The ALBATROS D.II

Photo Courtesy of Mathieson Collection

ABOVE: The Albatros DII takes off on the dawn patrol into an overcast sky. LEAD SHOT: A row of Albatros DIIs make ready to engage the enemy during WWI. It was cold and muddy at the front. Note the wheel fenders to keep the flying mud to a minimum.

by Jack Swift

The Albatros DII was one of the earlier two-gun fighters to be used with great success in World War I. Richthofen scored more victories in this type than he did in the triplane. Powered with a Mercedes engine, it had a top speed of around 115 mph. Small detail changes were made, but it stayed basically the same until the German authorities thought the Nieuport layout would give them an advantage. New wings were designed and the type became the DIII.

In searching for something to build through the winter months, I wanted a subject that had character, would be recognized for what it was, and not be just another SE5A or D VII.

"With a little deviation from scale, it became obvious that here was a model with potential."

The DII seemed to fit the bill. A DIII would be mistaken for a DVA which had already been done. The scale chosen—1 3/4 in. = 1 in.—gave a handy sized model 48-in. span and almost 1000 square inches of area. No dihedral means easy-to-build wings. The fuselage caused a few misgivings regarding its shape; however, after looking at all the pictures I could lay my hands on, it was apparent that the fuselage was slab sided. With a little deviation from scale, it became obvious that here was a model with potential.

Another thing I wanted to use was a .45 motor. This is not a Pitts Special so flying has to be scalelike and docile. Eyeball scale was preferred so flying would be done without hours of rigging. The wings are cantilever and flat bottom airfoil. Referring to the pics again I discovered that the tailplain was fabric-covered—this helps the balance. That these aims were achieved was almost disproved on the first flight. After liftoff the nose just pointed skyward and the plane wallowed along, threatening to wipe itself out at any moment. Full down trim was pushed in as soon as I could let go of the stick. The situation was easier now, I had to get the plane back over the field. This was when I found rudder and aileron was the best turning combination with a tweek of up elevator. Now I could settle down and fly before trying for a landing. This was easier than I had anticipated.

The first thing was to change the elevator trim. The tank was refilled and the motor fired up. The second flight, needless to say, was easier but the tail must be allowed to lift or the plane will stall without flying speed. The slow flying speed is deceptive on takeoff and landing.

After flying this model for a full season, I decided a little more power would help so I bought an old Merco 61 from a friend and built a completely new model with several modifications. These are in the drawings with the exception of the aileron drive. On the new model I use a closed loop cable drive using pulleys. The bigger engine will spin a more efficient prop and can be throttled back—a much better arrangement.

I still have both models but fitted a .66 to #1. That was eight years ago. Number 2 is my favorite. I've lost count of the flights on it. The third radio outfit provides guidance but the old Merco still provides the urge.

Flying is most enjoyable but a little technique needs to be learned. Never try to take off cross wind. A bit of right trim will help takeoff run but try to leave rudder corrections alone because it is ultra-

The finished model looks as good on the ground as it does in the air.

The cable-operated aileron controls could be replaced with push rods but the cable adds challenge. Note the wire trailing edge.

A returning Albatros makes a low pass after a day of engaging the enemy.

effective. It is better to blip the rudder if you must use it on the ground. Basically, the method is to point the model into the wind, increase power, and let the plane roll; the run should be straight with the tail up. Ease in a little up elevator to stop the model nosing over. When the speed has built up, a little more elevator will cause the plane to take off. Note that the secret is very small amounts of control takeoff. Landing is best done with power off—enough to let the plane sink. Keep everything straight and just before the wheels touch, cut the power and ease in enough elevator to stop the model nosing over. As the speed drops off, the tail will settle and, if you have done your homework right, you will roll to a straight ahead stop. Taxi back to the pit and try to act nonchalant. Despite the fixed tailskid, taxiing is a joy.

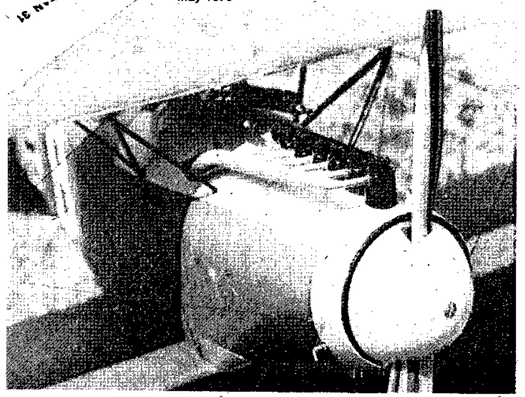
My approach to building was to start with the wings. These are straight forward—the only deviation being to use a wire T.E. instead of trying to simulate wire. Build top wing in the normal way on a flat board. Laminate tips while wing is drying, using a card template. When wing is dry, remove from board and install 22 G wire T.E. The ends are bent around the end ribs and thread loops hold wire against intermediate ribs. The wire should not make the ribs bend. After T.E. is installed, put a little epoxy on the threads and wire ends. Tips are now installed and balsa sheet glued in as a filler. This will stop the tips distorting when the covering tightens. False ribs are made as shown on the plan and stuck in place under L.E. sheet and bent over spars, then trimmed off. The ailerons are built separately with a 1/4-in. washout at the tips—the T.E. here is 1/8 x 1/4 in. spruce.

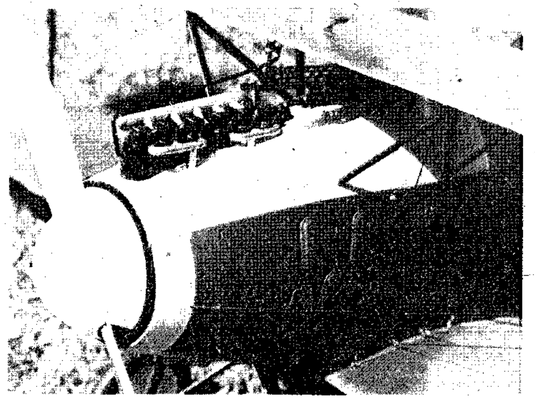
Build and fit wing cut-away (see plan) and fit strut pick-up blocks (cabane and interplane). The aileron horns are made and fitted, hinges located and preassembled to check the fit. The radiator is built of 1/4-in. balsa and glued in after covering. Bottom wing is built up the same as the top but before the tips are glued on, torque rods are slipped in place. Torque rod bearings are brass tube epoxied to the ribs at the servo end and drive take off. The center section is covered with 1/16-in. ply with servo cut out on top. Before covering bottom center section glue in hardwood blocks to hold rear undercarriage legs.

Small details added to the model make it a fine scale model that could compete with the best.

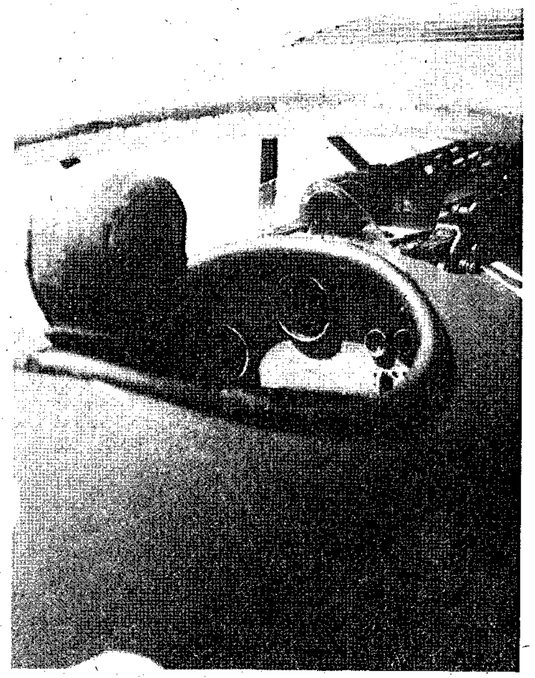
FUSELAGE

The firewall F1 is built up with engine mounts glued and wedged in place. If a





The right and left side of the front end. The engine detailing and the Williams Bros. machine guns add a lot to the scale points.



The cockpit was sparse but with enough instruments to make the Albatros fly.

metal radial mount is used, I highly recommend machined types. I have used the cast ones but they seem to fatigue and break down if used too much. When F1 is ready, cut two fuselage sides from soft 1/8-in. balsa. F2 and F3 are stuck in place making sure everything is square. When this assembly has set, the F1 (firewall) is glued in place wrapping the sides around and holding with rubber bands until the glue has dried. Next F5 is glued in and a piece of 1/4 x 1/2 in. balsa glued between sides at the rear.

When dry, F4 and F6 are glued in place. Now the plan view should look like the drawing. F1 can now be reinforced inside with fiberglass back to F2. The rear top sheeting can now be glued on to the cockpit. This will take two pieces of 3/32-in. sheet, one from the rear and another F5 to F4. The shelf for the RX and battery is now fitted and stuck in place.

The cabane is formed next of coat hanger wire. The bottom wing is fitted and set at zero to the thrustline. A piece of bass wood can now be carved to fit between F1 and F2, drilled to take the leading edge dowel (1/8 wire). The rear wing fixing should be done now. The screw is #4 into a blind nut. Then the wing can be fastened to the fuselage at zero and the cabane can now be readied for fitting. Fasten cabane to wing and make two templates of thick card. The top wing is also set at zero. The sub-assembly should now be put in place. The cabane strut is now epoxied in place, glass cloth will help considerably here. While this is setting the empenage can be built—there isn't anything tricky here. The hinges can be installed and the assembly put to one side. A 1/8-in. plywood circle is cut for the cowl—do not separate completely at this time. Drill a hole in the center to fit the prop driver. Bolt the engine in place and drill holes for fuel lines and throttle control. Position cowl ring at its station, now the fuselage can be planked forward of the cockpit using 3/16-in. balsa. Remove engine and finish cowl with scrap balsa. Servo rails can be fitted and push rods made to length. The 1/2-in. sheet balsa can now be fitted back to F6. That, basically, is the main building and the plane could be finished at this stage; however, I chose to put in more detail as follows:

When I had the fuselage ready for the empenage, I wrapped the whole front end with Saran Wrap as smoothly as I could. I epoxied on two layers of 4 oz. fiberglass mat up to the cowl lines. Then, over this stretch more Saran Wrap to make sure the contours are kept and also give a good surface. This will give an engine cowl which is adequately strong but, more important, thin—this helps cooling. After curing, the lay-up is removed and trimmed to shape.

The balsa engine bay and cowl ring can be removed at the lines shown on the plan. A piece of selastic is next put on top of fuselage in front of the cockpit. Stick down with thinners and form to shape. When dry, trim to mate with fiberglass cowl. Cowl is fastened with four small wood screws into pieces of hardwood dowel stuck into the balsa. The ply panels are 1/2 M/M marvelite ply and glued on with contact cement. Needless to say, lots of care and masking tape is needed. The panels are glued from tail to cowl. I found it easiest to glue on a panel then shape the next one. By working alternate sides a little more progress can be made. The object is to get very tight points that will show up when the paint is applied. The foregoing is rather slow but the results are a scale surface that's harder than balsa. The undercarriage can be made and installed—refer to plan. Blind nuts are fastened into bass block for the #4 screws that hold U/C in place. The tank is a Williams 10 oz. slant front, mounted across the fuselage upside down.

The empenage can be covered (I use Coverite) and glued in place. Pre-assemble the aircraft and make the interplane struts; these are spruce with 1/16-in. wire set into the ends. The holes are drilled to accept the struts then the plane can be dismantled and the wings covered (more Coverite). The covering is now shrunk but not too tight. The radiator can now be glued in place. Make sure the covering does not shrink too much. The color can now be applied. The underside is light blue, the top side camouflage brown and green. The insignia is painted on. The dummy engine was built up of 3/4-in. dowel and bits of wire, exhaust manifold carved from wood. The guns are Williams Spandaus' cut down a little to match the scale. The cowl top should be painted light grey, then the accessories attached. The wire loops are bent next and epoxied at the strut locations. When the rigging is fitted, use fishing line and make small hooks, then thread line through loops, fasten hooks in place so the tension keeps the lines tight. The spinner was made of fiberglass but could be built up of balsa laminated.

Williams wheels are used and axle is sprung scale fashion. All fuel proofing should be done now around the cowl and wing mounting saddle. The plane should be about ready for controls mounting and hinges glued in. The balance of my plane came out at 30% chord top wing; however, I added 3 ozs. ballast after the first flights. When the plane is ready for flight, a little down trim will avoid my first experience. It's easier to hold up the nose than keep it down. As I mentioned before, the flying speed is slow but do let the wings do their job before lifting off. This is not a pattern ship but it looks pretty when flying.

If you have any problems, please don't hesitate to write me. Jack Swift, 168 Royal York Rd., Toronto, Ontario M8V 2V4. RCS

ones! Short wings were hastily constructed on the spot, and an additional set plus great quantities of spare parts were rushed from the Burgess factory. Meanwhile, the Gnome engine has passed its test-runs with flying colors. But the aircraft itself remained idle.

Next, a political problem arose. It seems that Glenn Martin and Paul Peck had been disenfranchised for infractions of Aero Club rules, and were thus technically ineligible for the Gordon Bennett race. Yet, as race day drew ever closer, no other qualified pilots had stepped forward. So, the embarrassed Aero Club of America officials decided to relent, and reinstated the aviators. Glenn Martin was confirmed as "Cup Defender" pilot, with Norman Prince named "alternate driver." Meanwhile, Paul Peck was testing a new "Columbia" monoplane. De Lloyd Thompson seemed the most likely candidate to race the Aero Club's Nieuport monoplane.

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Unfortunately, the bickering persisted. As for Glen Martin, the major portion of his experience had been gained on lumbering biplanes of his own design. Yet, in a matter of days he was expected to accustom himself to a totally untested monoplane packing 160 horsepower!

In early September, the formidable French contingent arrived in Chicago, including Jules Vedrines, dubbed "the world's foremost airmaster," Maurice Prevost and Andre Frey, plus a full crew of mechanics. The English had failed to appear (". . . unable to go across the Atlantic . . ." said *Flight*), and nothing was heard from Belgium.

THE RACE

On a blistering hot morning, punctuated by only occasional breezes, a disappointingly small crowd trickled onto Clearing Field. The choice of Monday, a working day instead of a weekend, precluded many from attending. Some who *did* show up were members of the Illinois *model* Aero Club, who had received free passes to the race. Needless to say, they cast covetous glances at the remarkably smooth grass airfield! Among the many distinguished aviation personalities attending was Orville Wright, who incredibly was not recognized, and had difficulty gaining admittance to the airfield.

Except for those fortunate enough to arrive by automobile, a hot, lengthy, walk from a remote trolley stop was involved. However, the course itself easily lived up to advance billing, and was the finest to be found anywhere in the world. Boredom was beginning to infect the meager group of early-risers, but their enthusiasm was instantly revived by the sound of approaching aircraft. Flying in to spectate were Max Lillie, Howard Gill and Charles Wiggins, all in Wright biplanes, as well as Anthony Jannin in a Benoist machine. With these visiting aeroplanes safely parked, all eyes turned toward the hangars. The Aero Club of America Nieuport monoplane had been flown in the previous day, and it was expected that De Lloyd Thompson would fly it in the race.

The imposing French team with their six well-tested aircraft sparkling in the sunshine lined up in a manner reminiscent of a scene from "Those Magnificent Men," as a final official inspection was made. As the event was a competition against the clock, rather than actual head-to-head confrontation, separate starting times were assigned. The judges took their places in the timing stand, FAI representative Bernard Dufresne nodded his approval, and the course was declared open for racing.

Jules Vedrines, of France, had drawn first starting position, and soon clambered into his sleek brown Deperdussin monoplane. The 140 hp twin-row Gnome started easily, the machine was taxied out, then growled swiftly into the air, accelerating toward the first pylon. Maintaining 100 feet of altitude, Vedrines rounded the turn smoothly and began lapping the circuit at about 103 miles per hour. Gradually finding his "groove" he began increasing speed to over 105 mph, and circulated the course with great precision. Finally, after completing the prescribed 200 kilometers, he eased down to a perfect landing, accompanied by well-deserved applause from the appreciative audience.

Vedrines climbed out of the cockpit, whipped off his cap and with a twinkle in his eye exclaimed: "La force du vent m'a arrache le bouton do mon chapeaul", which translates roughly to "the force of the wing blew the bottom off my hat."

Later, Frey rolled out his Hanriot monoplane, took to the air, and was soon followed by Prevost in a 100 hp Deperdussin, much to the delight of the spectators who were treated to the sight of two machines in direct competition. Prevost in the faster "Dep" overtook the Hanriot in a most exciting fashion, swooping down to within 20 feet of the ground, and seldom exceeding 50 feet of altitude. But with far less horsepower, he was unable to match Vedrine's lap times. After 23 laps, Frey dropped out with engine troubles and Prevost went on to complete the course easily.

Surprisingly, the race was over. France had captured the Gordon Bennett "Coupe Internationale D'Aviation" trophy uncontested, with a winning time of 105.5 mph —remarkably close to E. R. Armstrong's prophecised 110 mph. At that, Vedrines had used his large "cross country" wings, not needing to resort to smaller racing wings he had brought along just in case.

SO WHERE WERE THE AMERICANS?

A post-mortem examination of the non-race reads like a comedy of errors. Explanations for non-starters varied, but were consistently unsatisfying: Paul Peck, expected to compete with a "Columbia," was unable to do so "for want of a nail," in the form of a replacement for a broken magneto part. In any case, the machine would have been uncompetitive. The explanation for De Lloyd Thompson's absence from the starting line is more frustrating, since the Aero Club Nieuport monoplane had been functioning perfectly the day before the race. One magazine mentioned a flat tire, while another said the machine was "held in reserve in case of accidents to the French team" . . . a curious statement at best. Another alibi, perhaps the most logical offered, was that the Americans simply found themselves so outclassed that there seemed no point of trying.

As to the Burgess-Curtis-Martin-Armstrong "Cup Defender," the explanation was simple and disgusting. It was the victim of too many cooks! A pity. When Orville Wright was asked by the editor of *Aircraft* what was the matter with the machine, he replied: "Nothing at all is the matter with it."

FINALE

From *Aircraft* magazine, October 1912: "France, after four conspicuous trials during four successive years, finally won the Gordon Bennett Cup at Clearing, near Chicago. It was a glorious victory, although strange to relate, there were no competitors."

Truly, it was The Race That Wasn't.

MODELING THE "CUP DEFENDER"

Here's a chance to rewrite aviation history! Since the "Cup Defender" was not actually flown, it could not qualify for AMA or FAI contests. Yet, it would make a fascinating R/C scale subject.

Changes required should be minimal. Possibly an increase in vertical tail area would be prudent, together with a forward C.G. location, at least for initial testing. Hungerford spoked wheels in any desired size are suitable, as are Williams Brothers engine cylinders.

Color: The racer was covered with Goodyear fabric which appears from photos to have been white. The aluminum hood above the engine had a glossy finish of unknown color, possibly grey. The dark wood propeller was obviously highly polished. The only markings seem to have been "BURGESS" alongside the cockpit.

Why not "turn back the clock" and give this remarkable aircraf. a second chance?

REFERENCES

In addition to those listed in Part I, the following were consulted:

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Aeronautics (England), October 1912.

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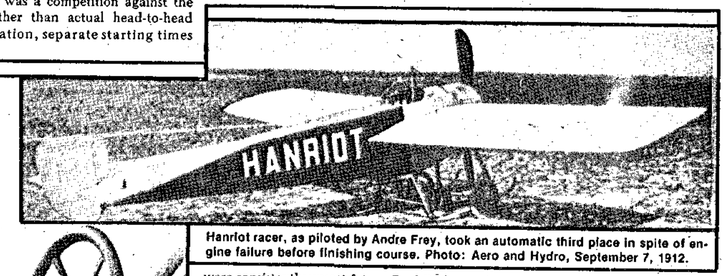
Flight (England), September 14, 21, 1912.

Fly, October 1912.

Practical Aeronautics, American Technical Society, Chicago 1918. RCS



Hanriot racer, as piloted by Andre Frey, took an automatic third place in spite of engine failure before finishing course. Photo: Aero and Hydro, September 7, 1912.

Second place in the 1912 Gordon Bennett was taken by Maurice Prevost, a Deperdussin pilot, who later won the Schneider Trophy race. Photo: AVIA, December 1911.