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Table Of Contents

IVSM 2009

Monday June 29

- p. 3 Overview European Vintage Development
Klaus Fey

Tuesday June 30

- p. 4 Inspecting and Repairing A Crash-Damaged
Glider
Neal Pfeiffer

- p. 6 The Rebirth of Rhönbussard Serial #50
Jerry Wenger and Mike Redman

- p. 10 The Craftsmen Speak
Bob Gaines, Loren Neher, Sam Armstrong

Thursday July 2

- p. 12 The Meise - The Olympic Sailplane
Barbara Harding (for Jorg Ziller)

- p. 13 Morellis, the Experimental Soaring Centre
of Turin Polytechnic
Vincenzo Pedrielli

- p. 15 The Early Days of Soaring in Elmira
William Schweizer

Friday July 3

- p. 17 The Philosophy of Restoration
Russ Lee

- p. 20 Restoring the World's Only Airworthy
Kirby Gull I
Dave Schuur

Saturday July 4

- p. 21 Scandinavian Mountain Soaring
Rolf Algotson

- p. 23 Flying The Old Gliders
Dean Carswell

- p. 26 Flying At Torrey Pines
Doug Fronius

Photo Front Cover:

The nearly complete recreation of the Hans Jacobs designed Schleicher Rhönbussard Serial No. #50, sitting in the workshop of Jerry Wenger in Powell, Wyoming. Though there are a few original parts still in the ship, the remainder was painstakingly crafted by Team Wenger's Mike Redman, Sam Armstrong and Loren Neher over the last 4 years. The chosen color scheme is loosely fashioned after the Rhönbussard flown by the flamboyant WW I ace Ernst Udet. (Story Page 6)

Photo Back Cover:

This Keystone View Co. photo datelined Dec. 16, 1935, Miami, FL, was captioned "Human Bat Thrills Thousands" and read, "Shudders ran through crowd at the All-America maneuvers here yesterday when Clem Sohn, 'bat-wing' parachute jumper, jumped from a plane and was blown dangerously near whirling propellers of grounded ships. Sohn regained his feet uninjured."

Reader's Comment on the cover photo vol 31 #1

"As noted the photo was taken at the 1949 SW Soaring Contest. The reason for the triple tow was to braid the tow ropes, a sailplane act for the airshow. The flat top LK was one of the 3 conversions made at Mississippi State College. The flat top LK was flown by Ray Parker, I was flying the LK on the left and Wally Wiberg flew the other. In all of my sailplane flying I only had one tow rope break, it was on this tow when we were at about 50' altitude in the middle of the airfield. No damage, just an exciting moment. The Minimoa was owned by "Pop" Khrona at the time. Pop and Mom were some of the great people in soaring during that era." Al Backstrom

Overview of European Vintage Development

Klaus Fey

Not only owned, but flown is one of the ideologies that drew Klaus Fey to the Vintage Gliding Club International in Europe. The group's members are committed to the importance of preservation of the worthy gliders of the past, particularly by ownership and active flying. Fey states, "That is very important. Not to put them into museums, but to actively fly them."

Born in Germany and now living in Bonn, the former capital, Fey spoke of the German section of the Vintage Glider Club International, about gliders flying in Germany and the surrounding areas and about interesting soaring projects going on there now. "Talking about Europe, we have 48 independent countries, 27 join in the European community and 22 are in the bureau. And to

lished 4 times a year and technical support is always available to members, but "the highlight for every vintage glider club member within the year, even better than Christmas, are the VGC Rallyes. And before those meetings they usually have a rendezvous, the vintage rendezvous." Recent rallye



Grunau Baby
Photo courtesy Josh Knerr
soaringpics.com

and rendezvous sites have been in Germany, Latvia, Austria, Slovakia, France, Poland and Finland. "These meetings usually are attended by

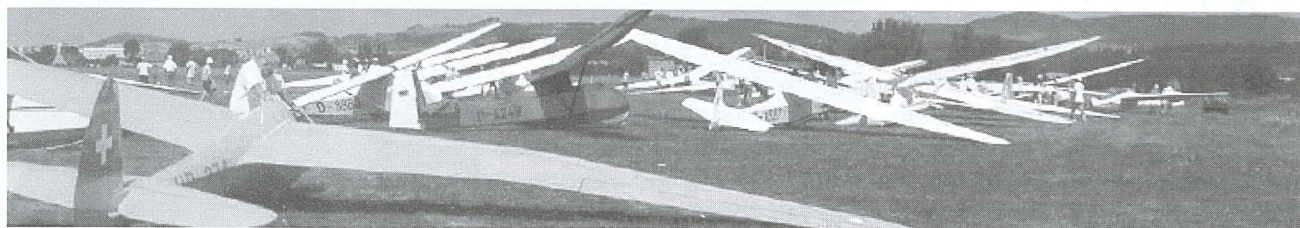
glider models.

"Of course we have many of the Schleicher designs, I think there are at least 50 K-6s, and all the other Schleicher designs are represented there. And of course the Scheibe designs like Spatz, SF26 and 27; Zugvogel is represented. I think we have about 20 Grunau Babies of all kinds," including the Grunau Baby 5, a double seater, the only one remaining in Germany.

Also they have all the famous Jacobs designs like the Rhönbusard, Kranich, Weihe and Meise as well as less well-known designs such as the Lo100 (an aerobatic glider), a Russian Antonov AN-10, and the Doppelraab, a very strange



Klaus Fey



Vintage Glider Rallye reprinted from vintagegliderclub.org

see it on the map it looks very large, but indeed you can reach all these countries from Germany in a trip of maximum 2 days, so it is a vintage club international," founded in the United Kingdom in 1973.

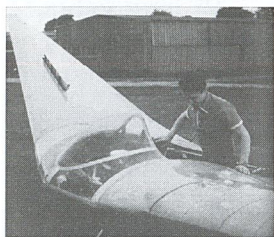
At present the club boasts 1,000 members, including some Americans. It is the benefits that draw them in such large numbers. Of course there is a magazine pub-

more than 500 people bringing more than 100 gliders with them and it is really a good event."

Of course closest to Fey's heart is the VGC Germany which has about 260 members and about 120 gliders. Their website, in German, offers lots of good information that is yours with just a little patience and the translate feature on iGoogle. The club has many different vintage

double-seater where the instructor sits behind and a little above the student. Also the Cumulus, a Grunau Baby with a steel tube fuselage, the French Fauvette and some Slingsby T-21s and T-31s. With the reunification of Germany the club has the former GDR gliders like the FES Lehrmeister, that is a trainer double seater, and the Lommatsch Libelle. The special category motor gliders

are represented as well with the Schleicher ASK14 and ASK16 and Scheibe SF25.



*Horten 4 #25 with
Rudolf Opitz, photo
courtesy Klaus Fey*

Fey regaled the group with many photos of very obscure glider models found in Europe representing

countries across the continent. He also mentioned 2 very important vintage projects about to be completed in Europe. The first, the Horten Project, was written up in Bungee Cord recently. Bernd Ewald, a retired university professor, started the ambitious project of

rebuilding a Horten 4, of which only 4 were built in all. The one in the Chino Museum was captured by the British and sold to the US after the war, another went to the German Deutsches Museum in Munich. A very interesting project for which outside funding was secured to rebuild and it is expected to be completed by late 2009 or early 2010.

In addition there are 2 Jacobs Reiher glider projects. "One was built by the Wasserkuppe vintage glider club some years ago and it was flying, but this one is now in the museum in the Wasserkuppe and the second one has been built in Achmer where the Weihe will be this year, and this one I heard is ready and just had its first flight" -- a very nice glider.



*Reiher Sailplane
Photo courtesy Josh Knerr
soaringpics.com*

Fey said on his own behalf that he is of course a publisher and deferred to several specialists in the audience from European countries involved in the VGC and in particular Francis Humblet who has "created a list of all gliders ever built around the world, which is the most accurate list I have ever seen." High praise from a man with so many years invested in the enjoyment of "out of the ordinary" motorless aircraft. SS

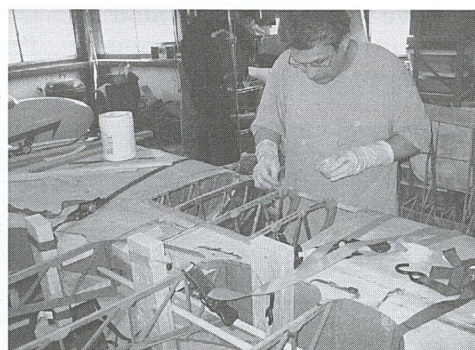
Inspecting and Repairing a Crash-Damaged Glider

Neal Pfeiffer

Where irreplaceable vintage gliders are concerned, "to err is human, to repair, divine." Neal Pfeiffer certainly falls into that category. Neal worked in product development engineering for 27 years at what was Beech Aircraft, Raytheon Aircraft and is now Hawker Beechcraft. He is a PhD and a Fellow and elected director of The American Institute of Aeronautics and Astronautics. He has seen and repaired severely crash-damaged gliders, knows what to look for and the work that will go into the repair.

Of course he believes that it is best to take care to avoid accidents or at least take steps to mitigate the damage that might occur in one. In transport, the trailer can be the savior or part of the cause of damage.

"Look around, you will see that very few of the trailers here are the same," he pointed out. For starters make sure the glider is tied down firmly inside to stay in place. You want the glider firm, but not rigid. Figure on not just the normal things, but for jostling as well. Make your trailer visible by installing running lights on the side. If you are operating at night at all, you need to have the visibility." Putting the amber lights at the front and middle, and the red ones at the rear is important. He suggested, "what I would call a pole catcher, a triangular gusset or brace going from the lower trailer out to the outside of the fender. This is in the event that you encounter something out there, whether it is the pole at McDonalds



*Neal Pfeiffer deftly applying glue for the
wing skin of the damaged glider*

or anything else, that instead of just hitting the fender and ramming it into the tire and axle, has a better chance to scoot the trailer sideways. The gusset should have a shallow angle coming forward.

Carefully look everything over as you inspect your gliders or repair them. When you do a major overhaul make sure you repair all the pieces properly. "You should use



Trailer Damage

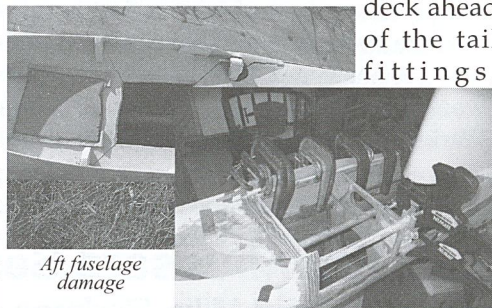
the appropriate material for any repair and typically that should be the material originally used. I have found plywood skin repairs that used thin fiberglass. It was quick, but it only treated the symptom. If the plywood is cracked because of loads at the corner of the spoiler box, it is best to remove the plywood, insert a small gusset or reinforcement piece underneath to eliminate the problem and then reskin. In that way you deal with the actual disease and not just the symptom."

Specifically today Pfeiffer shared stories from his repair "journey" over the last couple years on a glider that was badly damaged in a trailering accident and the surprises that were exposed during the repair process. It was a large Blanik type trailer owned by Jim and Simine Short carrying their Ka2B. The trailer was damaged by a big semi-rig that was pulling out of a side driveway, and in the process he said "there was jostling of the aircraft inside and both wings tried to go through the front of the trailer." So there was damage to both wingtips, holes in the wing skins, including large ones where the wing support dolly rotated through the D-tube, the nose cone was knocked off and the aft fuselage was damaged as one wing fell over onto it.

As Pfeiffer started work on the plane he found new problems that had resulted from former quick

repairs by past owners and some which could have occurred in the original production as well as in subsequent modifications. Cracks coming out of spoiler boxes, the fabric repaired with glue and screws, repairs that could over time affect the safety of the plane. He suggested that when assessing damage to a plane, take time to assess problems that existed prior to the accident.

In the case of the restorer as with a doctor, knowing the aircraft's history helps you understand its current condition. He stated, "This was a kit-built glider by a group over in Germany. They had interference with the upper fuselage longeron and the horizontal tail fittings, so they simply notched the longeron to make it all fit. At some point an inspection hole was added to the flat



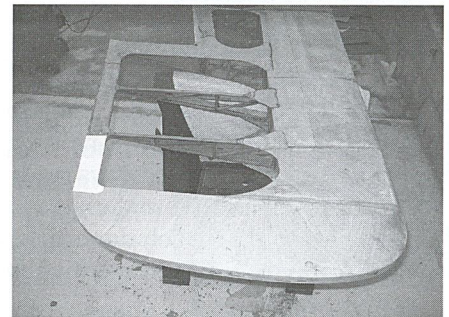
Aft fuselage damage

deck ahead of the tail fittings,

however, it was simply cut in with square corners. When the fuselage was loaded during the collision, the square access hole generated stress risers that grew a crack diagonally to the fuselage side where it was passed on to the notched longeron, which then cracked for several inches. Close inspection of the longeron on the opposite side showed that it was just starting to crack and so portions of both longerons had to be removed. When rebuilding this area, I didn't want to put the notches back in, so I moved the

longerons out 2mm to remove the interference."

Of course finding plans for the glider you are repairing can be problematic as well. There is a lot of very important information on the drawings and for really serious sailplane repairs you need that information on the drawings to do the repairs correctly. He explained, "I previously had bought a full set of plans from the factory for a Ka2



Wingtip reskinned

glider I was restoring. Fortunately the Ka2B is similar in all the areas I was touching except the wing tip. So I was able to print out the contour of the wing ribs, use the plots to make ribs. They came out very close to matching the existing wing." He then moistened the plywood for the skin and formed it around PVC pipe to generate the basic leading edge radius. The regions behind the tight radius then bent easily in place. He explained that the plywood was moistened with warm water for about ½ hour, "and I just judiciously put pressure on both sides and kept slowly increasing the pressure until it was against the PVC pipe. I really didn't have any trouble with the plywood leading edges, however the main thing that you have to watch with German gliders is that the plywood is installed on the bias. So as you try to bend the plywood around the pipe, it doesn't bend in the direction you want. You need to clamp not only to form the radius,

but also to keep alignment."

Pfeiffer feels a lot of the success in repair lies in the tools. Clamps of all sorts are crucial, long reach clamps can hold some hard to reach spots. You can never have enough clamps. Of course there is the trusty Dremel tool. A belt sander is one of his favorite tools and he stated, "These little Japanese-type saws for doing woodwork are wonderful. They can cut you very quickly, but they cut the wood nicely. They are easy to use and they go through material quickly." Of course good friends with special skills come in handy when you need a helping hand. And Pfeiffer is always ready to use unique creative materials and processes to get the job done right. "You have to become inventive in certain ways."

One of those ways is to use a digital camera to peek into those hidden spots that may hold damage you are unable to see. "Digital cameras are wonderful on the macro setting. Just stick it in there, take the picture and find out what you want." In

the case of this plane, he saw from the photos that the longeron was cracked from top to bottom all the way through.

When asked what type glue he used, he said for most repairs he used T88 epoxy. "The other glue I used on a couple of the larger repairs was Aeropoxy. This glider is nice in that the ribs were built with Aerodux, a resorcinol glue from Germany, and it's very good, whereas a lot of the Schleicher factory-built gliders used the pink glue that has a more checkered history. I have seen gliders that have excellent bonding with it and I have seen gliders that have had trouble.

Scarf joints were a big part of this repair. Pfeiffer was unhappy to find some butt joints in the wrong spot and some inadequate ratio scarf joints. He was asked by an audience member what he would consider an adequate target scarf joint ratio to pass the strength through the member. He answered, "We have been working on getting a translation of Werkstattpraxis finished and there

is a pretty good discussion in German in it, but we should be able to have it in English here shortly. The short story is it depends on where the repairs are being done. It is somewhere between 10 and 15 to 1 for a lot of garden-variety repairs, skin repairs, other sorts of things. If you are talking about a spar repair, especially near the inboard wing, you may be talking 25 to 1. And there are certain areas in the wing, right at the butt, where you probably don't want to do a scarf joint."

Of course when you are finished there still needs to be an inspection and Pfeiffer believes in keeping the inspector an ongoing part of the program from the beginning. "There is an IA that I am currently working with that has been by the hangar multiple times and looked at the progress on this project at each point. And he will do the final sign-off on the airworthiness, or not, of the airplane. It's important to have someone involved all along." All this makes final sign-off a much easier event. SS

The Rebirth of Rhönbussard Serial #50

Jerry Wenger and Mike Redman



"Team Wenger" left to right
Loren Neher; Sam Armstrong, Mike Redman
Jerry Wenger

Jerry Wenger:

"This is one of those little projects you take on that will take a few months to do and three years later you're still trying to get it done." So began Jerry Wenger, pilot, respected businessman and vintage aircraft aficionado. Few people would have the courage to take on such a project, but Jerry Wenger is a determined man.

All eyes were on the model replica of the topic Rhönbussard however. A gift from Dean Gradwell, the Ger-

man kit was delivered to Wenger, who immediately turned it over to model builder and craftsman Doc Walker of Sioux Falls, SD. Doc not only put it together detailed superbly to be a "mini me" to Wenger's full size plane, but also made it a radio controlled model. Everyone agreed it is an amazing piece.

Wenger said he's not sure how he drafted his restoration team, but he knows they are contenders. Sam Armstrong came onboard with

strong skills in sheet metal work for airplanes and Loren Neher is an artist with wood. Leading the team is Mike Redman, pilot and restoration manager extraordinaire who is now taking over the shop to run it as his own business, RAW (Redman Aircraft Wing) Fabrication LLC.

Mike Redman:

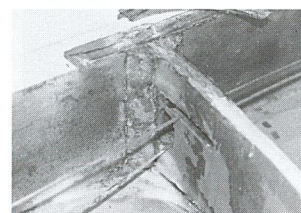
The story started, he said, as so many in the vintage glider world do, with Bob Gaines. Team Wenger was looking for a special vintage plane that they could take to the IVSM 2005. A call to Bob produced a lead to Dean Gradwell who had a Rhönbussard for sale. Dean had never flown it but had brought it over from England where it had sat in storage for a couple of years. The deal was done and Mike Redman, mentally planning a little detail work to ready it for the meet, went cross country to bring it home from Oregon to their shop in Wyoming.

Once home they rigged it up to make sure Jerry Wenger would fit in the cockpit, then started a comprehensive inspection, putting "hands and eyes" on everything that they could. "One of our jobs is making sure everything we put Jerry in to fly is as safe as it can possibly be.....We don't take that responsibility lightly." However, what they found upon opening some holes in the fuselage was not at all normal. They discovered gussets peeling off the bulkheads, plywood delaminating internally, and plywood gussets that could be pulled off with very little effort, they didn't break off, they pulled off intact. "Not encouraging," said Redman. Continuing with their standard examination/inspection they found mold in all spectrums, white fuzzy mold, yellow mold with black spots, and mold inside the spar. Redman admits to a "sinking feeling setting in at this point." Gussets that hold the ribs to the spar and give them strength were so moldy that "the scarf joint peeled right up, and the gusset came off in one piece the glue was failing, miserably." He said, "Once you start finding stuff like this (mold, bad plywood, failing glue joints) you can imagine what happens inside your mind. Everything becomes suspect, so you

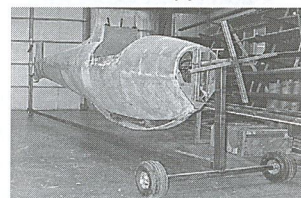
start scrutinizing every part, you look even closer." Found were failing glue joints, delaminating plywood, mold, rot, corroded fittings and oblong holes. Where do they go from here?

Redman said, "We talked about it and really had only 2 options open to us, either retire this thing from ever flying again or do a major rebuilding of the whole structure at the very least the wing spars had to be replaced. When you replace spars the whole wing has to be disassembledThe entire thing has to come apart in pieces, you're down to nothing...it must be completely rebuilt along with the fuselage and the fuselage bulkheads. The glue was failing, the plywood was failing. How do you repair one piece at a time without dismantling the whole thing? You just can't do it. You literally have to replace every piece." Without hesitation Jerry said "We're going to make this thing airworthy again. We'll do whatever it takes to get it back in the sky." Redman admitted, "We weren't quite sure, at that point, exactly how to approach the restoration. As we were discussing the options someone asked what would Schleicher do if we took it to them right now and said we wanted this historic glider restored to "as new 100% airworthy condition." We figured they would replace every un-airworthy part and they would use up-to-date materials and techniques to bring it to modern standards. That is the philosophy we kept in mind throughout the project. Redman adds, "We're no different than any of you folks that might be thinking about undertaking a project like this. We have just stumbled along and beat our heads against the wall every step of the way. We really had no idea what we were getting into..... We looked at this tiny little wooden glider and said, 'No problem, how hard can it be. We'll have this done in a few months.' Shows you how naive we truly were."

The prospect of building new parts was a bit less daunting for two reasons, they had some drawings and the existing Rhönbussard for reference. Redman says, "We did have 2 sets of drawings that were mostly complete, one from Schleicher and



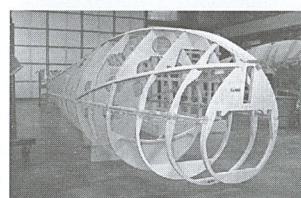
Mold and decay found



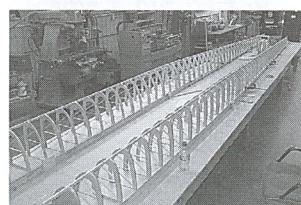
Original Fuselage stripped



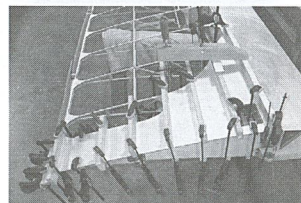
New fuselage taking shape



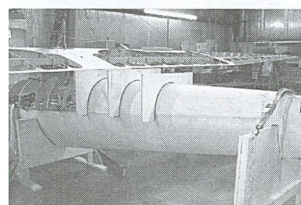
Fuselage weighing only 30 lbs



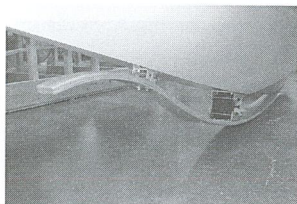
D-tubes



Installing wing-root skin



Fuselage top-skins going on



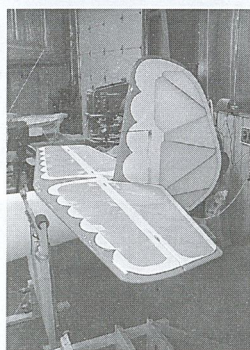
Main Skid



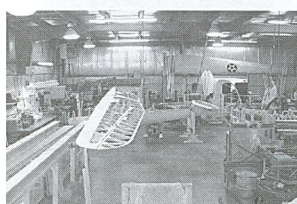
Instrument Panel



First coat of varnish



Tail Feathers



The Workshop

one Danish set. You must be wary of the old drawings though. They can be a great reference, but they may contain many mistakes. When I first started building WACO wings years ago, we had original WACO factory drawings that we had obtained from the Smithsonian Archives. If you were to build all the pieces and parts for the wings exactly to those drawings, you would not be able to assemble the wing, nothing would fit, the ribs wouldn't even slide onto the spars. We found that there was quite a bit of reverse engineering going on at the time. The engineers would go down to the factory floor to see what modifications the guys were doing and how they were getting around the things that didn't work. Then they would go back and make changes on the drawings. Many of the changes that were made by the people physically building the aircraft never made it to the drawings."

It was determined that in bringing Serial #50 back to airworthy status only the best 'aircraft grade' materials and modern methods would be used. "Jerry's wish is for this glider to still be flying 75 years from now." Though it was originally made from kiefer, this type of wood is hard to come by in the USA. The decision was made to use aircraft spar grade Sitka spruce. Talking with Jeff Byard, author of the paper "How Strong Is It?" (to be reprinted in the next NSM Newsletter), they learned that spruce is lighter than kiefer, but not as strong. Consequently they would need to increase the cross-sectional dimension of all the structural pieces by 25%. Conscious of weight, they discovered that building with spruce still ended up being somewhat lighter than the kiefer. However, changing the dimensions of the wood affects almost everything else. And since you can no longer get Sitka spruce the length and thickness needed, they not only had to scarf for length, but also laminate for thickness. In dealing with metric plywood they contacted Neil Pfeiffer who put them in touch with Harry Clayton. Redman recalls, "Harry is a genius and a great wood worker. He gave us a lesson on aircraft plywood that was invaluable, along with the entire Germanischer Lloyd ratings."

In building the bulkhead bows they used

regular steam irons, laying a wet cloth on top of the spruce sticks. The bows have to take quite a curve, so they are steamed and then clamped in a bending jig to dry to shape.

Redman suggested "If you are going to do woodwork such as this, we highly recommend using West System Epoxy. It's easy to work with, and has great properties. I found out that the FAA had approved using West System to build the wings for the FAA certified WACO YMF-5 replicas that were being produced in Michigan. As far as we were concerned, if it was good enough for an FAA certified aircraft, it was good enough for us." There is a tremendous amount of jiggging which has to be done and a spectacular number of pieces. "The #5 bulkhead alone has almost 100 pieces, each piece hand fit, making sure that the grain is oriented in the correct direction to get the proper structural qualities." He mused that there is so much hand-work that "this is why they don't build gliders like this anymore, it's just too labor intensive." For example, there are 48 nose ribs in each wing, most of them with different shapes. Altogether there are 96 nose ribs and there had to be a different, completely separate jig made for almost every one. The building of jigs was a large part of the construction, as was the building of spars. A total of 12 spars had to be built, 6 for the wings, 2 for the ailerons, 2 for the horizontal stabilizer, 1 for the elevator, and 1 for the rudder.

The number of metal fittings required for the glider was also a surprise, far more than they had imagined. Aircraft grade 4130 steel was used throughout, as well as aircraft grade "AN" hardware.

A big day for the team came when they were able to remove the fuselage from its assembly jig for the first time. Redman relates; "It weighed only 30 pounds...you could easily lift it with one hand. At that point we were pretty excited, we had a fuselage," not knowing that the finish line was much farther off than they had expected.

As do most who restore and repair vintage planes, they became very creative in forming the tools with which they worked. Loren Neher built 2 special sanders, each 4 feet

long, for shaping the D-tube. Neher laughs when he recalls "It makes the most awful sound you have ever heard when you are sanding those ribs and they start to vibrate ... It is very tedious, exacting work." For scarfing the plywood skins they built a wooden bench with an attached fixture that holds a router. This fixture is capable of pivoting as well as moving up and down, so they could adjust for the angle of the scarf and thickness of the material. A vacuum cleaner was also rigged up to control the sawdust and chips. Some of invention comes from what may be readily at hand. Such was the case with the steamer they built to help with bending the plywood skins. Sam Armstrong welded up a metal top for a turkey fryer and attached a heavy duty radiator hose. A PVC pipe was attached to the hose, holes drilled in them to allow the steam to escape, and a chamber built to contain the steam and hold the plywood skin for steaming after it had been soaked in a "kiddie pool" they had out back.

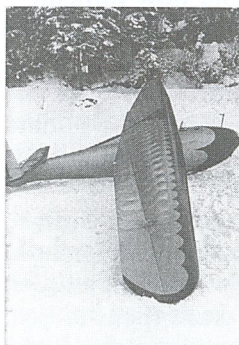
Bending a leading edge skin for the wing is a 3 man operation but an efficient one. One of them would be at the steamer, the other two at the form ready to clamp it on. He says "heat is everything" to the process, and "once it cools, and it cools quickly, you can't work with it."

Both Redman and Neil Pfeiffer agree on one thing, because West System is very slippery, "you have to do a lot of thinking on how you are going to clamp it down. Preparing to glue takes longer, usually much longer, than the actual gluing up. If you aren't 100% ready to glue, you hadn't better try it."

Of course much time and experimentation went into the covering and painting of the glider as well. Redman claimed they had 6 weeks worth of test panels trying to come

up with the perfect mixture and method. Jeff Byard again helped solve the dilemma by suggesting that they brush on the first coat to prevent the 'tiger striping' caused from trying to spray it on. For paint they used PPG products, sandable primer with UV block top-coated with a PPG urethane paint. The paint color chosen is a very common color for German gliders of the era. "We have been calling it 'Vestal White'" says Redman, "Jeff informs me it's called 'Elfenbein' which means 'Ivory'".

How to choose a color scheme for an aircraft takes a lot of thought, discussion, and research. The paint scheme chosen was from a Rhönbussard built by Schleicher for Ernst Udet. Udet was a WWI ace, and a national hero in Germany. Redman marveled, "He used to loop his 'Bussard' to within 1 meter of the ground." In a conversation with Museum Director Peter Smith about restoring these historic aircraft, Smith advised that "you do a restoration to a snapshot in time." Redman reminded the audience that



Ernst Udet's
Rhönbussard
Photo by Franz
Selinger From
Peter Selinger's Book
"Rhön-Adler"

"our snapshot is when the Rhönbussard was new. A lot of people forget that these things were new at one time, and if anyone in this room believes that the German craftsmen of the day did not build an absolutely drop dead gorgeous glider for Ernst Udet, I beg to differ." The photos of Udet's glider when it was new show it "shiny as a mirror". Schleicher, he

said, obviously built 'one off' gliders for special customers of the day and built them to that customer's specification. Redman says; "That is what we did, Jerry was our 'special customer.' He wanted the translucent varnished cotton look on the wings instead of the solid color that Udet's had." Redman said, "We took a little bit of artistic license with the look of the glider, but we wanted to tie into the history of the ship, and the era as well. We did that in 3 ways. One was using an historically correct paint scheme, which Udet's obviously was. The varnished look of the fabric was common at the time, and so was the Elfenbein color. We also wanted to tie in to the VSA which is known as 'The Colorful Division' of the SSA, hence the orange trim color. Adding the pinstripe was also a bit of license on our part. Jerry and his wife Sonja considered a number of different colors and widths, finally settling on a blue 1/4 inch stripe. It really complements the rest of paint job very nicely".

After all the months/years of work the plane and the history which it represented became a big part of their hearts, taking on a life of its own. And, as such, they wanted to show respect for all it represented by having Dean Gradwell sign off the restoration in the Logbook. "Dean is an FAA licensed inspector, we thought it would be really cool, and very appropriate, for him to do the signoff thereby closing the circle he had started when he imported the Rhönbussard to the USA to be restored." So on April 21, 2009, he flew into town from Oregon. Jerry was there, the test pilot was available, and the weather, though a bit chilly, was beautiful. Redman recalls "We hauled #50 down to the end of the runway, lined her up and off she went. She was back in the air, in her element... where she belonged, and we were just (He pauses)...it still

chokes me up to think about it."

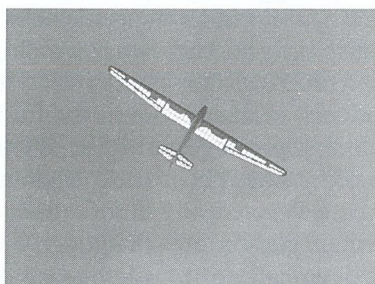
Speaking like the veteran that he is, he added, "Anybody who has done a project like this knows they are not done in a vacuum. There are a lot of people that help, many of whom are here today. Jeff I've mentioned, Bob Gaines, Harry Clayton, Peter Smith and of course Jerry and

our crew, and test pilot Anthony Cirincione. Anthony did a write-up on the test flight you would not believe. Jeff can attest to that, he read it before he flew the aircraft. And there are all the local craftsmen in our area that did work for us." With all the equipment in place the crew has built a second set of parts with which Dean Gradwell will build his own Rhönbussard. (Note from Mike Redmond, "I think it is important to point out that when I called Dean to let him know what we had discovered upon opening up and inspecting the Rhönbussard, he was devastated, and immediately offered to 'buy it back.' The glider appeared to be in good shape when Dean bought it, and had been stored in a dry, heated hangar since it had arrived in the USA. The damage just wasn't apparent until the ship had been uncovered for inspection and rebuilding.")

Redman closed with, "Obviously none of this would have happened without Jerry. He is a huge aviation enthusiast, and has loved flying for his entire life. He is a modest guy, and likes to keep a low profile, despite what you may think looking at all the stuff he brought here to share with all of you. He is a humble man and I know he really appreciates the goodwill and acceptance you have all given us and our project."

An audience member asked the

question on everyone's mind, "How many hours for the entire project?" Laughing, Redman answered



Back in her element-Simply Breathtaking!

that they really didn't want to know. "We recorded the time but never had the courage to add it all up." Secondly he was asked, "Other than

the data plate are there any original parts in the plane?" Redman said, "We did try to use as much as we could, mostly wood pieces, and looking back on it, I couldn't even tell you exactly where the old wood was used. There was not a lot that was airworthy, but we used whatever we could."

Another audience member asked about any changes that had been made to make the fuselage of the ship easier to inspect and/or service in the future. Redman said they had not made many changes. Redman then related a story he had heard about Jacob Spalinger's response when he was told how difficult it was to replace the control cables in one of his designs.....Spalinger laughed and said, "They were not meant to be replaced, the gliders were only supposed to last for 4 or 5 years."

Redman warns that you must be very careful of the environment in which you store these old wooden gliders if you want them to last. We can be certain that they will be exceptionally careful in storing this Rhönbussard from here on out.

"The Craftsmen Speak" Bob Gaines Talks With Loren Neher and Sam Armstrong of Team Wenger

In private interviews with Loren Neher and Sam Armstrong, two of

the three whiz kids of the Wenger Group, Bob Gaines got some priceless tips and a behind the scenes look at working in the trenches, building one of the most beautifully restored sailplanes many have ever seen, Rhönbussard Serial #50.

Loren Neher:

Neher said that they applied many coats of MINWAX polyurethane spar varnish to protect the wood. Every surface that would later have glue applied to it was taped off so as not to adversely affect the glue joints. West System Epoxy was used as glue but also, at times, was used without any filler and "painted" on the plywood skins like varnish. He said that West System has a number of fillers that can be mixed into it depending on what you are using it for and how thick it needs to be. "You can have no filler in it and it's just like water, or, there is filler which you can mix up as thick as peanut butter." In trial and error they found "there were times when you did not want to use filler at all. Laminating is one of them, because that can cause you a world of problems. Then you want the thin glue."

The original plane had about a quarter inch of putty on the nose and more in other spots. Neher says almost no filler was used on their Rhönbussard, but in the few places they did use it, "We used West System with a 'fairing' type filler that is much easier to sand than Bondo or the regular West System fillers." Loren added "The West System is a good gap filler, not that you try to get gaps, but it happens."

The part of the task that seemed to be the most troublesome for Neher was putting the skin on the pylon where the wings attach to the fuselage. It was a complicated process using clamps, nails, and an unvarying sequence. Any variation in the sequence would cause the skin to

move. He explained, "There are two skins on each side. The first one that goes from the main bulkhead to the #7 bulkhead is not bad, but the one that goes from there back is tough." Neher says, "There is no structure under there, just the stringer that runs from the #7 bulkhead back to the top of the fuselage. If you didn't get it clamped down the same way every time, it would move and take on a different curve, it would just do different things every time. I went through a lot of plywood trying to get that skin right."

Another hint when you use staples, or nails, with West System Epoxy is, "Don't leave the staples in there for very long before you pull them out. As the West System sits it hardens more and more, making them nearly impossible to get out."

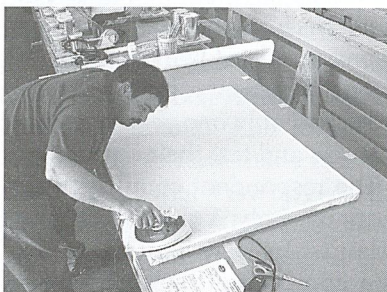
Sam Armstrong:

Armstrong admits that the trouble with the varnish finish on the fabric was a tough one to solve, and trial and error was the name of the game. They soon discovered that when brushing it right out of the can, it tends to dry too fast, leaving a rough surface and brush marks, even with a foam brush. They ended up using MINWAX polyurethane, thinned out 7 to 1 with mineral spirits, for the first coat and that is put on with a foam brush.

He described it as "Just barely putting any varnish on the brush," adding, "I didn't dip the brush more than ¼ inch into the varnish container. Then we would apply one thin coat, being very careful not to overlap brush strokes. Overlapping would cause what we called 'tiger stripes.' You use very little pressure on the brush, it's more like letting the fabric soak the varnish out of the brush rather than painting it on." They also did a lot of experimenting with viscosities when spraying on

the succeeding coats, finding that a 3 to 1 mix (3 parts varnish, 1 part mineral spirits) worked the best. Spraying was done in a booth so that the temperature could be controlled with 70 degrees being optimal. When asked about humidity Armstrong said, "We have barely any humidity there, the air is really dry." Though the varnish dries to the touch in an hour, they leave it in the paint booth undisturbed for 24 hours. Just a tack rag is used between coats and the spraying is done with the wing laid flat so the varnish doesn't run.

For the color coats they used PPG Del Fleet, a polyurethane enamel that is mixed with a hardener and reducer. This paint process was what was used by RARE aircraft when they painted Jerry's WACOs.



Sam Armstrong ironing the fabric.

The fabric was installed using the methods found in the Stits POLY-FIBER Manual. When asked about the undercambered portion of the wing Armstrong said, "That is also covered in the manual. Two coats of glue (Stits New Super Seam) are applied to each rib and allowed to dry. Letting the glue dry completely is very important," stressed Armstrong. "The fabric is then installed to the ribs using a rag wrapped around your finger and dipped in MEK to re-wet the glue".

Another trick Armstrong learned was to thin the Super Seam half and half with MEK, "This makes it brush on smoothly. If you use it

straight from the can it 'balls up' and gets 'lumpy' which can cause brush marks."

When tightening the fabric Armstrong said they used an 'instant read' thermometer to calibrate the iron and watched the temperature carefully. Finding an iron that will hold temperature is difficult. Armstrong explains, "When tightening the fabric your iron needs to hold a constant temperature or the fabric won't shrink correctly. Most of the new irons have a 'safety shut-off' feature that turns the iron off if it is left in a horizontal position for too long, this causes the temperature of the iron to cool down as you are ironing. Cheap irons, or older ones, don't have the safety shut-off so they tend to hold a steady temperature better." He prefers the Black Baron Iron (available from Aircraft Spruce) for small fabric areas. "Just don't drop them," he warns, "If you drop them on the floor they are ruined." Remember to check the temperature of the iron frequently.

In offering helpful hints he suggested that you do not try to wipe the varnish off if you get runs and such. "You can't get the varnish off the inside of the fabric and when that varnish dries it turns into a white powder that is visible when you try to re-varnish. You really can't do 'spot repairs' with this process because your repair ends up looking worse than the run did to begin with. Anytime you add another coat of varnish, that area just keeps getting darker, you end up with an ugly dark spot."

Both Armstrong and Neher agree that in work like this you find that a lot of patience, trial and error, and creativity are required, but the end result is well worth all the time it took you to get there. SS

The Meise - The Olympic Sailplane

Barbara Harding for Jörg Ziller

In the absence of Jörg Ziller, his sister Barbara Harding delivered Ziller's remarks on the Olympic sailplane known at various times as the Meise, the Eon or the Nord 2000, depending on the country in which it was built.

Jim Short introduced Ms. Harding, of Fairfax County, VA, a recent faculty retiree of Georgetown University. She is the daughter of Ergon Ziller, a well-known test pilot before and during WWII. Short said that Ergon's son Jörg has owned a Meise, the original Olympic (D-1420) sailplane for 29 years, but was recovering from surgery and unable to attend. Speaking from her brother's notes, Harding asked attendees to recall the Berlin 1936 Olympic Games that the Nazis propagandized so extensively. Before and during the games soaring was demonstrated to enthusiastic audiences with the new Habicht (Hawk) aerobatic glider. The show was a huge success and the ensuing promotion by the Nazi government resulted in the FAI (Fédération Aéronautique Internationale) trying to introduce the sport of soaring "as one of the disciplines for the next Olympic Games scheduled for 1940 in Helsinki, Finland."

The late Seth Kuntz, an outstanding pilot and notable organizer of the Rhön contest, struggled untiringly to get soaring included as an Olympic sport. In March of 1938 ISTUS, the International Studienkommission für den Segelflug, set the conditions that the Olympic glider had to meet. Harding said that conditions specified that "the ship not be suitable for aerobatics and cost less than 2,500 Reichs Mark." She added, "I still could not find



the exact amount in today's dollars, it was at least not very expensive." In order to level the playing field, all participants had to fly the same type of glider. In March 1939 the International Olympic Committee officially decided that soaring would be considered an Olympic sport. All nations developing gliders for the games had only one year to design, assemble and test their entries.

The respondent countries were Germany, Italy, Poland and Switzerland. In Germany there was keen competition among several designer workshops. The final German entries were the DFS (Deutsche Forschungsanstalt für Segelflug) Meise, designed by Hans Jacobs¹ and the Mü 17. The Italian Pelicano and AL3, along with the Polish Orlik and Swiss Spalinger 18, were other entries at the Sezze Airport test site, which was about 50 miles south of Rome.

Plans for the winning Meise were distributed all over the world, "but," Harding said, "it never flew in the Olympic Games. As you know there were no Olympic Games in 1940 due to the war that started the previous year."

She was fascinated by the naming of Jacobs's designs: "Rhönbusard (buzzard), Rhönadler (eagle), Rhönsperber (sparrowhawk), Habi-

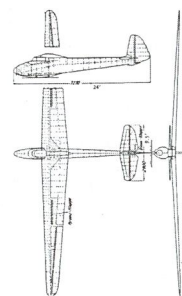
cht (hawk), Kranich (crane), Meise (titmouse), and the Weihe of course is the heron, all named for beautiful birds."

Harding said that Hans Jacobs arrived at the Wasserkuppe in 1927 and his boss at that time was Alexander Lippisch, the designer of the Fafnir 2. "Jacobs's first design was in cooperation with Lippisch and Alexander Schleicher, called Luftkurort Poppenhausen. Schleicher asked Jacobs to design for factory production a high performance sailplane. The result was the 1930-31 Rhönadler, then the Rhönadler #32. A replica of this ship built by Klaus Heyn is in the Wasserkuppe Museum.

Noted for mass-production oriented sailplane concepts, Jacobs designed the Weihe in 1937-38. When the call came for an Olympic glider, he took the Weihe's design and adjusted it to meet conditions imposed by ISTUS. He made the Meise light, easy to assemble and repair. It had dive brakes top and bottom of the wing surfaces and almost perfect neutral stability in flight.

Harding noted, "The basic Meise drawings were sent out to all countries the day before the war so that they could be converted into a machine that could fly in Helsinki,

but then as we know, World War II came and no Olympic Games... The Olympic Meise was selected by the German National-Sozialistisches Flieger Corps (NSF) to train young men as pilots for the



The "Meise" Olympic Sailplane

German Air Force (Luftwaffe). Before the war only two Meise gliders were completed, DE 11-39 and DE 240. During the war 626 were built in Germany, 601 by Jacobs and the rest by others. After the war about 400 Meise gliders were built including the English Eon and the French Nord 2000 and in a number of other countries mentioned, including the Netherlands, South America, Spain, then Czechoslovakia, Finland, Sweden, Belgium, Austria, Poland, the former Yugoslavia, and in the former GDR (German Democratic Republic) they built 150 so-called Lommatsch Meise gliders, having a wheel instead of a skid and a slightly different canopy, only 3 Lommatsch Meise gliders remain there."

When Harding talked to her brother Jörg who was then in the hospital, he said there were 10 Meise gliders in Germany of which seven or eight are airworthy. "The other numbers we aren't sure about. If anyone knows better, please let me know. There are one to three

in Australia. As far as is known, worldwide there are still about 18 Meise gliders, French Nord 2000s and English Eon Olympias registered in flying condition."

She mentioned a 1989 vintage meet attended by some glider pilots from East Germany who slipped across the border into Austria. They said at that time while many people in the GDR tried to flee the Communist regime, "there were some smart glider pilots who flew silently over the border resulting in the GDR destroying all those beautiful sailplanes."

After a flight on the Wasserkuppe, Phillip Wills wrote a report in the December 1945 British Sailplane and Gliding magazine, "The Olympia Meise is in my view one of the finest pieces of balanced aerodynamic poetry which has been created by man." And Jörg Ziller wrote, "Up to now that's true, but it is also true that it is a tragedy that of the more than 1,000 Meise gliders, only 18 are still in museums or in flying condition."

In the question and answer period that followed, Barbara Harding said that Jörg didn't write anything about the history of his personal Meise. In answer to another question she said, "I don't know what repairs were done to it, I only remember that in 1989 when we towed it to Farkashegy outside of Budapest for the Vintage Glider Club (VGC) annual rally, he was still doing some canopy work trying to make it more original because it came with the canopy that wasn't exactly like the original one. His is a German Meise and is on a skid.

¹ In a mini-bio at this point Harding said "Jacobs, born 1907 in Hamburg, Germany, was the son of a sea captain and was trained as a ship-building engineer. At 23 he published 'The Workshop Practices For The Construction Gliders and Sailplanes.' It is still listed at the German Amazon DE as not available, however I did find a private website with a lot of soaring literature where it is available in German." A group of VSA members has almost completed the translation of this book into the English language.

Morellis, the Experimental Soaring Centre of Turin Polytechnic Vincenzo Pedrielli



Aviation came alive for the students at the Politecnico di Torino in Italy starting in 1952 when the lessons they took from books were augmented by an opportunity to actually become a part of the exciting new soaring movement. Vincenzo Pedrielli told the story of Alberto and Piero Morelli who changed aviation in Italy forever. "The Centro di Volo

a Vela del Politecnico di Torino, The Experimental Soaring Centre of the Turin Institute of Technology (CVT), was founded in May 1952 by a group of seven enthusiasts who wanted to challenge the design and construction of sailplanes as done before WWII by the German Akaflieds and the Royal Polytechnic of Milan. Alberto and Piero Morelli, together with Attilio Lausetti,

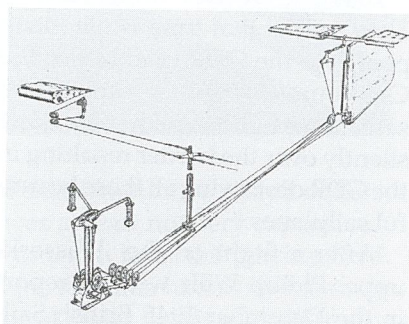
Franco and Mario Ferrero, Luigi Marazzi Ghisleri and Aldo Conti, founded the CVT with the statutory objective of designing and building sailplane prototypes and equipment related to them.

This centre was housed in a small corner of the Aviation Laboratory in the Valentine Castle where the Polytechnic is located. Pedrielli said, "The first design proposal came out of the pencils of the Morelli Brothers and construction of the first prototype started that same month. Because of a lack of finances, each member had to contribute 30,000 Italian Lira for startup expenses." Outside financing came later along with many students wanting to join the CVT.

The first project, the CVT 1 Zigolo, had a cantilevered high wing and according to Pedrielli, "had medium characteristics, low cost, small in size and easy to rig and fly." Its fuselage was built in the classical way, it had a landing wheel, skid with shock absorbers and unique air brakes. The plane was well accepted.

But enthusiasm ran high and before the Zigolo was completed Alberto Morelli designed and started work on his second prototype the CVT 2 Veltro, a high performance competition sailplane. This plane boasted many innovations. Its reclining seat provided a reduction in cross section of the fuselage which

reduced the aerodynamic drag. It was the second plane to make use of laminar airfoils (the first being the RJ-5), and it had a T-tail, a worldwide innovation to reduce drag. It also had a retracting undercarriage with wheel and shock absorbers. The plane received high praise for



CVT-2 Veltro, Orthocinetique Controls

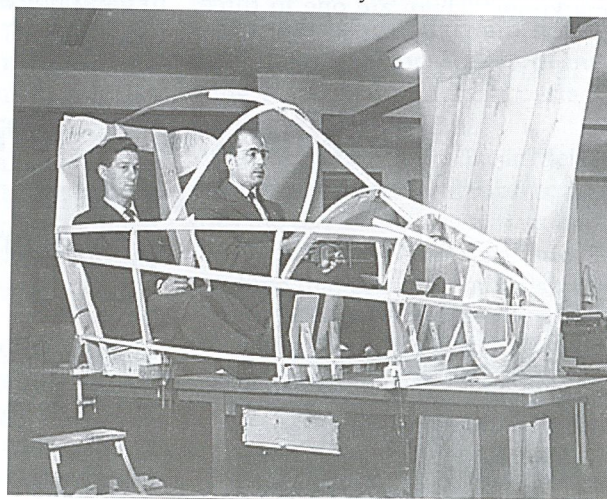
its elegant shape and it included another first, the Orthocinetique control for better co-ordination of control movements. Testing of the plane produced the best Italian gliding achievements of the time.

In January 1956 the Italian Aero-Club was eager to grow the sport of gliding and announced a competition among Italian designers and manufacturers to create a modern single seat glider. It had to be low cost, strong, easy to repair and inspect and be appropriate for both sport and training. By mid-April the Morelli's had submitted their proposal, the M-100, which was immediately accepted by the Aero Club.

The following year the FAI intro-

duced the Standard Class which was expected to take part in the World Championship in Poland in 1958. The Aero Club requested that the M-100 be modified to meet Standard Class specifications. The resultant M-100S "was designed with a 15 meter wingspan, a thickened wing root section and increased airbrakes. A total of 83 of these sailplanes were produced in Italy and later another 120 were produced in France by the CARMAM company under the name "Mesange."

In 1956 the CVT designed and produced "a new sailplane intended to become the improvement of the CVT2 Veltro." Following that, Alberto Morelli designed and built the M-200, a two-seater meant for training as well as sport activities. It had a wood and mono-spar wing with a span of 18.5 metres, an aspect ratio of 19 and included four very powerful airbrakes. All the controls were push pull steel tubes. Pedrielli said, "The seats were staggered in the same way of the Australian ES



M-200 Staggered seating cockpit with Roberto Meneghin and Piero Morelli

52 Kookabura allowing both instructor and pupil good vision and the comfort of more elbow room."



The CVT-2 Veltro and test pilot Antonio Angeloni

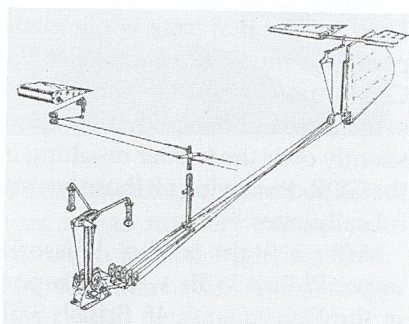
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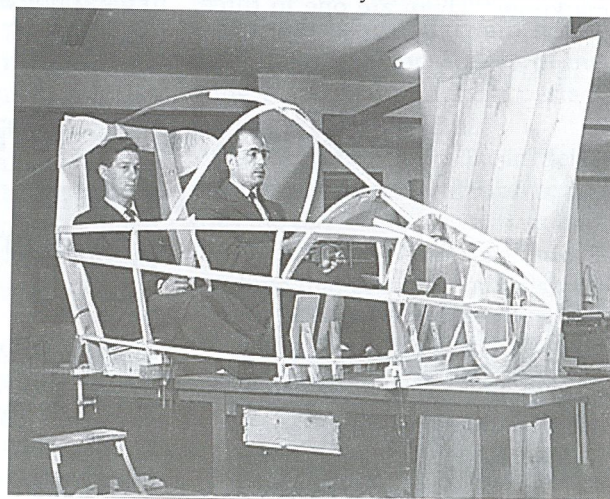
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The CVT-2 Veltro and test pilot Antonio Angeloni

on Cape Cod.

The National Glider Association (NGA), formed to support the gliding movement, decided they wanted to have a national contest and were looking for a suitable site. In the meantime Wolfgang Klemperer had come over from Germany, became a US citizen and was working at Goodyear in Ohio.



Schweizer SGS 1-26

He had on several occasions driven through Elmira on his way to Akron and was familiar with the area. He was asked by the NGA to suggest a site for the contest. At this same time Klemperer was traveling to Washington and had taken a train from Akron to Syracuse where he met up with Martin Schempp. They went together to visit Warren Eaton in nearby Norwich and the group flew to Elmira. They found there 2 take-off sites, an airport, a ridge, all things they felt would make Elmira a fine spot for the contest, so he made it his recommendation.

They then sent Jack O'Meara, who was the test pilot for the Baker McMillan Company, to check it out. Though O'Meara at the time didn't have a soaring license he met up with 20 or 30 Elmira-area businessmen who helped launch him, and on his first flight he was up an hour and a half, followed the next day with 2 flights of over an hour each. O'Meara was sold, he also recommended Elmira for the contest. Schweizer remarked at such good fortune for the area that

the wind was blowing strongly during those 2 days.

The contest was indeed held in Elmira, it was 1930. There were 14 gliders participating and the contest saw the first thermal flight in the world, flown by Wolf Hirth. The next year there were 26 flying sailplanes (18 utilities, 3 secondaries and 5 sailplanes) flying in the competition. Among those present to watch the festivities were 3 brothers who would later make a strong impact on soaring in Elmira, Paul, Ernie and Bill Schweizer. "My brothers and I first came to Harris Hill in 1931 and we have seen quite a bit," Schweizer said. "Ernie was very much impressed by the need for strength and pilot protection and an airplane that had good flight characteristics." There were 3 serious accidents in the second contest., 2 spin-ins where people broke their legs and a hard landing by Captain Philips who had very serious injuries when his plane broke apart.



Schweizer SGS 2-33

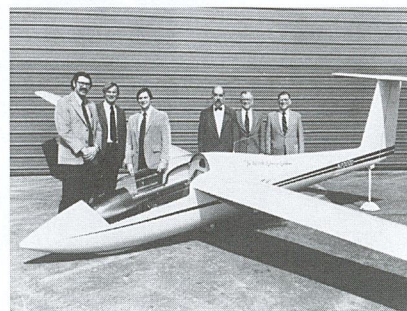
"That taught the Schweizer boys a lesson."

The 1932 contest found Jack O'Meara making a 66 mile flight by the use of ridge currents and a duration of 8 hours and 18 minutes, so he was declared the champion. The Junior Champion in the contest, a pilot who had just gotten his license that year and made a stellar performance, was Stan Smith who went on to be a well respected Hall of Famer and father of NSM direc-

tor Peter Smith. Schweizer made a special point of mentioning that Stan Smith 24 years later in 1957 won the national contest flying a Schweizer 1-21.

By the end of the 1933 meet the pilots had gotten together and agreed that they did not want another meet in Elmira under the current conditions. "They needed an airport at the top of a hill where they could get a tow maybe six or eight hundred feet above the take-off site. They could go out and try a ridge and if it wasn't working they could come back and land at the airport." The SSA told the local officials they would not do another contest in Elmira unless the pilots' wishes were met. The Harris Hill site was found, cleared and readied by the county in time for the 1934 contest, and over the next 3 years they added 2 hangars, an administration building and cabins for the pilots and their crew. All of this work was done by the CCC (Civilian Conservation Corp), part of Roosevelt's New Deal program, that funded the labor. The county paid for the materials.

That 1934 meet saw many firsts. "Warren Eaton made the first air-



Celebrating the 2,000th Schweizer Sailplane, The Schweizer SGS 1-35 Family members from left: Leslie, Stuart, Paul H., Ernie, Paul A. and William Schweizer

plane tow which was a new experience from the ridge. In addition to that, DuPont in the Albatross broke the American altitude record of 6,200 feet, and then to top it off he broke the world distance record for the flight to Somerset, NJ, 158 miles." After his win he remarked, "Soaring is the supreme sport of the air just as sailing is the supreme sport of the water."

Schweizer put to rest the questions "Why is Schweizer not building gliders anymore?" He said that back in the 60s and 70s they were building from 50 to 100 gliders a year. "And in 1980 there was a depression and also I think we had saturated the training glider field, we had a hard time selling our big sellers, the 2-23 and the 1-26. The only ships that were selling were sailplanes And in 1980 they started using carbon fibers in them and at that point we couldn't compete with the fiberglass ships." FAA requirements make it much

more expensive to build them in the United States as compared to Europe. In addition product liability costs were increasing, "since by law we were responsible for all the sailplanes we built from day one if a design or construction problem came up."

In the mid 80s the company came out with the 1-36, an improved version of the 1-26. It had a 46 foot wing span compared to the 40 foot 1-26, a new type wing, and L over D of 30:1 as opposed to the 1-26's 20:1. "Though 43 of them were sold, that was not enough to cover costs and we were forced to go out of the sailplane building business." Area banks were unable to provide the financing packages needed to sustain research and development that would bring the needed technology to the company. "With our helicopter business, it made the merger with Sikorsky a logical step for both parties." As they were uninterested in the glider portion of the business,

the parts and equipment were taken over by Ernie's son Les who is now maintaining and restoring Schweizer gliders in his shop. The fact that he has taken over this part of the operation "is also going to increase the value of your Schweizer planes, because they can be serviced now and he is doing rebuilding as well."

IVSM Chairman Walt Cannon added, "At present the 2-33 is very popular in Canada and the Air Force Academy is also thinking about going back to them as trainers. I think this is quite a compliment to the Schweizer Corporation, the gliders they built, the ruggedness of them. The fact that these gliders are still very functional Les's operation, maintaining and restoring Schweizer gliders, bringing them back to a new state, means that Schweizer gliders are going to be flying for the next 100 years surely." An amazing legacy. SS

The Philosophy of Restoration

Russ Lee

Russ Lee said that he didn't mean to argue that the National Air and Space Museum's philosophy was the only way or the best way.... "It's just our take." Restoration is to turn an object into an earlier better appearance. Preservation is to stabilize an object in present form and condition, the damage history, paint markings, graffiti, cultural detritus. As an example he mentioned the Martin B-26 Marauder "Flakbait." "We had a chance to go through it during their prep for housing and

found a pack of Lucky Strikes inside the cockpit. Back in the aft section we found an old WW II Hershey bar wrapper. All those things contribute to looking at the artifact as a document. Lee said that it had a story to tell, "just like an ancient manuscript, unless it's significantly altered or there is careless treatment or such."

He said that their projects start in a variety of ways; with an incomplete pile of parts, a complete but broken object, with lots of parts, rough or intact or in very good condition. A variety of strategies can be used.



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National Air and Space Museum (NASM) of the Smithsonian Institution

"We try to be flexible. Stabilizing conservation is probably the least invasive, least active treatment. It is

where an aircraft in good condition is taken and just fixed, as is." Any corrosion is to be stopped and any broken pieces that might be a danger to visitors are fixed.

"It ranges up from minimal mechanical rehabilitation with minor cosmetic restoration, structural rehabilitation, along with full restoration according to specs. The final goal we believe should always be authenticity, an unwavering concentration on the original history, not just the aircraft type." If another story is to be told about that artifact other tools can be utilized; photos, documents, texts, scale models, cutaways, etc.

"We take a hard look at damage and if it occurred during the artifact's operational life, we will consider leaving it, provided it does not threaten the visitors or the overall integrity of the airplane. He used as an example the Northrop Gamma from the 1930s Arctic Expedition. It had taken a hard ice landing resulting in the engine nacelle being bent down, and wrinkled skin where the cowling meets the wing's leading edge. When the museum staff examined that aircraft and realized that it told in a very visual and immediate sense an aspect of the Gamma's history, "We left it as it is."

Another NASM philosophy is the idea of reversibility, "whatever you do to a part of an airplane, if it is not an original technique or is not part of the history, you want it to be reversible, something you can undo later and go back to that original surface or finish." Lee said that historic values will change over time and the museum is saving these aircraft to last decades or 100 years. "A seemingly less significant airplane today

might be extremely important or rare and invaluable tomorrow. He mentioned Walter Cannon's talk about the resurgence of popularity for Schweizer training gliders in Canada. Lee said, "To me that is an example of the lens of history changing over time, and those airplanes become important."



Baby Albatross in NASM Preservation Workshop

He showed a slide of the Bowlus Baby Albatross, serial no. 1 which was acquired in 1963. It was in a dry environment, suspended from the rafters at the Garber Facility. He said that the National Air and Space team approach is taken to restoration and preservation. The curator (Lee, or any of the eight other aeronautics curators at NASM) looks at the history and determines what significant point of time to which they want to preserve or restore. Then Lee meets with specialists, the technicians who actually do the work. After they say what can and cannot be done, they look at the aircraft and see its present condition.

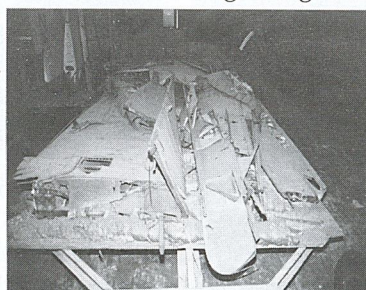
When warranted the conservator is included. At the end of every project, specialists prepare a report listing treatment they did, conditions they found and the story of their work on the aircraft.

Lee took excerpts from the Baby's artifact reparation report dated 27 December 2000, to show what was done. Every repair or replaced part is stamped with the letters "NASM" and the date the repair was made or the part replaced. "The right aileron control rod was bent on the Baby, we don't know why. We

didn't repair it; we just left it." He described some highlights from the report, then showed a slide of the finished product now on display at the Udvar-Hazy Center.

Moving on to another significant Bowlus sailplane, the PS-2100 Senior Albatross, serial No. 3, named "Falcon" by owner Warren Eaton. "Raul Blacksten tells me that the previous designation we have, IS-2100 is incorrect and should be PS-2100. Curatorial files kept in the collection from the time Mrs. Eaton donated the ship in 1935, identified it as IS-2100. So we have more digging to do to resolve that discrepancy." Lee said that like the Baby, the Falcon airframe was in fantastic shape after being hung in the rafters for more than 40 years. Again, Lee told of the meticulous lengths to which restoration extended. As they were looking around the cockpit they discovered a hand embroidered handkerchief and a pencil. They were catalogued as part of the Senior Albatross inventory record.

The identification and assembly of pieces of the WW II Horten flying wing sailplane was another



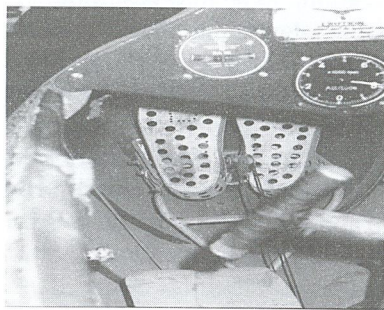
Horten sailplane components before shipment for restoration

NASM project. He showed a slide of a trailer "that had a whole bunch of sailplane parts in it." It turned out that the museum had most of the pieces of the Horten III and Horten VI. In 1979 it was lent to the German Deutsche

Technique Museum for restoration and preservation. "That is what they started with." It has been restored and now hangs in the Udvar-Hazy Facility.

He discussed the next project, the Franklin Eaglet. "We took it down and did a quick and dirty inspec-

tion." They found it in very good condition after peeling back some of the fabric to look at the airframe. Lee said that the Eaglet came to the Smithsonian right off the airport runway where Frank "Speed" Hawks flew it in. "The condition that it is in now is right, up to that last flight, except for the fabric," Lee said.



Interior cleaned and preserved

The full texts of the restoration reports are available in the National Air and Space Museum curatorial files. "If anyone is interested in that I would be glad to scan it or send a copy, or answer any questions. Contact me at leere@si.edu."

In answer to Simine Short's question concerning a Horten book that Lee is currently writing, he said that he hoped the book will answer some of the questions, especially those touching on the Horten's aerodynamics. "But when you do these things," Lee said, "you find more questions, and there are some that will remain unanswered." Lee hopes to have the book finished by the end of the year.

The question of how determination of paint schemes arose. He said that it's based on the curator's careful and detailed knowledge of the historical period and of the history of the aircraft. "We don't make any of these decisions by ourselves. We have a collections committee in my division, and we discuss these things back and forth at length, mainly what is the most significant

point in that artifact's history. And that point might not always be a positive, where they are not successful for whatever reason, or they represent the end of the line. As an example he mentioned the Avrocar, a flying saucer shaped aircraft now in the collection. "We argued for keeping it, because it represented a dead end. It showed designers in the future where you shouldn't go unless you make radical changes in the technology."

Histories, full articles written on 370 plus aircraft are posted online. "They can be accessed by typing in the airplane's name and it should pop up on Google. I won't say that we are without error, but we have discovered things by putting information out there. Some of these histories have been added to by users and owners. They come back to us and say that this is not quite right, or more can be added to this history."

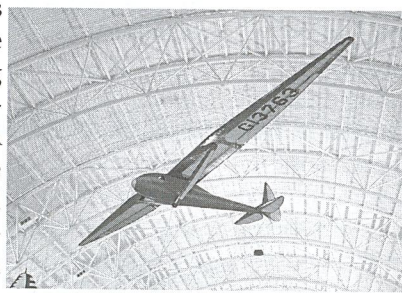
Walt Cannon said, "I think that a lot of us who are going to fly these (gliders) as restorations are perhaps ignoring some of the aircraft's history. A lot of people have made the restored aircraft much different than when it came out of the factory, or out of the war. Are we doing bad things to restore aircraft?"

Lee said he would never say or think that. "It is all good and all contributes. You people fly them and you have to make concessions to do that. He mentioned the "flightline mentality" where you look at an airplane and it doesn't look ready to fly, safety, pre-flight checks, etc. It has to look safe. "I think this carries over to historic airplanes." Lee said that at the NASM they have the luxury

of not having to worry about flying them. But there is a limit. "We don't want it to look too aesthetically displeasing. We want the visitor to come in and be attracted to the artifact and want to learn more. I think that we can all share these concepts and use them. Perhaps there's room to make it a little more original without compromising. The individual owner, and the restorer have to make that determination."

Lee said that for any who want to do a restoration and want background material, there is an archive dedicated to answering those kinds of questions. "They have a reference desk. You have my e-mail, and I would be happy to get you in touch with those people." There is a large archive in Suitland, MD that contains upwards of 10 million drawings, original tech orders, and tens of thousands of photographs. "I'm sorry to say that the fee has gone up significantly on getting those photos duplicated... but the materials are there."

He thought that there shouldn't be any charge for focusing in on your requirements. An audience member asked if Lee was aware that a Horten wing was being built in Finland. He said that he knew of a



Preservation complete. Hanging high in the Udvar-Hazy Center, the Sr. Albatross

Horten Wing being close to completion in Germany, but not in Finland, and added that he would be glad to help them out as much as he could. The inquirer said that he would follow through with his Finnish colleague.

After the spirited applause at the end of his talk and the rumbling of chairs "Lee-ward," the lecturer was quickly surrounded by questioners and commentarians.

Restoring the World's Only Airworthy Kirby Gull I

Dave Schuur

Master restorationist David Schurr said that it took Herman Kursawe four years to build his beautiful Kirby Gull from plans, completing it in 1946 in Springfield Gardens on Long Island, NY. "This was Kursawe's second plane. He built a Kite prior to that, and I understand he built a third one as well. He was a consummate builder." There are four

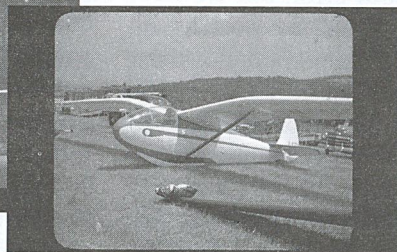


The Gull at Harris Hill circa 1950

Slingsby Kirby I sailplanes known to exist, according to Martin Simons' authoritative book, "Slingsby Sailplanes." The restored Kursawe, known internationally as the American Gull, may be the only one that is airworthy. The Kursawe Gull remained serviceable and appeared at vintage meets through the 1970s. Simons wrote, "All told, including a cantilevered Gull 3 and the Kursawe, eleven Gulls were built."

The Gull I was a 1938 design by Fred Slingsby of Great Britain. It utilized a relatively modern NACA 4416 airfoil. Geoffrey Stephenson became the first to wing his way across the English Channel with a Gull I in April 1939. That same year a Gull I was imported to Australia, where the following year Stephen Newbigin set a national altitude record of 2,407m in New South Wales.

Schurr showed a photo with Kursawe standing by the nose of the Gull, "This may have been its first flight out on Long Island, one of the first times it was put together." Emil Lehecka flew it on a 56 mile cross country at the 1948 Elmira, NY, nationals. There is little history after that until Tom Smith of Clinton, NY, acquired the plane and kept it until he died in the 1980s. Slides of the Kirby Gull in the late 40s and 50s on Harris Hill showed a series of color



The Gull again on Harris Hill in the 70s

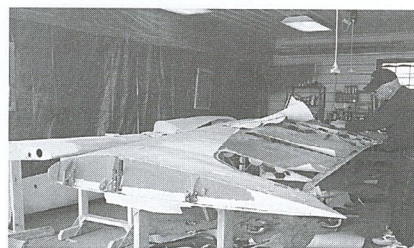
1988.

At the 2005 International Vintage Sailplane Meet, Wallace "Bud" Brown of the Wabash Valley Soaring Association (WVSA) agreed to restore the Kirby Gull I, then in storage at the National Soaring Museum. "This is what Bud saw," Schurr said, adding, "Bud was a friend, a mentor and taught me an awful lot about restoring gliders." Unfortunately Brown was unable to finish the project. Other members of the WVSA under Schuur's direction stepped in, took over the job and finished the project in April 2009, in time for the IVSM in June on Harris Hill. The restored ship was returned to the museum where it is now on floor display in the Blossom Gallery.

Schuur showed a mid-60s slide of

Tom Smith, his wife Pat, as well as Tom's mother and the ship, which by that time had undergone its third iteration. "The mid-70s photo, one of the last, was the color scheme that I was kind of asked to put it back to. This is one of Tommy's last flights. Apparently there was a rather spectacular landing. Smith brought the Gull in and ground looped it right up about five feet from the fence, or I would have had a whole lot more work to do," Schuur quipped.

At one point Brown felt that the plane was going to be unairworthy, Schuur said. "I think that the point to make here is the agreement that Bud signed carried over to when I took over. That was that the plane did not need to be returned in an airworthy condition, however nothing would be done to keep it from being in airworthy condition." Schuur took that to mean that he ought to try and make it an airworthy ship.



Repairing the Gull wings

He and the Wabashian sailplaners proceeded with the refurbishing project from there.

Schuur said that there was a break in the wing and some damage to the tail. Stripping the fabric from the wings, particularly around the edges was difficult, and they didn't know what kind of glue was used. "But the woodwork is phenomenal, it is gorgeous throughout, I almost

didn't want to cover the wings." The fittings were cleaned where possible. If they couldn't remove them without cutting into the wood-work, they would just leave them. "The glue joints were outstanding. I really had no repairs. I had a couple of gussets loose, but not too bad for a plane this old. I was amazed." The restoration group ended up repairing anything that was damaged, varnishing it and adding new cables, a necessity if the ship was to be made airworthy. The only stitching done was on three ribs at the bend of the gull.

They then started on the fuselage. Schuur said that the plane was broken somewhere. The wood on both sides was caved in and required res-carfing. They stripped the paint and marked where the numbers were on the plane, so they could put them back in about the same place. The nose microglue and epoxy filling treatment and turtle deck concave structure presented special crafting

problems. Nobody took turtle deck pictures of the color scheme before Schuur took over. "I think I got it right as it could be." Someone in the audience reminded him that he would be the only one to know it wasn't.

He said that the cockpit didn't need too much except cleaning. Up to this point Schuur thought that it would be flown, so he had the belts rewbed and the old ones left in the plane. A cockpit photo showed Schuur, squeezing in, deciphering the instrument hook-up arrangement. "It should have been easy, but it wasn't. Whoever owned the plane could do it easier than I could some fun."

They took the Kursawe Gull I out to the flight line to take static pictures with Lee Cowie towing. Bud Brown had gotten out of the hospital that day and his wife Ellen brought him over. Schuur grinned, "There was a nasty part of me that just wanted to grab a big wad of



Proudly posing with the completed Gull, from left, Bud Brown, Dave Schuur, Jim Short, Bill Jokerst, Lee Cowie

grass, rub it up and down that skid, and down the side of that nice white paint and shove some in the tail, just basic perversity."

Schuur told those present, "It wasn't just me. Jim Short, Lee Cowie and Bill Jokerst have done a lot of work on it. Paul Rabourn was involved." Schuur expressed his thanks to a lot of Wabash Soaring people who stepped in to work on this plane and see it through completion.

Scandinavian Mountain Soaring

Rolf Algotson

Runways made of snow and ice on mountains that form the border of Norway and Sweden extending north to the Arctic Circle. That is the world of Scandinavian mountain soaring that Rolf Algotson brought to the IVSM 2009. Algotson has been the head of the vintage glider movement in Sweden for 15 years and has flown himself since the age of 16, over 60 years in the air. For his lifelong interest and for starting a regular program of lee flying in Sweden, he received the Royal



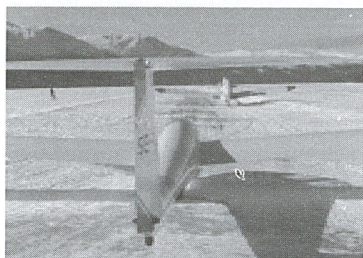
Preparing for aero tow on the spectacular frozen lake

Swedish Aero Club's Gold Medal and also the famous Tissandier Diploma from the Federation Aeronautique Internationale. As head

of the Swedish mountain soaring group he has written many books, articles and manuals on just how to do that unique soaring that is admittedly not for the faint of heart.

He honed his skills in gliding after the war in 1945 at the central gliding school in Alleberg, Sweden which he said is situated on a hill much like Harris Hill. "The first couple days we had to be sitting in the primary glider against the wind to learn how to maneuver it. And after some days we came up to a starting ramp and all the starts

were made with the bungee rope. At that time we had no other ways. Winches or tow was not to think about, all the aero tows were used by the experienced pilots." The flights were just above or followed the slope, though the wind was very strong; the Swedish record at that time was 21 hours in an Olympia



Aero tow start from frozen lake at camp in Ottsjö Sweden

Meise. His instructor, Karl-Erik Ovgard, was always talking about the lenticularis waves he had flown in the Sierra Nevada and Algotson became very interested in this type of flying.

After several years he attended the mountain school Saint-Auban in France and earned his Diamond Altitude. Algotson returned to his native Sweden and began his search for a place where he could continue his wave flying. "I found a place in the middle of Sweden where there is a range of mountains going north-south between Norway and Sweden. In late winter there are mainly WSW winds there. In lee of these mountains he found a place with the necessary qualifications for wave flying. "We went over to this place called Ottsjö. It has 3 things you need- mountains, a temporary airfield and a good place to live. All these things are collected in one place and you have Ottsjö ...and sjö in Sweden means a lake."

After months of preparation in 1961 it was time to go up. "That day there was a very good wind

coming from the south in a good direction and I released at 200 meters (600 feet), that is enough. You can release at 50 meters in the rotor, but it is very unusual really. Well I started and I got up and the climb was 15 meters per second, that is 45 feet per second, up to 3,000 meters. When you are sitting in a Hutter-17 over 3,000 meters in hard wind, you have no brakes, not even oxygen, you have to wonder, what is going to happen to me."

The west wind over the frozen lake blows around 60 to 80 km an hour. The camp in Ottsjö claims 17,000 hours of soaring and 22,000 starts at the lake for 50 "seasons." There has never been an incident on the lake of a soaring accident or of someone getting injured. During



The 2 week camp in Ottsjö is very popular every year.

the 2 week period there is a morning routine of briefings at 9am where pilots share where they flew the previous days and the conditions they met. "We have airspace up to 10,000 meters," the altitude record was set in 1986 at 10,200 meters. With the low air pressure he claims that "the real speed is much more than the instruments are measuring."

"What we want over there is of course wavesI go to the mountain in the autumn or the spring and I am looking for the clouds, they are some clouds that are going very fast with the wind. And there are some that are standing still. Even if the wind is going fast or very fast,

the cloud is standing there." And when you finally see it you must ask yourself, is this truly it, do I see what I think I see? "So mostly when we are there we have very good weather. In 14 days we can fly 10 of them, and of them we have 5 to 6 wave days every time."

In March of 1986 the wave conditions at Ottsjö resulted in 83 Diamond Altitude awards and 225 Gold Altitudes - in less than a week. Mr. Algotson claimed in a Soaring Magazine article that "pilots talk about the Ottsjö expedition as a mental phenomenon," the wave effect addictive. Of course the best effects of the wave appear late afternoon as a diurnal effect of cooling. The pilots that make this annual journey find the site easily reachable within a day from all parts of the country, and the living very comfortable. Ottsjö is also well away from major air restrictions and the prospects of cross country flying are very good.

To better understand the climate of Scandinavian mountain soaring you can go to YouTube or www.segelflyget.se and find short films of these dramatic glider take-offs from the cold barren "tundra" of the lake as the plane lifts into the spectacular blue of the sky. You begin



The beautiful Scandinavian mountains from the air.

to understand what has driven Mr. Algotson to this little lake nestled in the craggy snow-covered mountains of Sweden. SS

Flying the Old Gliders

Dean Carswell

Introducing Dean Carswell, Vintage Sailplane Association president Jim Short said, "Dean is as experienced a person who could possibly do this. He has flown 154 kinds of gliders from the very highest to the very lowest, and some wonderful vintage gliders as well. He has had in excess of 13,000 flights, almost 2,700 hours instructing and 3,700 hours of actually flying gliders. So I guess he knows how to tell people what's going on, or get them to learn from him."

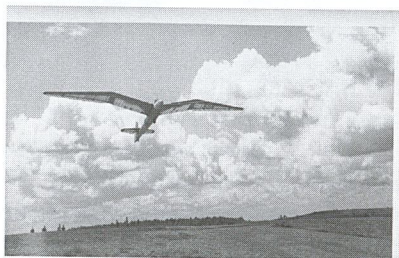
Carswell opened by saying that this would be a participatory session, "not so much to have me talk, but to have you talk." He added, "your input, your experience, the things that you've learned are going to be a lot more valuable around the room collectively than the nuts and bolts that I say... Please participate."

Carswell asked what interested people in flying vintage gliders - the history, the nostalgia, the challenge of restoration or the opportunity to fly a type of glider we've never flown. He said that our ties are unique and bring us to a responsibility to preserve and not destroy our sailplane's past or anyone else's as a result.

He recalled three previous IVSMs at Harris Hill where he had seen rare ships seriously mishandled, caused by lack of courtesy or familiarity. "It was dumb luck that these gliders were not trashed or someone seriously injured." He said that he had a personal list for pilots to make sure that they are ready to go when they step out to the glider at the beginning of the day. We all need

to be prepared. "Bear in mind that the sailplanes we are using today (not vintage sailplanes) typically have significantly better handling qualities than many or most of the old gliders around. In some of the old gliders the handling may be so bad or so challenging that people should not consider flying them." When he mentioned the Baker McMillan Cadet, some in the audience responded with head-nodding agreement.

He next moved to a discussion of the Minimoo, and asked long-timer Rolf Beyer for his comment. "It was a nice ride, relatively easy to fly," Beyer said. "Essentially low wing loading, and the ailerons were



The Minimoo

a bit hard to use. Corky (Gill) and a whole list of us flew it. I felt it was comfortable, very safe... but it was 30 years ago." Carswell advised that if you are seriously thinking about acquiring or restoring this old gem, get all the literature on it, and talk to people who are familiar with it.

The Baby Bowlus BA-100 was next. Walt Cannon commented on BA-100 owner Jeff Byard, who said that on his first flight in the Bowlus Baby, he found it so pitchy that he just wanted to get high enough to jump.



*Dean Carswell
readying for launch*

"Jeff's glider is safer now after having been expertly modified." Carswell said that the Baby is the most marginal glider he's ever flown. "It behooves us all, if you want to get into this thing to know better ahead of time what potentially we may be taking on."

He then moved to a discussion of the DFS Meise/Olympia. A show of hands indicated that half in the room had flown them. Designed by Hans Jacobs for the 1940 Olympics (cancelled by WW II), it was a 15-meter wooden glider with fabric covered wings, DFS brakes and, "lots, and lots, and lots of glued parts. It needed careful preflight inspection after you carried it in the trailer. "It's prone not to be in such good shape when you take it out of the trailer as it was when you put it in at the start of a 2,000 mile trip." While pilot size and weight could be a limiting comfort factor in the Meise/Olympia, their wings were light allowing for ease in rigging and de-rigging. Bob Gaines said, "I don't consider it a great cross country machine because of the relatively low flight performance, but it's really delightful to fly, and

very honest."

Jim Short recalled that with the Meise, "On a good ridge day, you find a little spot on the ridge and it will simply park where the air is coming up. Just turn into it, and do little 's' turns and you get higher than almost anything on the ridge."

Heavy on the controls? Several



The Olympia

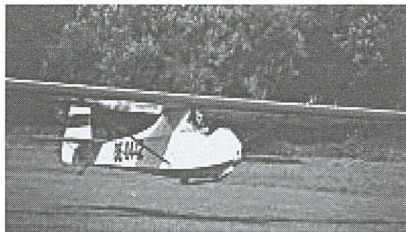
yes's and no's. Carswell pointed out that it's all relative. Lars Johannson said, "I thought the Meise was a beautiful ship. Its been about 15 years since I flew one, but it depends entirely on your size...a bit smaller you can be very comfortable. When I started in my Weihe, I was weighing about 210 pounds. Now I'm 250, and it's not too comfortable."

Rusty Lowry, discussing characteristics and performance of sailplanes that he had owned and others that he had flown, said that experience in one glider type may not translate to the same type from a different era. "One size does not fit all."

Moving on, 40% of the people at the meeting had flown or were familiar with the Grunau Baby. "A glider that has been made in larger numbers than any other," Carswell said. "It was licensed and built in Germany and France as the Nor 100. Slingsby made them in the UK before the war, and Elliots there after the war. Slingsby made the Prefect, basically GB's with much

the same wing section and pretty similar handling, or lack of it," he quipped. NSM Director Peter Smith reminded the group that the most produced glider ever was the Waco CG-4, "But I don't know how they thermal," he added.

The earliest Grunau Babies had no windshields, no cockpit covers, and no airspeed indicators. The pilot was exposed to the airstream so he could judge what the glider was doing and whether it was flying too slowly. Later models had instruments, windshields and in a few cases full canopies. Mary Cowie said that you wouldn't want to do any more than go up and come down on your first flight, "It's something that you grow with and



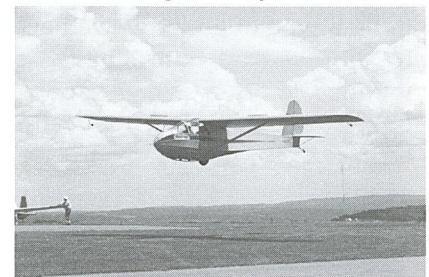
The Grunau Baby

learn to use. It thermals well, it really does. You stay up until you're miserable." (laughter)

Lars Johannson said that he was a fairly novice pilot in 1952 and was fortunate enough to fly with Jan Scott at an air park in Norway where the Germans had left a Grunau Baby and a G-30. Johannson launched in a Grunau Baby from a piano wire auto tow over a sand pit at the end of the runway. "By golly, I got over 3,000 feet. It really thermals well like Mary said. Needless to say I almost killed myself on the way back." He went into a right hand turn, not realizing that he was probably banking too steeply and was losing speed. "The airplane wanted to tip over to

the right and pull out of the sky. I thought there was something wrong with the controls, so I put the stick opposite and held it to the knee. It still wanted to go over. So I thought 'you son of a gun.' I lifted my leg and pushed the stick to the wall and it still didn't come around. I pushed all the way over to the other side, went into a spiral dive and I pulled out pretty close to the ground. One guy jumped into the ditch and lay flat as I was flying over. I got back to the starting point, but I learned that with those controls you may lose enough speed to stall if you don't watch it."

Lee Cowie commented on one of the slides showing their Grunau Baby. "Not German, it was built by the Royal Naval Aviation Fleet Ranks. They added a wheel and re-inforced it for a CG hook. To summarize, Carswell said that the Grunau Baby, "is notoriously cramped, uncomfortable cockpit, too adverse yaw, not very effective rudder, little yaw stability. No elevator trim, aero tow is hard work. Lastly, despite the pilot being relatively light, the GB is nose heavy." Final advice, if you are looking around for a glider, try it on for size.



The Schweizer 2-22

"How many people had flown, or were familiar with the Schweizer 2-22?" A collective of raising hands indicated a wave of 2-22 nostalgia sweeping the room. Jim Short (formerly with Schweizer Aircraft

Corporation) said that there were 258 completed 2-22 gliders or kits sold to home builders for around 23 years. *Ed: Production started in May, 1946 per "Sailplanes by Schweizer."*

Neil Peiffer said that flying a single person in front was really quite pleasant even in Kansas on a hot day. Because of the short rate, the roll rate is actually better coordinated than the pitch on many Schweizer gliders. Others in the room mentioned the awkward placement of the spring trimmer on the floor in the front cockpit so the heel must be used. Some in the audience said it was almost unreachable.

Walt Cannon said the "C" version handles much better. "The problem on the earlier versions was the spoilers. They were literally not there, no trim tab, no back window." Carswell said that a significant issue is trying to keep the glider's nose down on tow and staying behind the tow plane with a relatively light person (140-150 lbs.) in the front seat, "particularly if the trim is not effective or not working." He described the takeoff: "with the stick full forward the nose pitches up 20 degrees, and the tailwheel goes 'thump' on the ground."

Another 2-22ism was the tow cable positioning. The tow line could be released by the rear seat passenger inadvertently nudging the exposed cable. Limited pilot visibility was another problem. Jim Short said, "If you are carrying passengers in a high traffic place like here (Harris Hill), it's often good that the pilot sits in front where he can see and

be safer. The passenger enjoys the trip in the back seat anyway," he said. Carswell said that with the 2-22's slab side, slipping is easy.



The Briegleb BG-12

"But approach control is quite a different issue than we have come to expect in K-21s or even 2-33s. The wheel brake on the ground doesn't really work that well, but the skid will do its stuff." "BG-12, you have the floor," Carswell proclaimed, quietly adding that "it's not something that you volunteer to rig." Johannson said that he has flown one for a few years and hasn't had any problems with it. "I think that it is smooth and slick, and trimmed down," he said. He had always heard that the BG-12 was a very strong airplane, and was once told by designer William (Gus) Briegleb, that the ship was trimmed for 12 Gs positive so that students wouldn't get into trouble.

"So," Mary Cowie laughed, "I'm delighted to learn that heavy equals strong." Then she asked Jerry Wenger about his handling and the kit type, "so people can actually build something." Wenger replied that it's an interesting little ship to fly but has a very tight cockpit for him. "It has the same airfoil as the GB...the 535 high lift, high drag... Goes up great and doesn't go anywhere, though I'm proud to say that I did a Silver distance in it four years ago." He said that the rudder was very effective, but it has absolutely no feel to it, "full rudder and you don't feel it in the pedals at all. It's unsettling at first, it seems kind of strange. The BG-12 has a very tight cockpit for me, but for a short

person it would be great."

Walt Cannon was asked for his comments on the Rhönbussard. Cannon first thanked Jerry Winger and Mike Redmond and his team for their help. "Everyone should have a crew like them to rig the glider, help you into it and take it to the launch site." He said that the Rhönbussard was a very pleasant glider, with handling well coordinated. Takeoff roll (no main wheel) is on the nose skid. "It is a little short of elevator authority to come off the ground sooner than it does, and when it does it's by its own devices," he said. "There is a little tendency to PIO. Even in the crosswind that we had yesterday it is easy to control." The only thing that concerned him is the visibility. "You are sitting in a hole in the seat; there is a wing right up there (at eye level.) It is extremely hard if not impossible to see where you are about to turn. It's a taxing, if not a scary experience when sharing lift with as many gliders as are here. It requires a lot of care, but still a very nice experience."

In closing, Carswell thanked the audience for their participation in relating personal observations.

N.B. Dean Carswell passed away the week following IVSM.



Flying at Torrey Pines

Doug Fronius

With the fervor of a true believer Doug Fronius said, "Torrey Pines is a great and historic site located on the Pacific Ocean in San Diego - a wonderful place to fly." In 1992 Torrey Pines became the fifth National Landmark of Soaring on the only undeveloped section on the entire San Diego coastline south of Camp Pendleton. "We have sailplanes, hang gliders, RC models and para-



Aerial view of the Torrey Pines field

gliders all in the same 200 feet of airspace." For years the University of California, its present owner, planned to build on it, but so far has been prevented by financial limitations. The first person credited with soaring at Torrey Pines is Charles Lindbergh, who in 1928 launched off Soledad Hill and landed 10 miles away at Del Mar. The ridge is 300 feet high and angles straight down. The primary ridge is about 500 feet long. There are three kinds of flying. "On a no-wind or light-wind non-sustainable day you winch launch from a 1,300 foot runway, turn right, do a 270 to the left downwind and touch down about two and a half minutes later." On a so-so day the ridge can be flown with a minimum altitude of 200 feet above the ridge, 500 feet above sea level. In the so-called good old days gliders could fly right along the ridge. "Today," Fronius said, "you can't - no matter what, because the beach is covered

with people, and if you landed there it would be the end of Torrey Pines." While 100 feet is the official altitude minimum, 200 feet (500 on the altimeter) is the safe minimum to land.

Fronius said that all landings are downwind under case "A" and case "B." In case "C" when the wind is blowing at 40 knots, "It's great because paragliders can't fly and RC'ers (radio control) go away. Only the high-per-

formance hang glider guys are up, so traffic is not a problem." He said that on a booming day you can soar to Mt. Soledad to LaJolla to Del Mar and fly anywhere on the ridge to 1,200 or 1,300 feet. Sailplanes are limited to 1,800 feet, "because it's class B airspace and departure limited to our Naval Air Station. Watch out for F-18s. At the southern end you run into Class Bravo to the ground to Lindbergh Field."

He recalled the WWII Twenty-Nine Palms glider training school winch that his father bought as war surplus in 1945. Though an antique, the winch has been completely rebuilt and is still in use almost every weekend by The Associated Glider Clubs of Southern California (founded in 1928.) When they aren't flying at Torrey

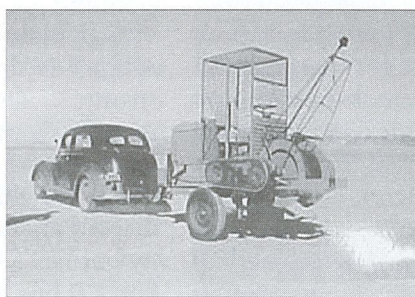
Pines they are flying out in the desert. Fronius estimates, "only about five percent of the winch parts are original."

He then showed a slide of Carl Guertney in Fronius' TG-2. "Carl is a real great guy. He did four combat tours in WWII Africa and Europe. He trained at Twenty-Nine Palms and the very first entry in his Army Air Corps log book is the Schweizer TG-2. Carl has flown with me a number of times."

Fronius said that he gives lots of rides to kids, "and I can tell you during a winch launch at Torrey in the back seat of the TG-2, it is exciting because you don't get to see anything except blue sky until you release." Although the TG-2's windows on the sides furnish good visibility, the pilot makes sure he is not drifting sideways, which is important since it is a narrow

runway. With a higher performance glider than the TG-2 pilots can fly right down on the water, dive down the cliff, do passes over the water, "so you have salt spray on your windshield.

You fall off the cliff and as soon as you are 100 feet high right against the cliff, climb back up 100 feet. There are not too many places that you can do high speed passes on the Pacific Ocean." Torrey Pines is a big tourist attraction with many parked cars. Fronius warned that



The original winch now rebuilt



Flying the vintage gliders at Torrey Pines

on a winch takeoff, if you drift south there is the danger of dropping a winch cable through a car window. "It's important not to do that; it gets people upset."

No motors are allowed at Torrey Pines as it is a motorless soaring park, "no powered ultralights or power tooled planes, or anything." Fronius said that the other challenge here is that most of the area is a parking lot for people using

Black's Beach. And to get people not to park there so you can fly sailplanes is quite difficult and takes a lot of manpower By the way, Black's Beach is a nude beach, but you're 500 feet high, so you can't see anything..."

The most likely high wind time is in the spring, February, March and April. These 90 days a year are all sailplaners can fly here because it is not an official airport. All the entities, University of California at San Diego, the City of San Diego, require insurance. Costello Insurance will not issue insurance unless flying off an airport. Fronius said that you can get a temporary airport permit in the State of California for 90 days. Those three months are the soaring season, but "you have to get permission from the state, the police department, USCSD, the FAA and the Department of Transportation. Flying has been continuing

every year on a shoestring." Crowd control is always a big issue. "It's a very interesting place, very tight. By the way did any of you watch the US Open Golf Tournament in 2008 at Torrey Pines Golf Course? They said we couldn't fly that year because they were using this area for tournament parking for trucks and things and they used it for months. They said no soaring.... That was the year we didn't fly."



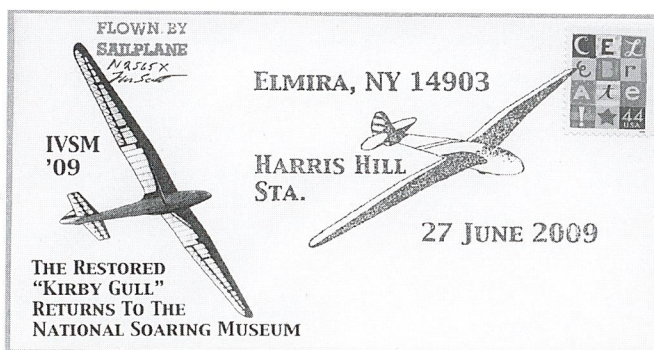
Making the south turn over the magnificent beach at Torrey Pines on the San Diego coastline.

Get A Memento of this Exciting IVSM Event

A Few Pieces of Glider Mail Are Still Available



"Souvenir" from the old covering of the Gull.
All proceeds from the sale of these souvenir flown covers will be applied to the Gull Restoration Fund of the NSM.



performance sailplanes. One of Tom's last flights in the Gull was in September 1978, when he landed in front of the new museum building at Harris Hill, as part of the opening ceremonies of the National Soaring Museum. After Tom died, his widow Pat donated the Gull to the NSM. Members of the Walworth Valley Soaring Association agreed in 2005 to restore the plane to airworthy condition. The project was three years in the making, with the bulk of the work done under the guidance and efforts of Dave Schuur. N41829 was finished in May 2009, and the ship is now prominently on display at the NSM. As of June 2009, it is the world's only airworthy Stingsby Gull I sailplane.

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Anyone is invited to contribute material and pictures with identification about historical soaring activities, renovation of old sailplanes, soaring pioneers, unusual uses of sailplanes, etc. Manuscripts are subject to whatever revisions, additions, or deletions are necessary to make the material conform to the space limitations and standards of the NSM. Material that is to be returned must be accompanied by a self-addressed stamped envelope.

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