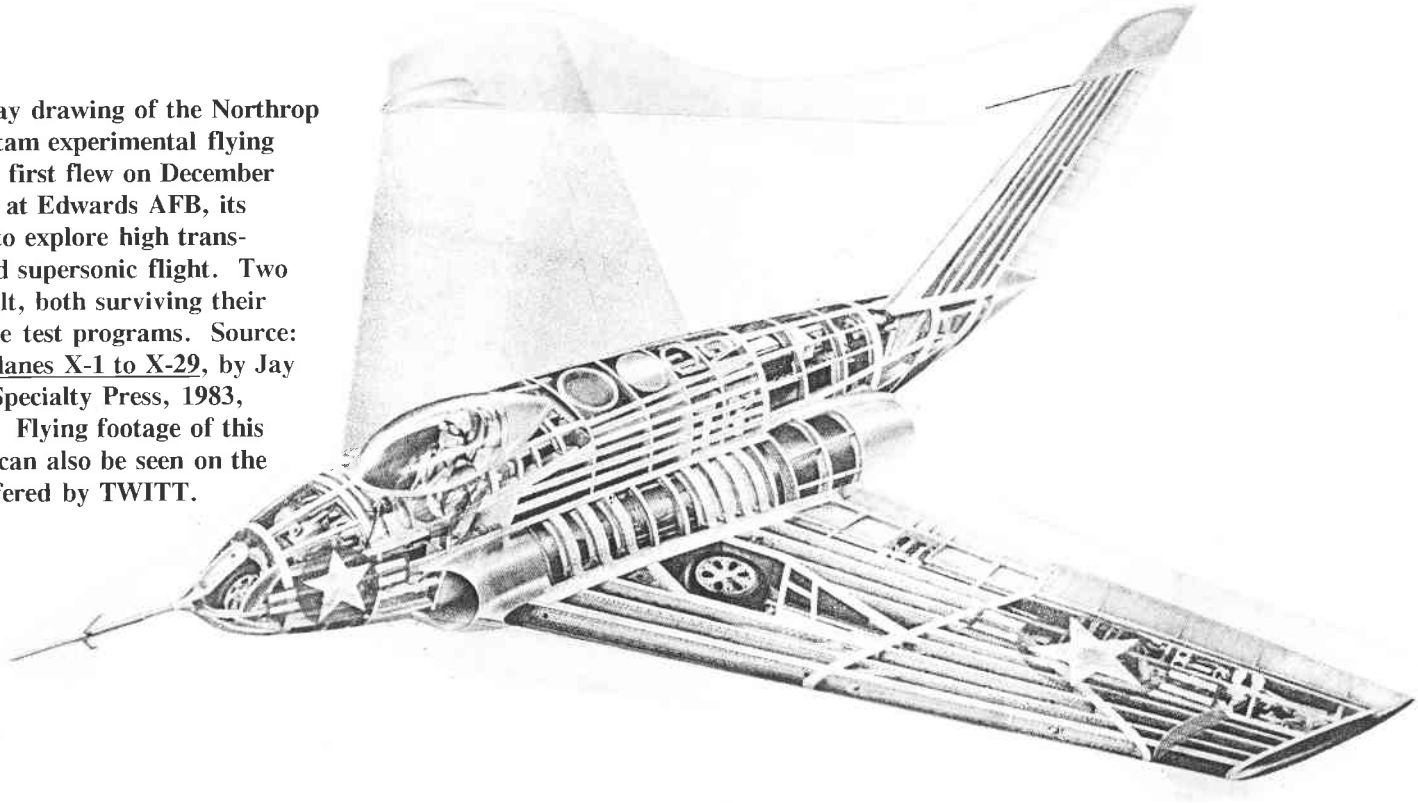
No. 105 MARCH 1995

T.W.I.T.T. NEWSLETTER

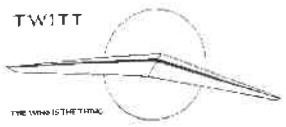


A cutaway drawing of the Northrop X-4 Bantam experimental flying wing. It first flew on December 16, 1948 at Edwards AFB, its mission to explore high transsonic and supersonic flight. Two were built, both surviving their respective test programs. Source: The X-Planes X-1 to X-29, by Jay Miller, Specialty Press, 1983, page 54. Flying footage of this aircraft can also be seen on the video offered by TWITT.

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

The number to the right of your name indicates the last issue of your current subscription, e.g., **9503** means this is your last issue unless renewed.

Next TWITT meeting: Saturday, March 18, 1995, beginning at 1330 hrs at hanger A-4, Gillespie Field, El Cajon, CA (first hanger row on Joe Crosson Drive - East 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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Editor: Andy Kecskes

The **T.W.I.T.T.** office is located at Hanger A-4, Gillespie Field, El Cajon, California.

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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).

TABLE OF CONTENTS

PRESIDENT'S CORNER

The response to my internet address has been very satisfying so far. I have received some good ideas on how it can be used to the benefit of the organization, it is just going to take me a little time to find out about all the routing possibilities. I hope more of you will take advantage of this method of keeping us informed of your projects and asking those important questions.

When arriving at the March meeting, you will need to use a new combination for the entry gate. Punch in 125 (remember it as $1.25) and then turn the knob. If you forget, give someone in the hanger a yell and we will assist you.

There was a lot mail to handle this month so I don't know if it will all make it into this newsletter. I will put things in based on mailing date, except where it is more time sensitive information or a response to some previous material.

Early in March I attended a local talk on how to simply describe Einstein's Theory of Relativity sponsored in part the Society for Amateur Scientists (SAS) and the Reuben H. Fleet Museum in Balboa Park (Sand Diego). One of the board members of SAS is Paul Mac Cready, along with at least two Nobel Prize winners. This is a very interesting and ambitious group looking into a number of different scientific areas and providing opportunities to amateurs to experiment and learn. Please see how you can join in the classified section below. They are also carrying an advertisement for us in their monthly newsletter.

Last, but not least, I would like to apologize for the delays some of you may have experienced in receiving products you ordered. Sometimes Bob and I simply get behind due to other commitments that also take a great deal of our time. Please be patient, especially since much of what you order has to be made up at that time because we don't want to stock a bunch of stuff that will never be ordered.

Andy

MARCH 18, 1995 PROGRAM

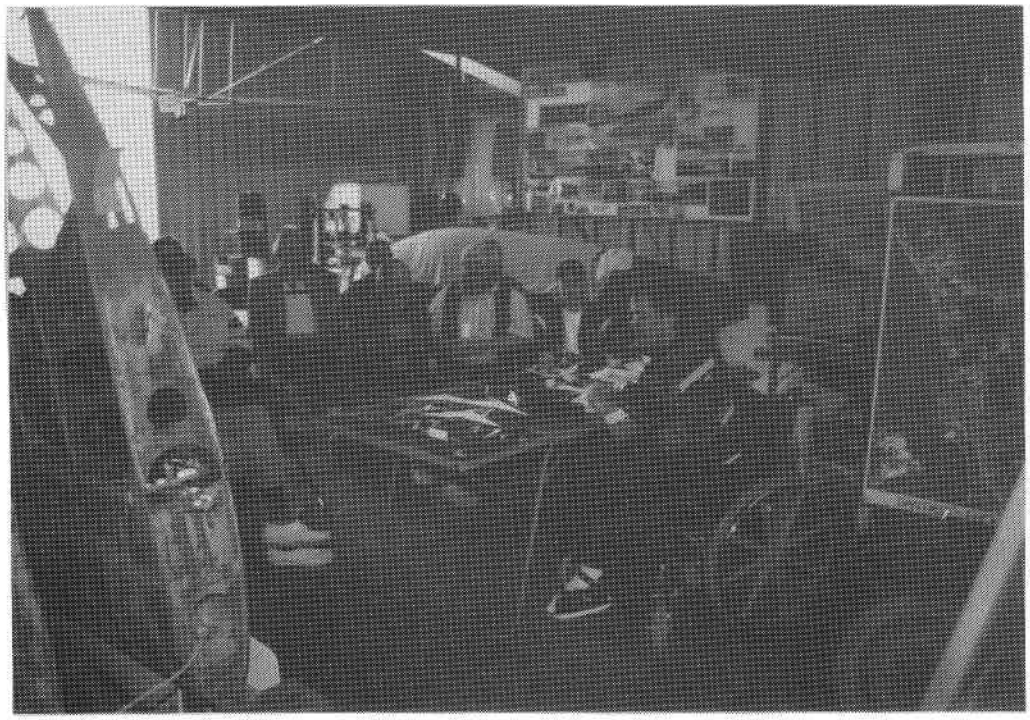
I think we have a really enjoyable program for you this month. Our featured speaker will be **Brian Evans**, a very knowledgeable and experienced composite structures repairman. He has indicated his presentation will center around how to make new parts using the female portions of foam molds and vacuum bagging. This sounds like a very useful technique for both the full size guys and you modelers, the only difference being the size of the baggy. *(ed. - we are going to try a get some good pictures of the process and publish them in the newsletter so all can benefit.)*

Brian has had a varied background leading up to his current work here in Southern California repairing sailplanes and other composites. He is originally from England where he built glass fiber helicopter blades, worked with wood laminates, and built boats. After arriving in the US he worked as a sheet metal mechanic for a while and then went to work with Arthur Zimmerman on the Concept 70 project. He spent 3-4 years helping with the initial production techniques.

From there he moved on to help George Appleby with his Zuni project for about a year. He then went into business for himself in Georgia rebuilding sailplanes. At one time he was president of the North Georgia Soaring Association.

Brian also indicated he would bring along a video of the 1974 SSA symposium that has some sections that he thought might be of interest.

BELOW: Pat Oliver (a little disabled at the moment) showing the group his array of paper flying wings.



LETTERS TO THE EDITOR

2/15/95

Dear TWITTs:

I want to sincerely thank you for the opportunity to speak about my paper aeroplane project at the January meeting. I must compliment Andy on his handling of the article about my talk. Apparently, I am a much more organized speaker than I thought I was. The chance to speak to such a diverse group of aviation enthusiasts was motivating and the feedback I have received has assisted me in refining the project. It was gratifying to see the enthusiasm with which the members took to flying of the wings around in the hanger after the presentation (all kids at heart!).

As of this writing, I am scheduled to begin the first experiments with the Coronado Middle School Science Club sometime in the middle of March. Their present project, which is a helium balloon camera platform for taking aerial photographs of the school will be completed about that time. The seventh and eighth graders directed by Tom Lamb (science teacher and paraglider pilot) and myself will investigate aspect ratios, sweep angles and the effects of CG changes on the performance and stability of paper flying wings. With these students, we'll get some practical experience in the effectiveness of the program as a teaching and learning tool. I hope it can generate some fun and perhaps, some young aircraft designers! Hopefully, we will also generate some data that might be of interest to the members of TWITT.

Again, I want to thank you, and I look forward to sharing the flying wing adventure with you.

Sincerely,
Pat Oliver

(ed. - Thanks for the follow-up letter, and we hope that your test program with the students goes well this month. By the way, I did rearrange some of the material and grouped like items together in the minutes to make for easier reading, but your talk was just fine the way you presented it. It will be interesting to see what those young minds come up with in the way of new thoughts about flying wings.)

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1/4/95

TWITT:

I am enclosing my 1995 subscription. I am aware that being "Pacific Rim" and wanting airmail requires more dollars but I don't have that many "Yankee" dollars at the present. But since I have been trying to send you my sub. for two months now I deem it better to get some bucks to you now rather than wait any longer.

I am also renewing my subscription to the SHA. If you need any help with the technology of printing a magazine with pictures ask the SHA editor, Dan Armstrong. From my point of view both mag's cost me the same, are of similar style and arrive at about the same time (if at all). So whilst I must admit the TWITT rag is getting appreciably better, the SHA might have some valuable hints. May be you could use the same printing works.

I take it the January issue I received was the first of my new year's subscription. Cool banana?

Yours sincerely,
Robert Marriott
Sydney, Australia

(ed. - Thanks for the renewal. It is always great to have our members continue each year since it suggests we are doing something right.

In answer to your comments on publishing the newsletter in a fashion similar to Sailplane Builder, I can only say we are trying to improve ours within the budgetary limitations imposed by our rates. As my skills with the publishing software increase and my access to better equipment becomes available the newsletter will continue to improve in quality. We have been trying to make sure the photos used are good quality half-tones, but many times there is not a suitable picture for the cover so I use other material that will fill the allotted space. You will see more comments from another member in a later letter on a way to transmit the newsletter, which will also be explored. Thanks for your input and hopefully you will continue to be pleased with the product you receive.)

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2/1/95

TWITT:

Here is the address of Mr. Markmann, requested by Kevin Renshaw (January newsletter):

Rolf Markmann
Pointrasse 4
D-91233 Speikern Germany
Tel: 09153/5789
Fax: 09153/5790

Another design, clearly derived from the Horten experience, has been realized by a German tailless fan:

Manfred Boehm
Bierlachweg 35
D-91058 Erlangen Germany
Tel: 09131/32838

This design is called "Schmankerl", which in German means "Pleasant Situation."

The published data of these two designs are as follows:

TYPE	MARK 10	SCHMANKERL
Designer	Markmann	Boehm
Span (m)	10.30	12.0
Area (m^2)	15.32	15.0
A/R	6.79	10
Sweep	?	33.2°
Weight	40 kg	38 kg
Sink Rate	3.5 m/sec @ 120 kph .72 m/sec @ 43 kph	.41 m/sec @ 40 kph
Best Glide	1:20 @ 61 kph	
Stall Spd		37 kph
Max Speed	172 kph	170 kph
Wing Load	?	8 kg/m^2
Price	27,000 DM	20,000 DM

Regards,
Ferdi Gale'

(ed. - Thanks for the information on Markmann's address for Kevin, and the additional information on Boehm. Perhaps you can find a good picture of Boehm's wing and send it along so we can show everyone how it compares with the Mark 10.)

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2/3/95

TWITT:

Thank you for the drawings of the Horten IV glider and my request that you published in the April 1994 issue.

Could you please give me details of where I can obtain a copy of the Horten war time report on the Horten aircraft?

Can you also tell me if you have friends who might have color photos of the restored Horten IV glider and the semi-restored Horten Ho229 V3 jet at the Silver Hill facility of the Smithsonian (especially color, not black & white, of the cockpit area, landing gear and engine details?

And in closing, was there any film footage taken to your knowledge of any of the Horten planes -- either by the Germans or the allies in post war test flights and static display? I don't know of any but there sure as hell must of been plenty taken! The deceased Reimar Horten may have had some. So if you know who is handling Reimar and his brother's personal records (a museum in Germany or South America perhaps) please tell me how I can get in touch.

I look forward to your reply.
Yours sincerely,
Michael Brennan
Adelaide, Australia

(ed. - By now you should have received Bob's note on the Dabrowski book covering the Horten aircraft. I hope you were able to order a copy from the publisher.

You might want to write to Russell Lee at the Smithsonian and see what he can do for you on the color photos. He has indicated he will do some small things for us, and perhaps this could be one of them. His full address is:

Russell Lee, Curator
Aeronautical Department
Room 3312/MRC 312
National Air & Space Museum
Washington, DC 20560

I don't know of anyone who has access to any film or photo footage of the post war tests of Horten aircraft. Perhaps Bruce Carmichael could help us with an inquiry at Mississippi State where some of the stateside testing was done on the gliders?

Perhaps someone out there knows what is happening with Dr. Horten's estate and what material will be released to museums around the world.)

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2/18/95

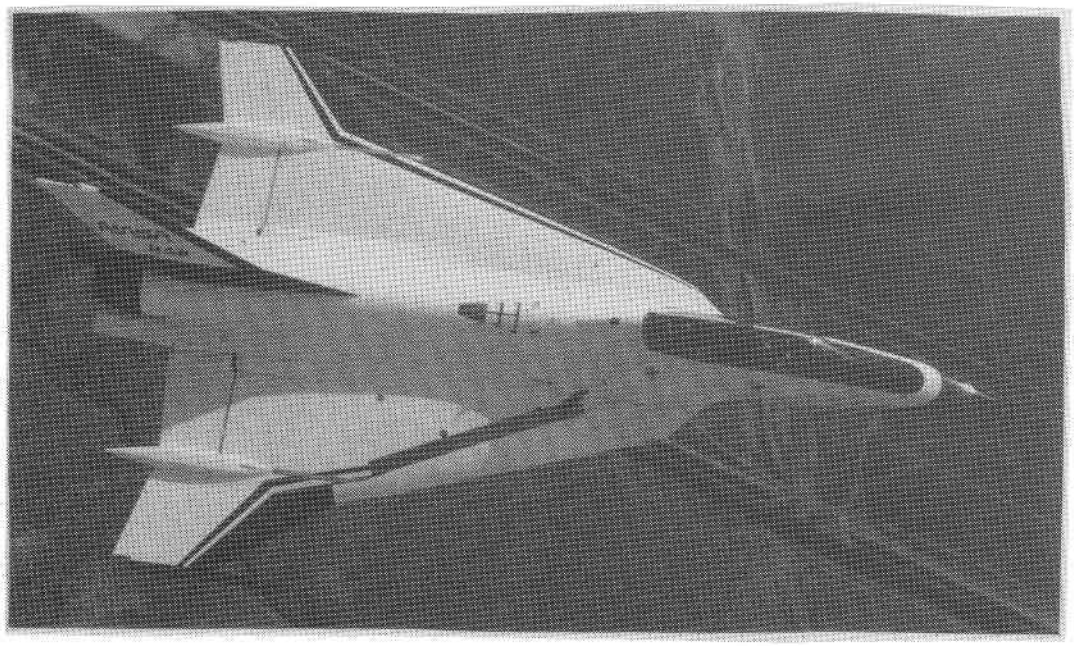
TWITT:

I wanted a chance to answer Ferdi Gale's questions about the F-16XL, since both my wife and I worked on these airplanes at General Dynamics (now know as Lockheed Fort Worth Company). I worked on the design team and my wife was part of the flight test effort at Edwards Air Force Base (Calif.). I have enclosed a three view and a manufacturing breakdown to show our members what a "fling wing" F-16 looks like.

The F-16XL effort grew out of studies of advanced F-16 versions designed to provide longer range capabilities on air-to-surface missions (remember, the F-16 was originally designed as a lightweight air-to-air fighter). At the same time, NASA was studying the cranked arrow planform for potential sustained supersonic cruising flight. These two efforts came together in the XL design. The larger cranked delta planform provided roughly twice the internal fuel volume of the standard F-16 while improving cruise efficiency and allowing weapons to be carried in a low drag semi-conformal arrangement. General Dynamics decided to fund construction of two examples of the design as technology demonstrators, with hope of eventually going into production.

The original design of the wing had the inboard section continuing in a straight line up to the radome joint on the fuselage. The forward part of the wing was trimmed back and shaped to reduce a tendency to pitch up at high angle of attack. The design team performed over 1000 hours of wind tunnel testing and numerous modifications of the wing planform and airfoil camber design to optimize both supersonic drag and transonic maneuverability.

The Air Force provided two of the original pre-production F-16 airframes (F-16A #3 & #5) to be modified into the two XLs. The wings and tails were removed, and the fuselage was "stretched" by adding two plug sections to make the fuselage length match the new high sweep wing. While we were taking the fuselages apart, we changed one of the aircraft into a two seater. The wings were built up using graphite composite skins with machined aluminum ribs and spars for the substructure. The whole modification and fabrication effort took approximately 18 months.



LEFT: The F-16XL in flight as shown in the Italian magazine VOLARE contributed by Ferdi Gale'.

The flight test program at Edwards was highly successful, and included a full range of mission range/payload testing, maneuver tests, and high alpha handling qualities work. The aircraft was flown by both company test pilots and Air Force pilots. The testing validated the significant improvements in capability available from the "tailless" version of the F-16.

In the mid 80's, production versions of the design were proposed to the

Air Force. At about the same time, the F-15 line was nearing the end of the original planned production run. McDonnell Douglas proposed the F-15E version for the same mission role the F-16XL was looking to fill. One body of opinion is that the Air Force wanted to keep two fighter companies in production, and since Fort Worth had a significant backlog of standard F-16s to build, the F-15E was selected over the XL.

After the test program concluded, the aircraft were placed in storage at Fort Worth until NASA decided that they would be ideal testbeds for high speed laminar flow experiments due to their capacity to maintain supersonic speed for extended periods of time. NASA contracted with Rockwell to build the laminar flow "gloves" that are attached outside of the primary wing structure. The passive design relies purely on airfoil shaping to produce laminar flow. The active glove uses a turbocompressor in the fuselage to provide suction to the glove to improve laminar flow by sucking some of the boundary layer in through small holes and slots in the surface.

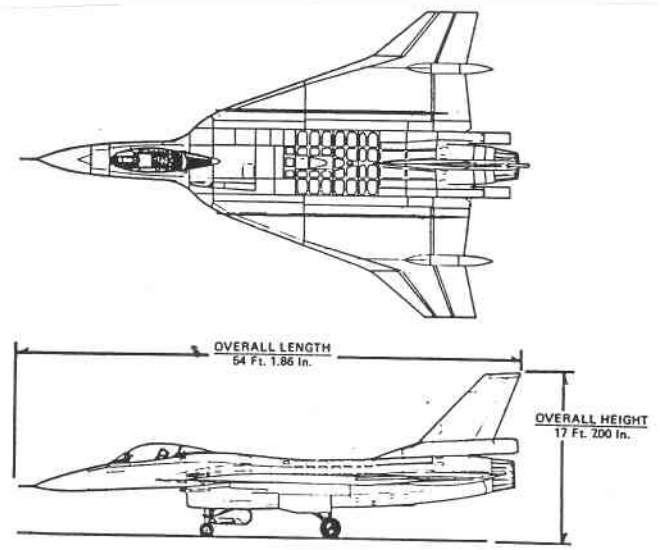
Sorry if this got a little long, but the F-16XL program was a very exciting piece of work.

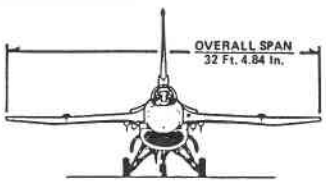
Regards,
Kevin Renshaw
Fort Worth, TX

(ed. - Thanks for the interesting story on how this tailless aircraft came about and why is apparently was successful, just not saleable. I was glad to see that I was partially right in my stab at the passive part of the glove in last month's editorial comment.

The next question is how has NASA solved the problem with the tiny suction holes getting clogged up over time and limiting their effect on the boundary layer?

I will print the 3-views of the single seater so everyone can get a good idea of what a "cranked delta" shape looks like. I wasn't sure just what terminology to use, so you letter sure helped.)





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(ed. - The following is a part of the material sent to us by Serge Krauss covering a number of subjects. It was comprised of 3½ pages so I will parcel it out over several months, trying to put the answers to questions in first and informational material last. Thanks Serge.)

My apologies for the long silence -- especially for being unable to respond individually to some of the nice folks who wrote unexpectedly gratifying responses to my March 1994 newsletter offering! Here are some observations, follow-ups, and responses to subsequent newsletter items. Please feel free to use or discard them as needed.

1. If anyone has a copy of John Roncz's Design News cover story (9/94) on the design of the Genesis I sailplane, I'd like to get a copy of it.

2. In (late!) response to Michael Brennan's inquiry (2.94); your single best source of Horten 229 V.3 drawings may be Reinhold Stadler or Munich, Germany. A leading expert on Horten wings, he wrote his graduate engineering thesis (1/20/89) on the Horten 229 V.3 and has published sets of detailed 3-view, cut-away, schematic, and sectional drawings of that aircraft. He may have Horten IV drawings too, but Henry Cherry has advertised Horten IV blueprints ('all known to exist') in these pages. From by bibliography:

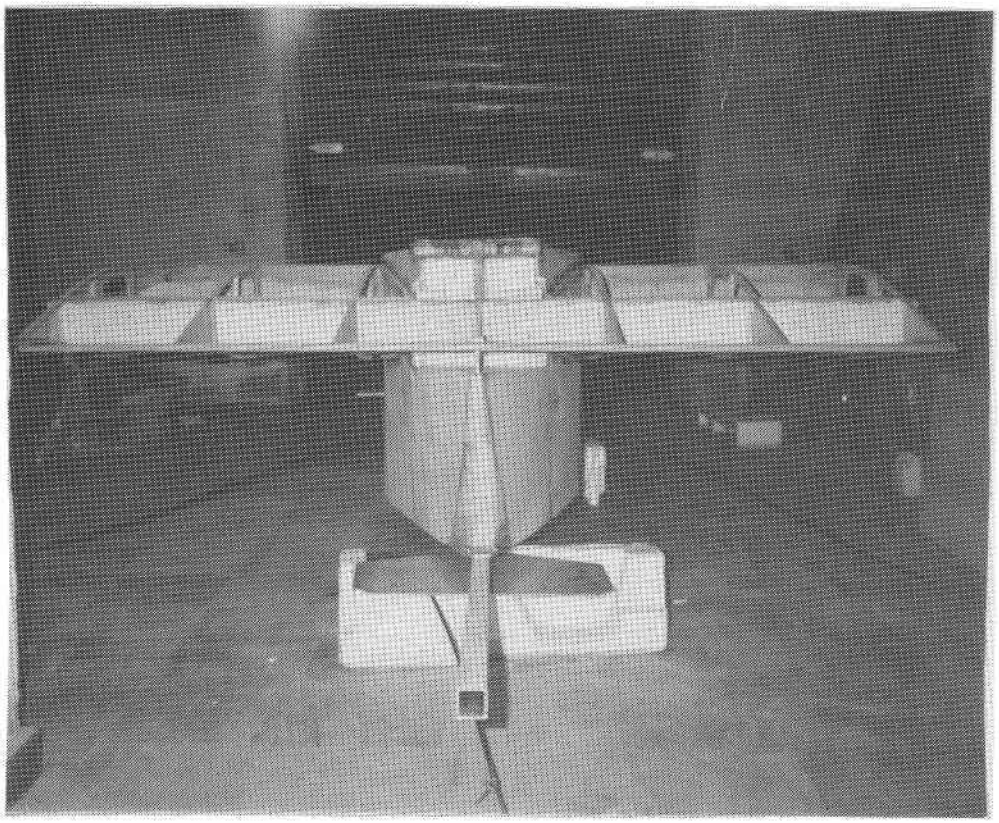
Ingenieurbüro R. Stadler
Feichtmayrstraße 17
D-80992 München Germany

Henry Cherry
2453 Liberty Church Road
Temple, GA 30179

3. Dipl. Ing. Stadler also comments that he too has test flown the PUL 10 (Panek Ultra Light), designed by Dr. Horten (and S. Paneck?) and built by Mattlener Nurflügel of Germany (he stresses Germany - not Italy). I wonder if this is still the same group mentioned by Ferdinando Gale' in the September issue. Anyway, he's another source of info. *(ed. - This answers the question on what does PUL stand for that was recently asked by a member, and confirms it is a German project.)*

4. In reference to Rudolf Storck's letter (1/95); I recently sent him the requested information on a variety of tailless aircraft, including all from his published list except the AVROcar, de Rouge', Kauba/Skoda, and Kratzner. I included information on some other aircraft not in his master list, including low-A/R types, but have not learned whether his

book will incorporate them. I hope he gets a good response from TWITT members. *(ed. - We haven't heard from Rudolf to know whether he got any more information from our members. It would be nice to know just what type of response he got besides yours.)*



ABOVE: Rear view of the RAMPHORINNCUS being built by Cesare Frau, contributed by Ferdi Gale".

5. Regarding the suggestion that I do a quick computer search on by database to come up with a separate list on circular wings; I probably should do this on a request basis. My largely manual search will take longer than if I had taken a more "automated" approach to my project ('lacks consistent, machine recognizable cues). Since distinctions between overlapping interest areas like "circular", "annular", and "low-A/R" would have to be addressed, it might be best for those seriously interested to contact me directly with their requests. I will be happy to help, as time permits. And yes, the bibliography has substantial listings in these areas. *(ed. - Even though you may not be "automated" at least you have put together something we have been trying to accomplish for some years - the TWITT library bibliography and newsletter index.)*

6. Special thanks to you, Andy, and to Russell Lee for forwarding copies of Russell's own bibliography; there are some worthy items in there that I hadn't found.

7. The 4/14/43 meeting of the L.G.L. mentioned in the Spate book (Paul Stratisano, TWITT, 7/94) is represented in my bibliography by this entry:

> LGL Bericht 164; "Airplane Construction" (Rept. on the tailless/flying wings meeting held in Berlin 4/14/43) 1943 (German text, 125pp., ill.; incl. articles by Horten Bros., Doepp; LGL yearbook??) (LMAL-unex.)

There may be others, but I know that I ran across this information in the NASA Langley library card catalog (when they had one); if neither they nor Russell Lee *(ed. - see letter above for Russell's address) can provide it, I'd try N.T.I.S., who use numbers relating to the Langley file. There should be considerable Lippisch material from this meeting too.*

8. I called Jim Marske to ask about progress on Genesis I and to get his reaction to the recent articles naming John Roncz as its designer. As usual, he was candid and generous in replying.

Regarding the latter query, Jim was generous in sharing insights into the Genesis I design history and process, but felt that this topic was best left unremarked.

Jim is very enthusiastic about the prospects for Genesis I. He states that it exceeds all expectations in handling and stability and has exceptional high speed performance, having clearly beaten a Ventus B in such an encounter. It underwent a week of spin tests at the hands of a civilian test pilot from Edwards AFB who had spin tested the F-16. Jim reports that the pilot called it the "nicest flying sailplane" he'd "ever flown" and expressed interest in obtaining one. Tests showed that Genesis I would not spin, rotating only 1/4 to 1/2 turn, and that roll rate is 3.2 sec. from 45° left to 45° right. Despite its sweep, video tapes show that there is very little span-wise flow.

Among other comments were that rudder is "very effective", there is almost no adverse yaw, and that it just follows the tow plane on its own. Others, including a national champion, have been very pleased with its handling and how easy it is to fly.

Current work consists of reconturing the wing, increasing root camber, and permanently filleting where videoed flight tests of temporary fillets showed improvement. When asked for L/D data, Jim said that they'd be airborne within six weeks (when the weather breaks) to find out. Pressed, he said he anticipates up to 47:1. I guess time will

tell. Meanwhile, final painting and finishing begins Thursday.

Finally, I asked him about his other projects. He said that Genesis was taking all his time, but that he still wanted to finish his modified Monarch, and had a new engine to try with it too. Asked about the Pioneer, he spoke enthusiastically about building a 32%-laminar, fabric-covered wing for an L/D of 40:1. His reply to my question about a glass wing was that he how though 50:1 to be attainable on a 15-m version, without the extra aft weight and 3-6 lost L/D points due to drag of the Genesis-type trimmer. *(ed. - I talked with a potential new member the other night who was very interested in building a glass winged Pioneer. He too felt there were significant performance gains available with this approach.)*

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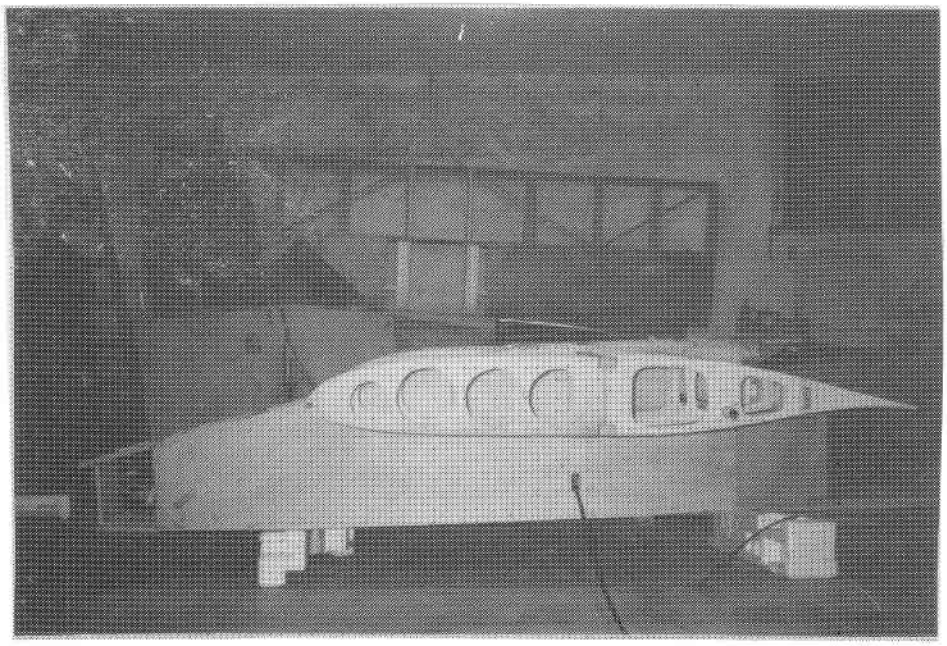

ABOVE: Side view of Cesare Frau's RAMPHORINCUS under construction, contributed by Ferdi Gale'.

13 Feb 95

TWITT makes it to Internet. Now we need a TWITT home page on the Web. A list server is sort of a conference or bulletin board via E-mail. You send messages to a special address to subscribe or unsubscribe to the list. Then you send messages to a list address. The list remails everything to everyone subscribed to the mailing list.

Some lists are moderated, that is they have a person who reviews everything before sending it back out while others are unmoderated. Sometimes the list owner approves subscription requests to the mailing list.

Michael Lachowski
[mlachow@teameast.erenj.com]

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01/30/95

TWITT:

Its great that you've got an E-mail address. You might want to think about setting up a List Server somewhere. It appears from your Internet address that you are using Prodigy. My guess is that you couldn't do that there, but maybe someone else could do it for you. If I ever figure out how to do it (ie. can find the time) I might volunteer.

I do want to thank you for the information you sent me about Jerry Blumenthal's Rattler. I haven't built one yet but I am still seriously planning too. I have been in contact with Jim Ealy (JIMEALY@peddie.k12.nj.us) who was the one who was drawing up the Rattler plans for Jerry. He hadn't progressed very far and is a very, very busy person. I think I may have to do my own designing. My hope is to produce a competition level R/C thermal glider of the open class (120" wing span) size. I'm looking at all the airfoils I can (and learning a lot of things I'm not sure I want to know). Jim has been suggesting the Monarch airfoils and I'm also looking at some that Michael Selig designed for flying wings (Soar Tech 7?). I might make a small (60") prototype handlaunch model to try out things before I build the open class plane. I may also ask Michael for suggestions.

In one of my previous hard copy mail letters to you I mentioned that I had built a 'Mini-Horten' 2m r/c flying wing from plans found in a French modeling magazine. I have just recently dug this magazine up and if you want a photo-copy of it (its in French but the plans are easy to follow) I can send a set to you. It uses Horten airfoils who's coordinates are given in the article.

Finally, my subscription renewal is about to be mailed. I really like receiving the newsletter. I'm hoping to be able to use this E-mail to get more involved in the flying wing community.

Thanks again,
Glenn Sembroski
sembroski@purvsb.physics.purdue.edu

(ed. - Thanks to both you and Michael for the messages. It confirmed I was on the right track.

Prodigy now offers connection with the Web, so I will find out what it takes to get on with a list server to make us a little better known on the net. The possibilities almost seem endless when you read the next letter. I have also picked up a copy of The Internet for Dummies and will be going through it over the next several months to learn more of the net's capabilities.)

16 Feb 95

Subject: PAPERLESS PUBLISHING

I just received the February issue of the TWITT newsletter, and was encouraged to find that you seem to be embracing the "Information Superhighway with such zeal. It sparked an idea in me that could benefit many TWITT members: distributing the newsletter using PAPERLESS PUBLISHING technology. Essentially, using your computer and a few add-ons, you could produce a high-quality, full-color mini-magazine for less than the cost of the current B&W photocopy newsletter, and distribute it to members worldwide in less time (and for less money) than it takes to stuff a single envelope and lick the stamp! (Avoiding the taste of stamps might even be reason enough.)

I've been using this method to "publish" catalogues for distribution to customers in Japan, and I'm glad to tell you that it's extremely easy. Here's what you'd need to do it.

1. Install Windows (3.1 or higher) on your PC. Windows is cheap, and will make your computer a lot more friendly than how it looks now (I'm assuming that you're using DOS as your lone operating system and interface).

2. Connect a flatbed scanner to your computer using its interface card and install its TWAIN driver software. Then the scanner will be able to acquire and import images and/or text to any software running under Windows. There are several excellent bargains in color scanners for about $500, or gray-scale scanners for about $300, and most come bundled with OCR software, so that you can easily scan and import typed information into your word-processing software. I would be glad to give you model numbers and telephone numbers for ordering if you like.

3. Install a Windows-based Desktop Publishing software package, which you will use to compose the newsletter, including editing the imported E-Mail letters and OCR scanned text, as well as to crop, size and place the scanned pictures. I use Aldus Pagemaker 5.0a (about $500), but there are many full-featured, easy-to-learn packages available for about $100.

4. Install a Paperless Publishing software package, such as Common Ground 1.0. This software runs in the background to act as a sort of electronic printing press. When you have composed your pages in the desktop publishing software and are ready to "print" it, you simply select the "Common Ground Printer" as the active printer device (an easy menu choice), and let it run. The Paperless Software then does its job and builds a standalone mini electronic book that can be E-Mailed (or floppied) to anyone with a PC or Mac. When the recipient receives the E-Mail, they simply click on it to "open" the book and browse or zoom into its contents, all as detailed and colorful as when you created it. They can even print it out at their leisure. Naturally, the same "document" can be "hard-copy" printed for snail-mailing, simply by reselecting your regular printer as the active printer device.

There are several obvious benefits to using Paperless Publishing as an adjunct to the traditional paper method:

COST SAVINGS. All members with computers can receive the newsletter by E-Mail, reducing the cost of mailings. Receiving E-Mailed "electronic books" would be less expensive, in terms of on-line costs, than connecting to the Internet and browsing resources on-line.

TIME SAVINGS. An electronic newsletter could be E-Mailed to 100 recipients all at once, with little more than a few mouse clicks, resulting in timely "instant" distribution. And finding that old issue on my desk would be much easier without having to sift through piles of paper.

QUALITY. At a lower cost than B&W, you can distribute full color documents, with practically no limit on the size of the newsletter.

LIBRARY DISTRIBUTION. Often requested documents or technical information could be scanned and kept on file for E-Mailing to members upon request. Submissions from members could be made available also, and a directory of such resources could be published.

ARCHIVING. Back issues could be easily stored, retrieved and resent with almost no effort. (For example, this letter will be stored in the TWITT "filing cabinet" in my E-Mail software. I could reopen it in a few seconds and send it to you again if needed.)

LESS POLLUTION. We all created far too much paper waste. Here's a simple technology that can help reduce the amount of fuel burned to deliver the newsletter to our desks and to haul the paper eventually to a landfill.

FIDDLE FACTOR. Now we'll have another reason to fiddle around at the computer ("Yes, honey, I'm working on the computer.").

If you have any questions, or would like assistance, pleas feel free to contact me at your convenience. I can also send you a sample "electronic book" to help demonstrate the stuff.

Best regards,
Jim Martyn
75541.2576@compuserve.com

(ed. - It is simply amazing what can be done with a computer, some equipment and software and the Net. Unfortunately, paperless publishing will be a ways off for us due to the dollar constraints in putting together the hard/software.

I currently use WP 5.1 but will be switching to Microsoft Word next month to get better printer, framing and font control. I do have a small hand scanner I use periodically for some material, but my big disappointment has been the inability to get the OCR software to work for text material.

As you can see I am moving the right direction, but it will take some time to reach the level necessary to publish through the net. Unless, of course, there are members out there who would be willing

to donate a flat scanner and associated software.)

2/16/95

TWITT:

I read your "President's Corner" article in the January 1995 issue of the TWITT newsletter. I am pleased to see that you are organizing an Internet Network of Twitters. Internet E-Mail can be an extremely valuable asset for us all in TWITT. I have had spectacular results obtaining information and feedback from around the world, all of which has accelerated the pace of my project. Please include me in this list, as I will welcome any contact from others on aviation-related matters. In particular, I am interested in becoming acquainted with anyone who is working on or has worked on projects to build foot-launchable flying wings. Also, please add my friend's name and address to your list:

John Thorvaldson,
phugoid@ix.netcom.com.

I would like to order a copy of the Overview of Composite Properties and maybe several other items. Can I place an order via E-Mail and pay by credit card?

ABOVE: Alfred Faulkner holding his contest winning flying wing model of his own design which is now 9 years old. It has a 40" span, 30° sweep, washout at the tips, flat bottom airfoil, and maximum thickness in the forward portion of the airfoil. Photo by Bob Fronius.

With several friends, I am currently working on a project to build a composite-structure, foot-launchable sailplane along the general lines of the SWIFT. By combining results of recent research on the performance of low-speed airfoils with proven formulas for optimum tailless-wing geometries (Hortens, Lippisch and Dr. Walter Panknin), we hope to exceed the overall performance of the SWIFT by a significant margin. We are currently preparing to build a prototype for preliminary flight testing here on Maui, to be followed by extensive flight testing in Eastern Washington during May.

I will be relocating from Maui to Whidbey Island (just north of Seattle) in April. I am most eager to make contact with anyone in the Seattle area who might help me find inexpensive warehouse rental space in the Everett vicinity or who might have contacts for materials resources.

Please feel free to contact me at your convenience.

Jim Martyn
Paraglide Maui, Inc.
75541.2576@compuserve.com

(ed. - Thanks for the update on your project. By the time you receive the newsletter you should have received your composite materials book and tape, but you will have to snail-mail me the $5 since we don't have the ability to do credit cards. You can use the net to order the other items you want and I will let you know the final cost, if they are not items shown in the classified section of the newsletter.)

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Chris Tuffli sent along some material from the January 30 and February 6 1995 editions of Aviation Week & Space Technology which showed some very interesting concepts currently under development or about ready for launching.

One (January) is the McDonnell Douglas Project Diamond which appears to be a 10' span diamond shaped joined wing with the center portions removed (this results in four wing surfaces). The model pictured uncluded two vertical fins, however, the caption indicated it was flown without them to explore it as a tailless design.

The other (February) covers U.S. Black Programs which includes a Tier 2+ reconnaissance UAV flying wing being developed by Loral, along with a Tier 3 UAV flying wing with a very straight wing and boat like fuselage area.

You might want to check these out at your local library.

FROM THE SHELVES OF B²STREAMLINES

ANNOUNCEMENT

Dr. Sighard F. Hoerner's Fluid Dynamic Lift and Fluid Dynamic Drag are available for a limited time only.

These two books are classics. Both contain an incredible amount of information about their respective topics, and are often cited in technical papers. Each of these books can cost $120 or more through a technical book store.

Our retail price for a hardbound copy of Fluid Dynamic Lift is $93, and $94 for a hardbound copy of Fluid Dynamic Drag. All packaging and postage costs are included in these prices.

Orders must be receive by April 30, 1995.

Checks and money orders in US$ only; sorry, no credit cards. Washington residents must add 7.6% sales tax.

(See the advertisement below for the address and phone number of B²Streamlines.)

AVAILABLE PLANS & REFERENCE MATERIAL

Tailless Aircraft Bibliography

by Serge Krauss

4th Edition: An extensive collection of about 2600 tailless and over 750 related-interest listings. Over 15 pages of tailless design dates, listing works of over 250 creators of tailless aircraft, and the location of thousands of works and technical drawings for the Ho 229 (IX), Me 163, & Me 262.

Cost: $23 (Domestic)
$32 (European destinations)
$35 (Asia/Australia destinations)

Order from: Serge Krauss
3114 Edgehill Road
Cleveland Hts., OH 44118

Tailless Tale, by Dr. Ing. Ferdinando Gale'

Consists of 268 pages filled with line drawings, tables and a corresponding English text. It is directed towards modelers, but contains information suitable for amateur full size builders. Price is $38, postage and handling included (also applies to Canada and Mexico).

You might also want to purchase his new book **Structural Dimensioning of Radioguided Aeromodels**, priced at $18.00.

On The Wing...the book, by Bill and Bunny Kuhlman (B²) is a compilation of their monthly column that appears in RCSD. Many of the areas have been expanded and it includes coding for several computer programs to determine twist and stability. Priced at US$28.00.

All these are available from B² Streamlines, P.O. Box 976, Olalla, WA 98359-0976, or (206) 857-7249 after 4pm Pacific Time. Orders shipped elsewhere will be sent surface mail unless an additional $10 is included to cover air mail postage. Washington residents must add 7.5% sales tax.

VHS VIDEOS AND AUDIO TAPES

VHS tape containing First Flights "Flying Wings," Discovery Channel's The Wing Will Fly, and ME-163, SWIFT flight footage, Paragliding, and other miscellaneous items (approximately 3½+ hours of material).

Priced at: $8.00 (postage paid)

An Overview of Composite Design Properties, by Alex Kozloff, as presented at the TWITT Metting 3/19/94. Includes pamphlet of charts and graphs on composite characteristics, and audio tape of Alex's presentation explaining the material.

Priced at: $5.00 (postage paid)
$6.50 foreign (postage paid)

Audio tapes of presentations by Don Mitchell at the September 1991 SHA Western Workshop, Tehachapi, CA (1 cassette), and his March 1992 presentation at a regular TWITT meeting (2 cassettes).

Priced at: $3.50 (1 cass.)
$4.00 (2 cass.)
Add: $1.00 for foreign postage

Audio tapes of the presentation by Barnaby Wainfan at the September 1994 TWITT meeting where he discussed his prototype FMX-4 Facetmobile, low aspect ratio ultralight airplane.

Priced at: $4.00 (two tapes)
Add: $1.00 for foreign postage
