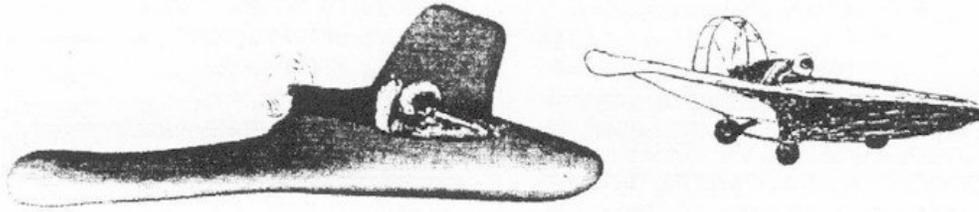
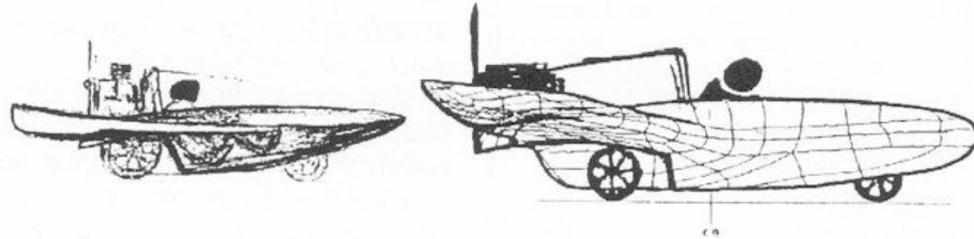


# T.W.I.T.T. NEWSLETTER

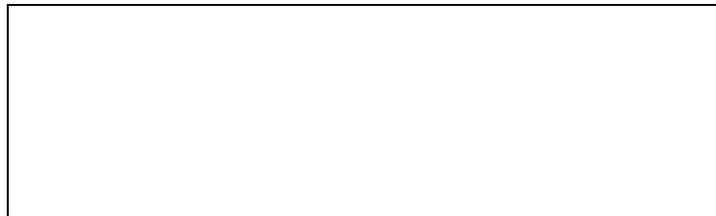


These single seat concepts are variations of a theme. The blended wing design has been proven to fly better, in all key measures, than traditional/conventional aircraft that carry tail sections. The advantage is in the shape of the front area that spreads toward each side and blends with the wing. This thick front section provides efficient lift and stable pitch. On each side, the wings give a tensional integrity to the unit during flight without need for a tail. Drawings by Jay Sadowski.



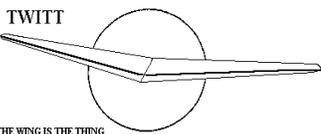
## T.W.I.T.T.

The Wing Is The Thing  
P.O. Box 20430  
El Cajon, CA 92021



The number after your name indicates the ending year and month of your current subscription, i.e., 0102 means this is your last issue unless renewed.

Next TWITT meeting: Saturday, March 17, 2001, beginning at 1:30 pm at hanger A-4, Gillespie Field, El Cajon, CA (first hanger row on Joe Crosson Drive - Southeast side of Gillespie).



**THE WING IS  
THE THING  
(T.W.I.T.T.)**

T.W.I.T.T. is a non-profit organization whose membership seeks to promote the research and development of flying wings and other tailless aircraft by providing a forum for the exchange of ideas and experiences on an international basis. T.W.I.T.T. is affiliated with The Hunsaker Foundation which is dedicated to furthering education and research in a variety of disciplines.

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Meetings are held on the third Saturday of every other month (beginning with January), at 1:30 PM, at Hanger A-4, Gillespie Field, El Cajon, California (first row of hangers on the south end of Joe Crosson Drive, east side of Gillespie).

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**PRESIDENT'S CORNER**

I don't about the rest of you, but 2001 is sure starting to go by awfully fast and it's only February. Here it is, time for the newsletter already but I think we have some good material for you to sink your teeth into.

We have some interesting letters this month and I hope you will be able to help those who are asking questions. If you do provide some help I would appreciate you sending a copy of your e-mail or snail-mail correspondence to us so we can share it with everyone. I am sure there are probably others who have the same or similar questions but were afraid to ask, so by providing this feedback we help more than just one person.

I am excited about the program for March. Bill Bennett has so much experience and knowledge of the hang glider industry and movement I imagine the audience probably won't want to let him go until he has answered all their questions. So if you are a hang glider enthusiast and ever flew a Rogallo wing, you don't want to miss this meeting. Make sure to pass this along to your friends, since everyone is always welcome at the meetings and I would like to see a really big crowd to welcome Bill.

I find it interesting that some people are asking for new information on both the Davis Wing and the PUL-10, both of which hold promise for the homebuilder. I would think that if enough true interest were shown in purchasing kits, either a complete unit at one time or in segments, that these aircraft might reach the market stage. So if you are looking for that ultimate project, you might want to give both of these designs the once over and see if they meet your needs.



**MARCH 17, 2001  
PROGRAM**

The program for March will feature **Bill Bennett**, the world renowned leader of early hang gliding. Bill's accomplishments are many, especially in the area of Rogallo wing development over a career lasting at least 31 years.

From his early days as a water skiing dare devil using kites and delta wings, to flying a Rogallo around the Statue of Liberty (below), to starting his own company for supplying other pilots with wings, Bill has certainly left his mark on the hang gliding community.



Bill stopped flying in the early 1970's, but stayed at the forefront of glider evolution by introducing his own innovations. Many talented pilots and designers started at his factory, including Bob and Chris Wills, Chris Price, Jean Michel, Ray Leonard and Trip Millinger. Rogallos became swallowtails, aspect ratios increased, battens, deflexors and roach tips added to the complexity of the glider designs.

A few of the firsts in Bill's career include:

- Over 200 miles in a hang glider while under tow.
- Flight of a motorized hang glider.
- Developed a hand deployed safety parachute.
- Introduced the floating cross bar.

Developed Mylar coated sailcloth.  
Bill is an inductee of the Soaring Hall of Fame, NASA's Space and Technology Hall of Fame, and the Rogallo Hall of Fame.

This should be an exceptional program for all enthusiasts of hang gliding and tailless type aircraft.



**MINUTES OF THE  
JANUARY 20, 2001  
MEETING**

Andy welcomed everyone to the first real meeting of the millennium and, opened with his usual recitation of the housekeeping items for the newcomers in the audience. He announced the program would feature Bruce Carmichael giving a two-part presentation bringing us up to date on sailplane development.

During the break there will be two birthday celebrations. One will be for Bruce's 77<sup>th</sup> and the other will be for Bernie Gross' 80<sup>th</sup>. We all needed to thank Bernie for contributing the cake below along with the ice cream and, Margie Carmichael for bringing along another cake for even more calories.

Someone came up with a flyer on an event that might of interest to many of our members in Southern California. San Diego State University and AIAA are presenting William H. Dana and The History of NASA's Dryden Flight Research Center. This will occur on Thursday, February 22, at 6:30 pm at "The Back Door" lecture hall at the university (located on the Lower Level of The Aztec Center). Admission is free with parking in Lot G on the East side of College Avenue (parking may require a fee). William H. Dana was Chief Engineer at Dryden from 1993 to 1998. You are welcome to join in an evening exploring the history of Dryden Flight Research Center, from the early years of the X-1 Rocket, to the SR-71, to current research in the space program such as the X-33.

Andy brought along a short video of a jet powered Mitchell B-10. The single stage axial compressor and single exhaust turbine combine to produce about 80 lbs. of thrust. The pilot cage had to be strengthened to accommodate the engine, but otherwise it looked like a stock B-10. The flight pictures looked good, but Bob Chase commented he had heard it only had about a 12-minute endurance due to the fuel hungry engine. Interesting, but obviously not very practical for most Sunday flyers.

With all that out of the way, Andy introduced Bruce Carmichael. Bruce opened with the fact that trying to cover the history of soaring in a little less than an hour will result in some facts being left out.

Most people have a moment in their life when something momentous occurs that changes their direction forever. This also happens to soaring pilots when they experience their first flight. For Bruce these two events occurred simultaneously when in 1949 he was in Grand Prairie, Texas at the Southwestern Sailplane Meet.

He ran into George Lambrose who he had known at the U. of Michigan and who convinced Bruce to attend two lectures that night. The first was by Dr. Alexander Lippisch who was going to talk about the whole history of soaring development in Germany between WW I and II. The second speaker was Dr. August Raspert who would tell his audience about using sailplanes for aeronautical and meteorological research. Raspert believed you could do a lot with sailplanes in researching low speed aerodynamics.

Raspert was looking for young engineers who would be interested in soaring technology. He sent Bruce a complete set of the war time issues of Soaring magazine. This included Wolfgang Klemperer's thesis at Aachen on soaring flight, which also covered dynamic soaring. He also sent Bruce two flight test reports by Hans Zacher (pre-WW II) on the Darmstadt D-28 Windspiel ultralight sailplane and the D-30 Cirrus high performance sailplane.

Bruce eventually went to see Raspert's research center and while there met Dick Johnson working on the RJ-5 that he had taken over in the later stages of construction. This was the aircraft Johnson used to take the world distance sailplane record away from the Russians in 1951. Raspert sent Bruce the Peravia barogram from that flight which Bruce analyzed in a manner new to the art. Raspert next gave Bruce the task of predicting the future of sailplane performance. These projections based on first principles were presented to the OSTIV and published in Swiss Aero Review. Not long after that, Raspert had enough money to hire Bruce as a project engineer on the suction boundary layer control, low drag work. This was being tested on a TG-3 sailplane and allowed for laminar flow all the way to the trailing edge of the wing. There was also another TG-3 that was used for high lift testing.

After a couple of years Bruce had decided to return to private the private sector. Just about that time Raspert ran into Werner Pfenninger, the Swiss scientist, who was ready to carry this type of research from the 4-5 million Reynolds number they were getting at the research center to nearly ten times that level by using a jet airplane. Northrop got the contract and Bruce got hired to come to California and help with the testing.

On his way to California, Bruce stopped off in Texas to visit with his long time friend Del Lewis. Del introduce Bruce to Len Niemi, designer of the famous Sisu high performance sailplane. So at this point in the 50's, America was leading the world in high performance sailplanes with aircraft like the Sisu and RJ-5. The Sisu actually went into production and was owned by pilots like Bill Ivans who flew it in national contests.

When Bruce checked into the personnel office at Northrop he ran into Lyle Maxey (also attending today's meeting). Lyle had just read Bruce's Soaring magazine article on "What Price Performance". He commented that it was a nice piece of work but out in the West the thermals are much bigger and stronger so Bruce's calculations understated the wing loading factors. Most of the research for the article had been done with material from New England thermals at altitudes of 1,000', which

were sort of weak. Lyle proved his point by winning the Nationals in the Jenny Mae (Irv Prue design), which was a sleek metal ship with a laminar flow wing. The western designers and builders were doing fantastic work in smoothing out the metal surfaces to achieve great performance.

In 1959, Bruce was the Aerodynamics Chairman for the Soaring Society and pulled together a technical conference in Los Angeles. Gus Raspert gave a talk on new approaches to soaring saying that we needed huge leaps into the future and, went on to talk about solar energy and boundary layer control. He commented on the thoughts about low aspect ratios on sailplanes where the lift coefficient at which max L/D occurs is much lower than for high aspect ratio aircraft. So for a given wing loading you would be flying at L/D max at a higher speed. Bruce has recently looked at this concept again and found it was okay, but for practical ships today the span loading and sinking speeds get sort of high.

Paul MacCready was at that conference and talked about the micro turbulence in the lower atmosphere. He said if you had a sailplane with a sinking speed only 1 fps you would be able to stay up at almost any time of the day, almost anywhere for as long as you liked. This would certainly be a boom for sport soaring. A few years later Bruce did a study on the subject taking data from human powered airplanes and available airfoil data and, concluded that with a 57-60 foot span this sink rate would be possible. They would be pretty delicate ships but would be able to take the airloads.

Toward the end of the 60's the German Phoenix sailplane of Eppler and Nagele came along and it was the watershed for what was to come. Everything that was built after this was different than what was built before. Wood was smooth for several years but then would get wavy and, metal was just extremely difficult to work with to get the necessary shapes and keep them smooth over time. The Phoenix was balsa sandwich composite construction, very light with about a 44-46 foot span. It was brought to Mississippi State for Raspert and GeorgeFalvy to do the flight-tests. To keep things in perspective, GeorgeFalvy also did an excellent paper on test flying the Horten IV, and it is still widely read even today.

It was at this point the US lost the lead in sailplane development. We were reaching for space and many of the projects of interest to the soaring world were set aside to concentrate on the ultimate goal, the moon. Eppler and Wortmann came up with new, efficient airfoils that made a great jump in performance on the new composite sailplanes.

Although not composites, Dave Marsden in Canada was building very clean metal sailplanes with large extendable flaps and making them work. These flaps would work well in thermals and could then be sucked in for the cross-country run.

Bruce sort of went back in time at this point to demonstrate that Pfenninger's work in the 40's was right on point and continues to be rediscovered by engineers even today. When Bruce got into the game in '49 there were only two or three reports with data on sailplane

airfoils that were done at low enough turbulence levels to be usable. At that time Dick Lyon recommended the NACA 63-615 for the RJ-5, then the Germans picked it up for the Ka-6 where they found out NACA had a very bad leading edge on their low drag airfoils. It was found the leading edge needed to be drooped a little bit with a bigger radius so the high lift end could be dramatically improved.



(This is a picture of Bernie with one of his early flying wing models. It has been superimposed on the cake and looks just like a photo. Amazing what can be done with a cake these days. Where will technology end!!!!)

Before this time Pfenninger had already developed low drag airfoils, including ones with laminar flow to 90% on the lower surface and 60% on the upper surface with extremely low drag coefficients. He also invented the cruise flap, which was a very small chord (about 12%) and could be moved up or down to widen the low drag bucket, that range of lift coefficients for which you would have the low drag of the best design point. At the same time he discovered the laminar separation bubble, which was putting a big jump in the drag on low drag airfoils and discovered all the ways to correct the condition.

Back in the US, Zimmerman developed a composite sailplane, Jack Laister built a bonded metal wing that was laminar and very clean and, the Schweizer's last high performance in riveted aluminum met laminar requirements for metal construction.

In sailplane flight testing the name Dick Johnson is probably at the top of the list of people who have excelled in this area. From his work with Raspit he moved on to Texas and in collaboration with the Texas Soaring Association has been doing sailplane flight testing ever since. He developed a trailing edge wake rake for measuring drag that allowed him to determine the best flap position for each speed without having to know the absolute value of the drag. He has written excellent articles on each of these flight test methods and individual sailplane tests and many of them can be found in Soaring magazine. Bruce noted this is difficult testing since the weather has to be just right, you need accurate instrumentation and many flights to achieve reliable results.

Bruce closed out this portion of his presentation with a review of the various publications that are available. These include Soaring, Technical Soaring and, Sailplane Builder the newsletter for the Sailplane Homebuilder Association. Bruce feels SHA and its members are where the real developments in soaring are coming from. It may seem like a retrospective group going back to car and winch tows and ultralight aircraft with low sinking speeds, but these are the ones that will allow for dynamic soaring and get more people into the sport at a lower cost. Stan Hall had his complete works published and it's a must for the homebuilder's library. Then there's Basic Glider Criteria published by the government. Fundamentals of Sailplane Design by Thomas is another good book with history and where we are today with performance. Performance Enhancement of Sailplanes by Massic gives you all the ways to tweak your glider, like sealing gaps, etc., which improve speed and overall performance. Then there is S. Horner with his fluid dynamic drag and lift catalogs of data and, the airfoil catalogs from Stuttgart. The late Alex Strojnik wrote three books on laminar low power aircraft design which are good and, then there are Bruce's books that are also available (see the ads in the back of this newsletter).

Unfortunately, by break time we still hadn't seen neither hide nor hair of Bernie, but decided to proceed with the birthday celebration. Pictures were taken and Mary Ellen Barnes assisted in cutting the cake and serving up the ice cream. Most of Bernie's cake was gone when he and a friend arrived. So we got more pictures of Bernie and Bruce together over the remaining cake and at the end sang a rounding rendition of Happy Birthday for both.



After everyone was sufficiently full of cake, ice cream and fluids, Bruce resumed by taking us into the future of soaring. In 1979, SHA got started by a group of people across the country who wanted to find simpler, more convenient and less costly ways to soar. They set up a design contest, but the deadline was too short and only two entries were considered. The winner was Burt Rutan's Solitaire (previous page), which had a tremendous amount of good production and engineering thought in it. Unfortunately, as Bruce points out, Burt put the horizontal tail on the wrong end of the fuselage and, it turned out in tests to be inferior to more conventional designs.

Bruce did a run down on some of the master builders from SHA and it is a Who's Who of soaring. He

started with Irv Culver whose early designs included the Scream'n Weiner (now the Lil' Dogie). He then joined forces with Jim Maupin on the Woodstock, an all-wood sailplane and, the WindRose which was entered into the SHA competition but didn't get finished in time to be considered. It offered simplified construction by using a big block of foam plastic with spanwise grooves in the upper and lower surface for the fiberglass spar caps. This created a problem when the wing bent since the caps tried to come together. The solution was to install square-ended dowels between the caps about every 4", saving the basic wing design.

Maupin learned about a concept by Wortmann that incorporated a large fabric flap off the trailing edge that would nearly double the wing area for "surfing" in thermals. He brought Irv into the project to figure the loads and Irv realized early on that there wasn't going to be a short-term solution to the design problems. So they went back to a rigid wing and came up with the Carbon Dragon with a wing loading of about 2 lbs./sq.ft. and sinking speed of 1.6 fps. Gary Osaba has been doing nap of the earth soaring, around 1,000', sort of like the vultures do in the early morning hours (when most of us are asleep). Basically it's a form of dynamic soaring that is being written about by Osaba and Taras Kiceniuk.

Other early designers that have contributed to the movement include Stan Hall with the Cherokee, Don Mitchell with the B-10 (below), Al Backstrom with the flying plank and, Jim Marske whose Genesis is now being produced overseas and who is now producing the Monarch light sailplane from his shop in Ohio. He is also working on his Pioneer III high-performance sailplane.



This history wouldn't be complete without another mention of Paul MacCready and his many manpowered aircraft that set records all over the world. Gene Larrabee, who was in the audience today, interested his students at MIT into helping design the propellers for the Gossamer Albatross.

Franklin Farrar took Bruce's earlier article on light wingloading to heart and built a very light sailplane with a 61' span, 230 sq.ft. of area, L/D of 34 and a sinking speed of 1 fps. It stalled at 20 mph on an empty weight of 206 lbs. and wingloading of 1.65 lbs./sq.ft. It got weather damaged before he was able to do much flight-testing so it never really set the soaring world on fire.

Danny Howell is now building the Light Hawk that is aimed at the light sailplane market. It will have an empty weight of 155 lbs. or less and he appears to making this weight goal with the three ships currently under construction. Danny did a stress test on the horizontal at the SHA Workshop and the 7 lb. surface withstood over 20 g's of loading.

Bruce moved back into the area of suction boundary layer control. Wortmann had been studying it and came to the conclusion that there wasn't much hope for it in sailplanes. Then Boermans from the Delph University in Holland picked up on it, saying it may be complex but it's the only thing left since we have gone about as far as we can with geometry. This method would enable designers to get the laminar flow out to the last part of the wing where it is presently turbulent. Phil Barnes asked if the source of suction would have to be some type of motor system. Bruce commented that it might have to be and, that Raspet had tried a low-pressure wing tip design as source but as soon as the flow started it lost the negative pressure.

There was a recent article in Technical Soaring by Klaus Pletcher in Germany with an idea about a retractable windmill for use in a thermal. The windmill would extend out the rear of the fuselage and be deployed while climbing in the thermal. Some performance would be lost but the power would be used to charge a power source that could be used for boundary layer control during the run between thermals. In this case he was considering a flywheel as the storage device, which solicited comments about it coming apart catastrophically or acting like a gyroscope and preventing the sailplane from turning. The practicality was obviously suspect.

Pfenninger proposed another variation of the windmill idea with a monster sailplane of 106' span, aspect ratio of 54, thickness ratio of under 13% and a wingloading between 7.5 to 12 lbs./sq.ft. By using ballast he predicted an L/D of 98.5 at 86.5 mph and a sinking speed of 1.08 fps at 65 mph, 4 fps at 166 mph and at 203 mph he would still be getting an L/D of 46. The span was to be strut braced in order to achieve the light construction with such a span and, the two big windmills after of the trailing edge would provide power for the boundary layer control. Bruce surmised that even the Germans wouldn't take on such a project.

Bruce reviewed some of the designs that have shown promise for the years ahead. Many of these are working on the theory of variable area so you have more area while thermalling and less when cruising in-between. The devices range from natural laminar flow and cruise flaps to variable thickness wings. Then there is the school of thought saying what you really need is a variable span and this was done with the SF-29 which had an overlaying wing that could be extended out for more span.

Sailplane Homebuilders are working on some advanced concepts. Among them is Paul MacCready's regenerative battery augmented soaring in which a windmill recharges batteries for a suction pump. Al Bowers was involved in a NASA project with Mark Drela to launch a sailplane from a balloon at 100,000' to study aerodynamic data at low Reynolds numbers and higher sub-sonic Mach numbers. Unfortunately, the project was cancelled due to budget constraints. Then there are the experiments with dynamic soaring.

Bruce wrapped up with the following:

"Looking back through a half a century I see them in memory like when we first met. The dreamers and the doers. The brilliant theoreticians and meticulous experimenters. The clever designers and patient, patient builders. The bold, exploring flyers. All of whom have added so much interest to all our lives through this half century. Bless them all, for time, like a raging river, carries all her sons away. We pass forgotten as a dream, at the breaking of the day. But you and I do not forget and we pass on their legends to those that follow."



**LETTERS TO THE EDITOR**

12/23/00

Subject: 2 Place Wing

Hi...

**I** am very new to this list. (first day on Nurflugel.com) We have our own strip south of Cincinnati, OH (3KY4), and have three planes based here. I've been interested in flying for a long time (1951), and have been toying with the idea of building an experimental wing.

About 10 years ago, I read about a wing in one of the GA magazines, either 1 or 2 place, and decided to call the owner of that wing. He was a guy in, I think, Wyoming. He had the wing for sale, but it was in a damaged condition, IIRC, but he was also no longer able to walk because of the crash in the wing. We probably talked a half-hour or more, but nothing came of our conversation. He told me that the plane was very stable in cross winds and relative fast.

I need to find this man again. If anyone knows who I'm talking about, or knows of a flying 2-place wing, could you please email me as to who and where.

I intend to keep reading the list, to pick your brains, and will keep you informed as to progress on the wing, if any.

Barry Brown  
[M9brown@hotmail.com](mailto:M9brown@hotmail.com)

*(ed. – I picked this up from the Nurflugel mailing list run by Doug Bullard. I answered him thinking that the person he was looking for was Gilbert Davis, based on the aircraft description and time period. I got the message below back from him.)*

12/25/00

Good Morning Andy,

**T**hanks for the information on the Davis Wing. This must be the man I spoke to 10 years ago. Will try to

contact him again.

Really wish California was closer, so that we could attend your TWITT meetings in person, but alas, we'll have to make do with membership if you accept us. If you take plastic, we will send you the numbers, otherwise we'll send a check.

The TWITT web site has much information, and will be a valuable source for this project I'm contemplating. I really don't know how far I will go with this venture, but it's been a dream now for many years. We finally finished the strip about 5 years ago, and this is the second year for the hanger. Oh I wish I was younger.

Barry

*(ed. – I glad we could help you with your search. As you move along with development of your design be sure to let us know if you have any questions you think the group might be able to help you with.*

*If would be nice if you had a big enough membership to support some type of regional meetings so more members could get together and discuss problems face-to-face. Barring that, I hope you enjoy the newsletter and that information contained in it helps you with your venture.)*

1/1/01

TWITT:

**I** came across your website while researching a number of references on all-wing personal aircraft.

I am a flight instructor with over 10,000 hours in conventional light aircraft and hold FAA aircraft and powerplant mechanics certificates. I once owned a repair shop where I maintained and rebuilt many general aviation aircraft including many antique airplanes such as Stearmans and Pitts Specials. Through all this, I never really knew of any all-wing type aircraft except for the works of John Northrop, which I considered interesting but purely conceptual and vastly removed from any but armchair reading.

Over the past few months I've become more intrigued with the idea of a personal all-wing type and finally began a net search to see what I could uncover. I was somewhat amazed to learn the concept was taken well beyond the theoretical stage and there are many examples, which have flown successfully and are still flying today. As a result, tomorrow I'm sending for a set of plans for the Mitchell B-10, which I plan to construct mainly as a tool for building my learning curve. I also have a check in the mail to you for \$28.00 to cover cost of membership in your organization plus the three audio-tapes of Don Mitchell advertised on your website.

I would also like to learn of any other members who might be presently, or who have in the past, constructed Mitchell B-10 or similar projects so I might correspond with them and share problems and solutions they may have encountered along the way. I would also be amenable to sharing information I learn as I go, including

construction photos during various phases which you may wish to include on your website if you feel this might interest other members. I have a digital camera and an excellent computer program allowing cropping and enlarging which results in top quality professional photographs. (All I need now is the set of plans and to get physically underway, of course.)

Thank you for any feedback and for your efforts in setting up and maintaining an excellent website.

Best regards,

Mike Brown  
[Sevenshop@terragon.com](mailto:Sevenshop@terragon.com)

*(ed. – Welcome to TWITT. We are pleased you came across our website and found it, as well as others, fulfilled your concerns about flying wings. We certainly would like to share in your building experience and the website offers an excellent forum for presenting the information to the greatest number of people. It will also make good stuff for the newsletter.)*

1/1/01

TWITT:

**T**hanks for the warm welcome. I was very happily surprised to find your site. It actually was one of the last I came up with.

What impresses me the most is the credentialed documentation you've been able to accumulate, together with the writings and comments of such highly educated and dedicated people. I was in the San Francisco Bay Area when the first hang gliders were being flown there in the early 70's. I attended a few meets as an observer only at Coyote Hills, which was one of the first gathering places for enthusiasts. What I saw was often downright frightening but, of course, I kept my own counsel, and eventually left with the impression that alternate forms of flight other than standard certificated or tried and true experimental aircraft were pretty much the realm of those with little regard for life and limb.

It was with this long-held skepticism that I approached the subject of flying wings, but I none-the-less felt compelled to give the concept a fair evaluation just in case there was merit to the idea. I'm now glad I pursued the matter. Again, your website gives a great deal of credence to the notion of the flying wing and the fact it isn't just a risky adventure for wild-eyed crazies. Thanks once more for the time and effort you've put into it.

Will get the check off tomorrow.

Best regards,

Mike Brown

*(ed. – I appreciate the comments on the website's content. I have been fortunate to be in contact with some very fine people who have made it all possible by making*

*the contributions of their work. They are the ones that make it all work. All I do is put it together in a package others around the world can use.)*

1/12/01

TWITT:

**H**ello, my name is Dan Johnson, I am the creator of the Luft '46 website. I am writing you concerning several matters.

The first concerns the first link in your QUICK LINKS TO FLYING WINGS or RELATED SITES. The link is to the Gotha Go P.60C, and the URL is <http://studserv.stud.uni-hannover.de/~ortmann/gop60c.htm>. AS this info and drawings are copied EXACTLY from my website, I would like you to either remove this link, or point it to the original on Luft '46 (<http://visi.net/~djohnson/gotha/gop60c.html>). I have written to the person who copied my website entry asking him to modify it or delete it.

The second thing I'd like to ask is if you could add a link directly to my main page (<http://www.luft46.com>) in your links section. There are many wing designs within the 180+ aircraft entries on the Luft '46 website. I know you have several links pointing to separate entries on Luft '46, but I would like people to start their surfing from the main page...

Thanks very much for your time.

Dan Johnson  
[djohnson@visi.net](mailto:djohnson@visi.net)  
 ICQ 9550653

*(ed. – I included this e-mail since it exposes several websites to your members. At the same time it shows the need to be very careful what kind of information you publish on your own site. I have been very careful to only provide links to other pages and only publish items that have been given to me by the author or originator of the pictures, giving full credit when needed. If anyone should find something else on the website that needs correcting, please let me know.*

*I have added the link directly to Dan's home page to the links page cited in his message, so take a look at it though our site or with the direct URL.)*

1/26/01

TWITT:

I was searching back on my Newsletters for the above topics to no avail, thinking that I made seen you do an article on the Flair 30, was I mistaken? I am also looking for information on the SWIFT. In any case do you have any info on either subject?

As to my CG problem, I am still having the airplane ground loop on take-off attempt, suspect high torque and gyroscopic effect, I am now increasing the winglets by 100% in hopes to counter it.

John Binikos.  
Bikodad2@worldnet.att.net

*(ed. – I wrote John back giving him the information on a link to the one site I know has a couple of pictures of the Flair 30, as well as, the printed material from the February 1997 newsletter he was looking for. I also gave him the link to the SWIFT's manufacturer in Belgium.*

*As for the problems he was having on take-off, I didn't have a lot to offer him, so perhaps some of you out there could give some advice. I have published his aircraft's picture again so you have an idea of what he is working with. I also put him in touch with Bruce since he was so gracious earlier in helping with the CG calculations.)*

1/28/01

TWITT:

I am building an R/C version of the PUL-10.....or at least I want to. One problem.....need airfoil coordinates for the Horten airfoils used in the pul-10.....I don't know if they are in the UIUC database....(like if they have special numbers with an H or something).....I'm looking for any additional info/plans on building the PUL-10.....I've talked to Martin Hepperle, Douglas Bullard (who has his page on Horten's site) and Arthur Kresse, who helped me a lot with understanding wing design....but I would like any info on getting the plans....because their site says the plans cost nothing....bottom of this page:

[http://www.nurflugel.com/Nurflugel/Horten\\_Nurflugels/PUL-10/pul-10\\_nurflugel\\_brief/pul-10\\_nurflugel\\_brief.shtml](http://www.nurflugel.com/Nurflugel/Horten_Nurflugels/PUL-10/pul-10_nurflugel_brief/pul-10_nurflugel_brief.shtml)

So if you have any info on airfoil coords, plans, or any other specs.....would be very much appreciated. Thanks

Awaiting reply.

future mechanical/aeronautical engineer  
Leon  
leeoniya@dataageinc.com

*(ed. – I put Leon in touch with Barney Vincelette who has been the USA representative for the PUL-10 project. However, if anyone has more information or contacts that*

*could get him the airfoil coordinates he's looking for, I sure he would appreciate it.*

*If you haven't visited Doug's pages on the PUL-10, make sure you do. It can be reached the the URL: [www.nurflugel.com](http://www.nurflugel.com) and then click on the appropriate link.)*

**With Season's Greetings  
And all good wishes  
For a new year 2001!**



Hi friends. Unfortunately a sickness cancelled all my Christmas mailings so my Christmas pictures come out much too late. I hope you accept my best wishes for you.

**Reinhold Stadler**

*(ed. – This was in beautiful color and can be seen on the website under Member Projects.)*