered, especially if we are instructors; Condor can do that to us.

Condor requires a special introduction and perhaps a re-ordering of the sequence of learning tasks. Put a rated glider pilot in front of Condor for the first time, and have him/her start out by flying a tow, and it is guaranteed that a crash of some sort will occur – repeatedly! Who wouldn't consider the simulation as little more than a broken toy in this circumstance, especially if the first-timer is an instructor and/or has a big ego.

No matter whether the new Condor pilot is a beginner, a rated glider pilot, or an instructor, I suggest waiting to fly on tow in Condor until the person has mastered the virtual glider in free flight (Condor sessions can begin in the air). Some reasons for towing difficulties are obvious.

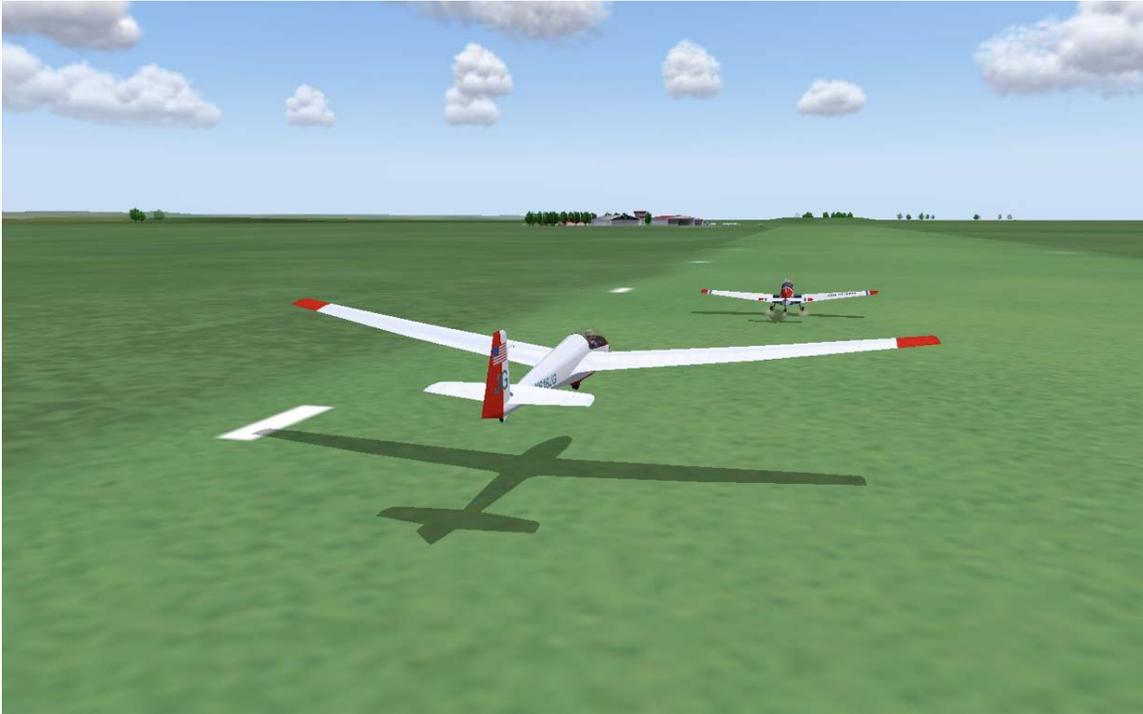
- 1) The controls do not feel exactly like a glider's controls.
- 2) There is very little physical feedback.
- 3) Peripheral vision is limited.

Other features of the software, much less obvious, and unexplained, also make flying a tow on Condor difficult.

- 4) The towrope on Condor is about half as long as the usual rope in the US. This requires quicker and more subtle corrections.
- 5) Having been designed around the European gliding experience, all the gliders in Condor are fitted with CG hooks. As such, the towrope provides no dynamic stability to the glider while on tow. A pilot used to being towed with a hook forward of the CG will find towing in Condor more challenging, exactly as he/she would in a real glider towed from a CG hook.

Without understanding these differences, it is no wonder that a US pilot can be put off. We need to understand that towing in Condor should be introduced much later in the training sequence, and that it is not an embarrassment to screw up the tow initially.

I managed to learn it; certainly you can!



## **Condor Aerotow – Training to a higher standard**

### **My Condor Story**

#### ***About the Author***

David Fisichella is Director of Ship-board Technology for the Woods Hole Oceanographic Institute in Woods Hole, MA. He and I have been working together in simulation since March of 2013. David is an excellent student; making my job a lot easier. Our sessions have been especially effective due to the out-bound speed of his Internet connection; allowing me to monitor his Condor sessions in near-real-time.

#### ***A Fledgling Condor***

***by David Fisichella***

Some decisions are instantaneous. This is what I discovered one beautiful Cape Cod spring afternoon while watching an Osprey circling a salt marsh. At that moment, I decided I was going to learn to fly. I was not going to fly powered aircraft, but gliders, a craft as close to the spirit of that soaring bird as I could get without sprouting feathers.

Six months earlier I would have told you I had no interest whatsoever in full-scale flight. I had been flying Radio Control (RC) planes of various shapes and sizes for a number of years, and was content in the knowledge that by limiting my flying to RC I would walk away from every crash. The idea of piloting a plane from inside the cockpit was alien to me; if I was going to fly, it would certainly not be in any craft limited to one attempt in the landing pattern.

But that afternoon all my previous apprehension was forgotten. I immediately set about finding a high quality computer simulator to practice on. Having seen the value of simulation first hand in RC, where the cost of a pixel-generated model coming apart after impacting the ground is so much less than the cost of real balsa and glue (not to mention the ease of clean-up), I think it is no exaggeration to say that simulation has made for easier entry into the RC hobby than any other technical development.

Finding a good, full-scale, gliding simulator was relatively easy as there are so few on the market. After an evening in the forums, Condor stood out clearly from the others. With the purchase of pedals, a joystick, and (knowing this would be a long-term commitment) a membership in SSA, I was airborne, at least virtually so. By reading a couple of texts on the subject of soaring and spending a few evenings at the computer I was amazed at the control I felt. Being able to land (approximately) where and when I wanted, began to alleviate my previous fear of engineless aircraft.

As I tinkered with Condor and experimented with aircraft and environmental conditions it became clear that if I was going to take this challenge seriously, professional instruction would be needed before I ingrained too many bad habits. I wrote to *Condor Corner's* Scott Manley with a simple request – give me a few pointers and a little advice on what to do next. To my surprise, he responded with an offer to provide remote instruction via the Internet. We quickly set up a process where he would send me Condor lesson files to load on my PC and then provide instruction using Skype video chat. This system allowed Scott to see my activity in real time over the network.

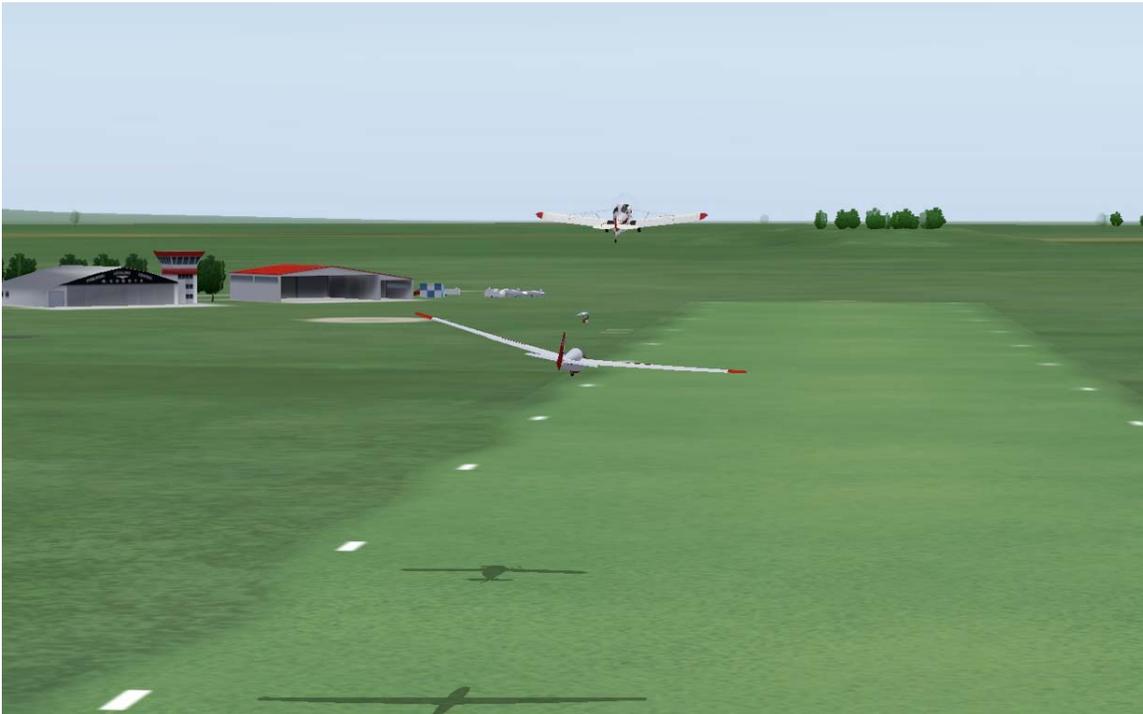
The lesson sequence that Scott and I followed during the next few months was detailed and extensive, covering everything in the Glider Pilot's Handbook. Scott was extremely creative in harnessing the power of a software program developed to hone racing skills, into an effective flight training environment. As our lessons progressed, so did my confidence. Soon I felt it was time to strap myself into the cockpit of a physical, three dimensional, and very frangible glider.

The closest glider club to Cape Cod is the Greater Boston Soaring Club. Though about two hours away, I was fortunate to have such a well-equipped and active organization within driving distance. I showed up at Sterling airport for my introductory lesson with every intent on joining, and my experience that first morning confirmed I had made the right choice.

Despite never having sat in a glider cockpit, everything about the Super Blanik felt familiar. Everything that is, except the seat harness. Nowhere in Condor do you find yourself struggling with ungainly straps that have fallen under the seat. Mike, my instructor, had me go through the pre-takeoff checklist with him. Fortunately there was a printed copy on the instrument panel because in the excitement of the moment I could not remember much of the list Scott requires I recite before every Condor flight.

Mike talked me through the take-off roll with him at the stick. Once airborne it was obvious where the limits of computer-based simulation end. As good as the flight physics are in Condor, turbulence can't be reproduced realistically. Sure, the screen image jumps around in response to the artificial moving air, but my Ikea Pong chair never shook like this. I was told this was "moderate" chop, and it made me wonder if anyone would voluntarily fly in "severe" turbulence. What I didn't have to wonder about anymore was how I would handle my inaugural aero tow. Even with the bumps, staying behind the Pawnee wasn't all that difficult. This was my first test of Condor's value. Anyone who has flown in Condor has questioned the sadistic programmer who thought a one hundred foot towrope was a good length. In the end, the countless aero tows in the sim on that stubby piece of string made me much more capable and comfortable behind the tow.

It turns out that many other elements of flying in Condor helped accelerate my learning in the air. After three flights my CFI commented on how good my turn coordination was for so early in my training. Certainly the control surface feedback is missing in Condor, so getting used to the required pressure on the stick and pedals takes some time, but I went into my lessons with an understanding of the correct sight pictures, and knew how to correct a problem even if the execution of the correction wasn't perfect. After my sixth lesson I found another use for Condor. For some reason, my turns in the real glider were getting sloppy. I couldn't seem to put it together that day. I went home, fired up the computer, and was able to replicate what had happened in the air. Practicing at home enabled me to work through what I was doing wrong and correct it before my next lesson. This, combined with frequent "virtual" flights with Scott allowed me to work on certain skills in a more controlled and relaxed environment than in the sky, where on poor lift days I would be lucky to get a couple of twenty minute flights.



## Scenario-based Training - Rope Break at 50 feet

To date I have about 80 hours on Condor. It may not be a one-for-one experience when compared to actual flight time, but under Scott's supervision I have done dozens of low altitude rope breaks, spent hours taking off in cross winds that would never be attempted by a student, and done a hundred pattern approaches. My more advanced lessons with Scott had us doing spin recognition/recovery training so many times that there is a real chance I may even be able to react correctly if it happens in the air. Scott and I would sometimes fly separate gliders in the same simulation space during a scenario where he would land a few seconds in front of me, leaving me with the decision of where, and how, to put the plane down safely. Scott's syllabus encouraged testing the limits of the aircraft, and I can safely say after many attempts, applying up elevator while flying too low and too slow will not allow you to clear that obstacle near the threshold. Some of these are situations that a student in a real glider would never be placed in, and even experienced pilots would rarely encounter, but simulator training allowed Scott to test me regularly in these challenging conditions.

As a group, the CFI's at The Greater Boston Soaring Club are first rate, and I am lucky to have the chance to train under them. They will take me through the steps to my license. When that day comes it will also be due in large part to Scott's effort, and our time spent flying in Condor. He will have had what I consider to be an equal and complimentary role in my flight training. Someday I may even get a chance to meet him face to face and shake his hand.

### SSA Convention – Reno 2014

I'll be at the 2014 SSA convention in Reno. Paul Remde (Cumulus-Soaring.com) has once again generously offered to sponsor the Condor simulation onto the convention exhibit floor so attendees can take it for a test drive. Unless I'm speaking or taking a bio-break, you'll find me at the Condor booth helping folks appreciate this amazing piece of software. And, speaking of speaking:

At the last four SSA conventions, I have done a presentation on "why" the soaring community should be embracing glider flight simulation. At Reno 2014 the focus will change to "how". I have managed to secure two contiguous presentation slots at the end of the day on Thursday, February 27, 2014, to do a "seminar" entitled "*Using Glider Flight Simulation to Teach Yourself and Others to Fly*". I hope to see you there.

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Scott Manley owns, and occasionally actually flies, a DG-303. The back of his pilot's license reads: Commercial pilot: airplane single-engine land & sea; instrument airplane; glider. He lives in Madison, Wisconsin and flies as a commercial pilot and glider flight instructor for Sylvania Soaring Adventures in Beloit, Wisconsin.

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