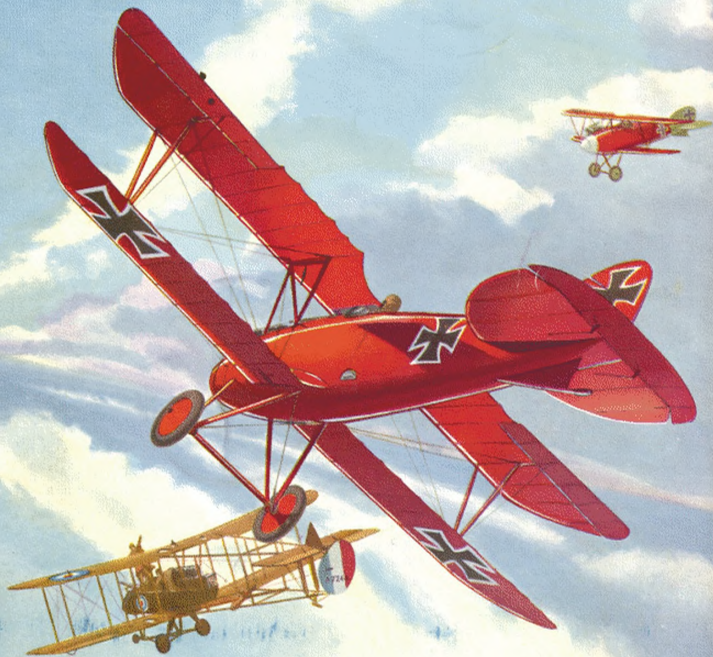
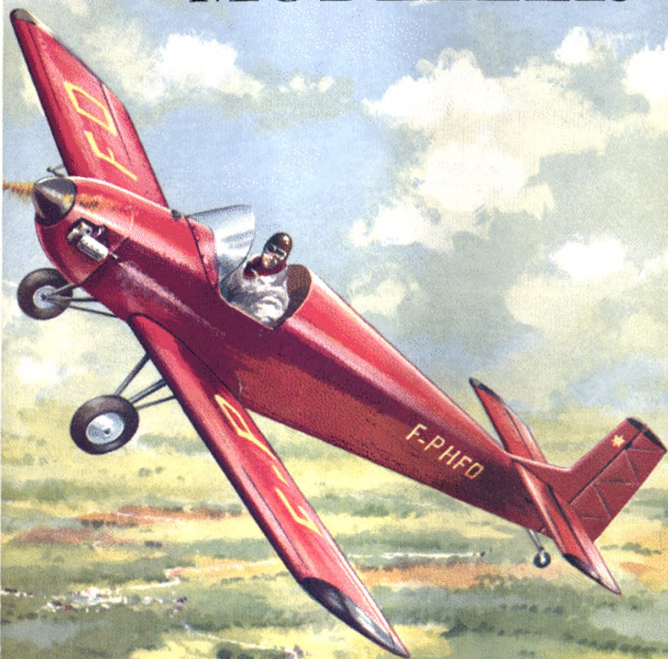


AERO Christmas 1956 MODELLER



2/6

AERO MODELLER



ANNUAL 1956-7

AN ULTRA light aircraft appears for the first time on our cover, and again as front-piece, featuring the amazing little Turbulent which Harold Best-Devereux flew at so many aerodromes this summer. H. B.-D. has provided an encouraging article on the construction of ultralights so that soon the first "aeromodeller's special" can be expected.

Younger enthusiasts may not realise that the power model is a comparatively modern development until they read this year's article on the Evolution of the Power Model. Ron Moulton has provided invaluable data on under I.C.C. engines, then we have Jim Waldron on Improving the Contest Glider, Dick Hirdes on Longitudinal Stability, Kirt Nickel from Germany on Negative Wing Forms or "Buzzard Wings". Control Line enthusiasts have some welcome new suggestions from Harry Hundleby to brighten up their aerobatics. Articles on Motor Servos, Relays, Plastics and Adhesives, and Hydraulics add to the modeller's fund of useful knowledge. Then we have a practical Slide Rule for aeromodellers.

Our usual wealth of model plans from all over the world are included as usual and embrace the best of what is amusing, interesting, fantastic, or down-to-earth practical from France, Germany, U.S.A., Yugoslavia, Czechoslovakia, Russia, Poland, Japan, Canada, Italy, Finland, Sweden.

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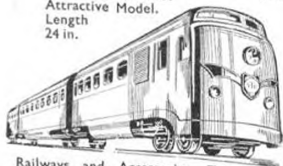
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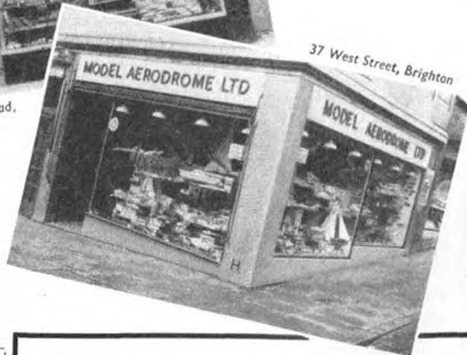
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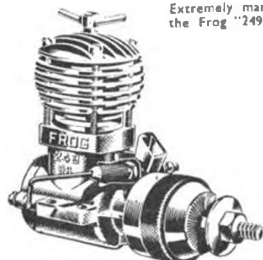
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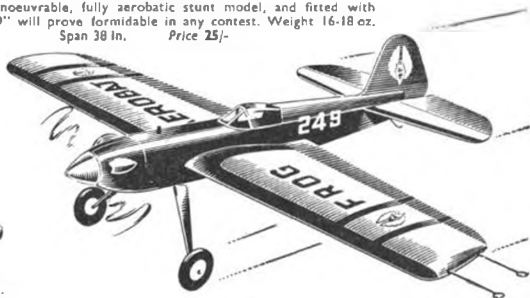
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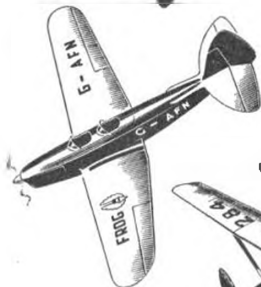
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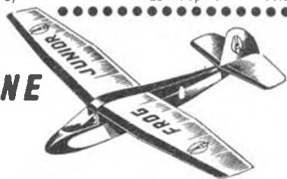
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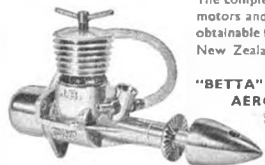
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Once again we send seasonal good wishes to all. In remembering the sad loss of our Founder, Arthur Mullett, earlier in the year, we would like particularly to thank friends, customers, and suppliers for their overwhelming condolences and, of course, their loyal support. We look forward in 1957 to maintaining and extending the Arthur Mullett traditions upon which Modellers throughout the world have learned to rely. Once again, a Merry Christmas to you all, and the best of everything for 1957.

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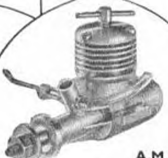
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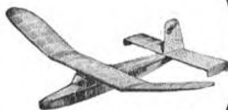
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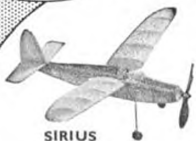
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VOLUME XXI
NUMBER 251
DECEMBER 1956

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Special features

I FOUGHT VON RICHTHOFEN	626
"CONTRA GYRO"	632
GEORGE	636
KINETIC ENERGY CONTROL	640
SEEN AT THE WORLD CHAMPIONSHIPS	648
"AIGLET"	655
AN-TICKS	656
SANTOS DUMONT	659
FEATHERFLY	661
TEAM RACING—U.S.A. STYLE	662
"TIME TRAVELLER"	664
FLAP TRIMMING	674



Regular features

HANGAR DOORS	624
STEP BY STEP	631
GADGET REVIEW	634
WORLD NEWS	638
ARMCHAIR AERONAUTICS	644
FAMOUS BIPLANES—DIII and DV	650
MODEL NEWS	666
ENGINE ANALYSIS—ETA 29 Mk. IV	668
QUIZPAGE	671
R.A.F. GEN	671
AIRCRAFT DESCRIBED—FE2D	672
TRADE NOTES	675
READERS LETTERS	676
CLUB NEWS	677



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Noel—and all that

JUST AS A MATTER of interest, we took up the very first volume of AEROMODELLER the other day, and, before we knew where we were had become so absorbed in its contents that dictation and all the other vital aspects of business went for a burton. Do you know that this is the 22nd Christmas Editorial that has been written since your/four favourite magazine made its debut?

And what a growth there has been in the hobby. Model manufacturers were very few and far between in those days, though we find Harry York advertising from his famous 171 New Kent Road address (12 inch flying scale kits at 1s. 6d. each "ideal for indoor flying"); Joe Kenworthy's Manchester shop, advertising the same type of kit; Bournemouth showing the 18 c.c. "Comet" engine—remember what an earsplitting crackle that motor produced? Frog were selling a highly detailed Miles Hawk kit for 10s. 6d., using—yes, even that long ago—fully die-cut components. Premier of Hornsey Rise advertised the 1935 Wakefield Winner for 16s., and no fewer than two firms encouraged modellers to "Increase your height" . . . no doubt as an aid in recovering those models from trees.

The S.M.A.E. in that year was in the process of re-organisation, (since when has it not been!) and a plea was made for the better control of indoor flying. Would that more attention was given to that class of modelling nowadays, for there is a great deal of fun in the building and flying of ultra-lightweight models. The re-birth of microfilmies, once the use of the Cardington balloon sheds had been obtained, created much interest, and performance increased by leaps and bounds. The unfortunate withdrawal of permission to continue the use of these vast covered spaces meant a further setback to this fascinating sport, but we learn of many enthusiasts who continue to weld their craft, albeit in much confined spaces.

British model records of those days make interesting comparison with current achievement. Gordon Merrifield held the rubber-driven R.O.G. record with 9 min. 50 sec. (today 35:00); the glider figure was held by the late W. E. Evans at 3:10 H.L. (now over 1½ hours); and F. B. Baggs had the tailless record with 1:30—now held by Wonnals with 4:56. Of interest is the power model record held by C. E. Bowden with the somewhat remarkable time of 12:48. Best power figure today is Springham's 25:01 in Class A, but it should be remembered that in those early days we did not have the limited engine run in operation.

Three club reports graced the pages of that first Christmas issue, Bradford (with George Adcock as secretary), Bristol and West with C. W. Needham filling the "mugs" chair, and the Lancashire M.A.S. Comes as a bit of a shock to note that our Man. Ed. had the other title of Hon. Sec. at that time!

Well, we trust that the greatly enlarged edition, free plans, designs, and numerous articles of this issue bears comparison with the early days. Price is different we know, but then the £6 was worth a good 20s. . . . and in our humble opinion the *far* was offer today is the best available anywhere in the field of modelling literature.



Christmas once more

SGT. WOODROW's model of the Drvine Turbulent, cleverly posed in front of one of the R.A.F. Northolt hangars, reminds us that yet another year has passed, for it was made from last December's free plan insert. If the "Aiglet", presented with this issue, achieves anywhere near the same degree of popularity with our readers as that attained by the Turbulent, then we shall be seeing a flush of A/1's in the coming season.

Aside from this feature in our pages this month, we should draw your attention to the tremendous amount of research and cross-checking (involving some hundreds of hours) which has gone into the production of the most authentic Albatros and F.E.2B. drawings ever reproduced. In our endeavour to see that AEROMODELLER readers have nothing but the best, we left no stone unturned in our search for information, and in our humble opinion George Cox has set a standard in his treatment of the "Famous Biplane" 1/48th scale solid model that will establish a new "high" in such drawings.

Aviation fans of pre-war years will rejoice in Arch Whitehouse's story of his encounter with the famous "Red Baron", for Arch was the great attraction in that much-sought-for publication "Flying Aces", now alas, no longer published as such in the U.S.A. Comments on this introduction of true aviation stories to our columns will be welcomed.

Two important functions

The Annual Dinner and Prizegiving of the S.M.A.E. takes place on December 8th, 1956, and will again be held at that venue almost synonymous with aeromodelling social activities, the Horseshoe Hotel, Tottenham Court Road, London. We presume you have your tickets ordered!

A week later sees the Annual General Meeting held once again outside the London area. Venue is the Great Northern Hotel in Leeds, and it is to be hoped that Northern modellers take better advantage of this facility than they have so far accorded

contests arranged in their districts. Many matters of vital import to the future of organised aeromodelling in Great Britain are tabled for discussion, and it is up to all enthusiasts to ensure that they are either present or represented at this very important function. Date is December 16th, 1956, and again, the place is LEEDS. (That's one in Yorkshire if that doesn't know!)

Pioneers passing

With the death of Sir Richard Fairey, M.B.E., Hon.F.R.Ae.S., Hon.F.I.Ae.S., founder of the aviation company that bears his name, aeromodelling loses a link with the early days of the hobby in this country. Born in 1887, he was educated at the Merchant Taylor's School, and at the Finsbury Technical College, where he qualified as an electrical engineer. Right from the start he took a keen interest in aviation, devoting all his spare time and energy to models with which he had achieved by 1910 a number of height, distance and speed records.

At the age of 28 he founded his own aircraft company with a factory at Hayes, and the Fairey Aerodrome became the mecca of aeromodelling activities before the last war. Practically every meeting of consequence took place at "Faireys", and Sir Richard was invariably a keenly interested spectator (We understand that the original wooden shed, gathering place of so many pioneer aeromodellers, is still standing, though somewhat swamped by the grandeur of London Airport that now covers the site of the old aerodrome.)

Pre-war aeromodellers will also recall the name of W. E. Evans with something of nostalgia, for "W.E." was synonymous with the early days of the hobby, and provided many enthusiasts with their modelling timber before balsa made its debut in this country. Mr. Evans, who was a Fellow of the S.M.A.E., passed away on September 14th at the ripe age of 81, leaving his business (now entirely devoted to furniture making) to be carried on by his sons.

Wot—no report?

A TRAGIC SERIES of misfortunes and delays having prevented our on-the-spot reporter returning from Italy in time for the inclusion of his comments in this issue, we ask the indulgence of our readers for a further month, in the sincere hope that we shall be able to grace the pages of our January issue with story and pictures of his Italian Siesta. If not, try to picture the AEROMODELLER Staff scouring the Alps complete with St. Bernard dogs in the interests of "yet another AEROMODELLER Service". Excelsior and all that!

THE LATE 1920s were aviation's wackiest period of development.

America, in particular, was flying crazy. Anyone—male or female—who could get any bundle of slats and window shades off the ground—did so; and zoomed after some sort of a screwball record.

The morticians and tombstone makers never had it so good.

The daily papers were cluttered with the antics of goofball pilots who were turning a glorious science into the laughing stock of the news-gathering world. Aviation writers ignored the technical features and were most successful when they reported the weird proceedings with knavish humour.

In most cases these irresponsible fly boys were pitiful actors in a grim Roman Holiday.

At the same time it was that heady period of pioneering, transatlantic hops, refuelling contests and practical parachute performances. No day passed without extravagant headlines concerning Slim Lindbergh, Ruth Elder, Dicky Byrd, Bert Acosta, Tony Fokker, Amelia Earhart, Clarence Chamberlain and the Three Musketeers of the Air.

But there was another character holding the public's imagination and homage in a manner that left us ex-war pilots outraged and shocked. This reverence and esteem might be compared to engraving the names of all Japanese *Kamikaze* pilots on a tablet and erecting it with due ceremony aboard Nelson's flagship *Victory*.

This character was not a Briton or an American. He was a German named Baron von Richthofen. Less than a decade before he had been lauded in the Fatherland as the world's leading air ace.

For some unaccountable reason, von Richthofen overnight became the most talked of hero of all times. With one sweep of international hysteria Billy Bishop, Jimmy McCudden, Roy Collishaw, Eddie Rickenbacker, Albert Ball, Frank Luke and Mickey Munnock were flushed into the discard. Von Richthofen's legendary deeds were items of everyday conversation. Toy models of his scarlet biplane outsold others (particularly in America) ten to one.

Not only in the United States was he revered, but for a time he was a national hero in Britain where penniless R.A.F. heroes were twirling street organs and begging a few coppers in the gutters.

This unseemingly reverence was created by a serial titled: "The Red Knight of Germany" written by Floyd Gibbons, one of the more flamboyant American publicists of the day.

According to Gibbons, von Richthofen destroyed 80 Allied planes between September 17, 1916, and April 21, 1918, when he was shot down and killed. His finish is as legendary as his fighting history and may be worth an additional article one of these days.

Strangely enough, the Baron's list of "victories" is made up only of British flyers; no Americans, French or Belgians are included—in spite of the fact that von Richthofen's career ranged over fronts where he could have encountered airmen of these services.

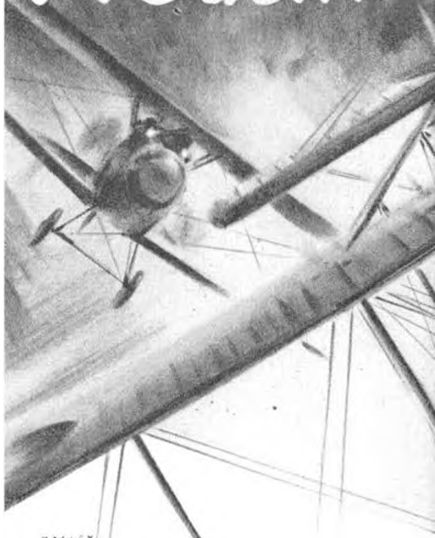
So great was the scarlet aura built around this Prussian that any World War I airman who admits having tangled with von Richthofen is looked upon with suspicion. It is generally conceded that most Allied airmen who engaged him never lived to tell the tale.

★ ★ ★

On April 13, 1917, I met and fought Baron von Richthofen.

In the late Baron's records I am listed as his 42nd victim. Paradoxically enough, it wasn't until ten years

"I FOUGHT



Laurie Bagley, well known for his W.W.I. scale models did this charcoal original and the thumbnail embellishments

later that I learned who my opponent had been. Until late in 1918 I had never heard of von Richthofen, although I had been flipping around the Western Front since the spring of 1916.

I was personally acquainted with Captain Ball, Georges Guynemer, Billy Bishop, Jimmy McCudden, Rene Fonek, Charles Nungesser and Raoul Lufbery. I was to learn of Eddie Rickenbacker, Werner Voss, Oswald Boelke and Major Baracca. I was to meet Roy Collishaw, Clarence Hurtney and Bill Barker, but I never heard of Baron von Richthofen until a few days after he had been killed.

The legend of von Richthofen still lives, but how great he was will never be known because at best von Richthofen was a manufactured hero. When he emerged from a flying school the great Max Immelmann was gone; the mighty Boelke, hero of 40 confirmed victories had plunged to his end in a mid-air crash with one of his own men. Dozens of other Iron Cross performers had gone down under the relentless attacks of Allied airmen.

The British had overcome the initial advantage of Fokker's front-firing gun and the new Sopwith Camel, the SE-5 and the incredible Bristol Fighter were taking the play from the Kaiser's war birds.

BARON VON RICHTHOFEN

by Arch Whitehouse



Germany needed a new air hero to bolster the dwindling morale of the front line *Staffels* and von Richthofen got the nod.

They might better have selected Werner Voss, the renowned Checkerboard Ace; but they wanted a more regal representative and von Richthofen was of the nobility while Voss was merely the son of a Krefeld dyer.

Voss is credited with 48 victories, scoring 22 in 20 days; and they are all confirmed. Von Richthofen took credit for 80, but of this braggart total 21 are in no way recorded or accounted for in the official archives in Berlin. How many of those listed beneath his name were actually downed by his guns, is anyone's guess.

Actually, von Richthofen was a phony. He began his flying career as an observer in a two-seater squadron; but proved to be a bush-leaguer in that role. Nor was he considered first-class fighter material while taking his pilot's ticket; but he gradually developed a methodical dash and an ability to organise and plan his operations. In that manner—according to the Gibbons' legend—the most feared man on the front.

But apparently this delusion of war-time glory was a family phobia. Lothar von Richthofen, the Baron's younger brother, was moulded in the same cracked pattern.

After Captain Albert Ball, the famed schoolboy ace of No. 60 Squadron, R.F.C., was reported missing, Lothar immediately claimed to have been the pilot who had shot him down. Unfortunately, his report was incorrectly dated and in it he declared he had shot Ball down in a Sopwith triplane, whereas the young British ace was flying an SE-5 scout. Furthermore, the British have produced unquestioned evidence that Ball was shot down by a machine gunner hidden in a church tower at Annouaulin. Actually, this younger von Richthofen was on leave in Berlin when Ball went west.



I was one of that happy band of adventurers who volunteered from America and crossed the Atlantic in 1914; not to fight for democracy. I am not certain I had ever heard the word until President Wilson was to make it a household word some two years later. I was young and idealistic enough to believe that a gross military power was acting with oppression. I felt that something ought to be done about it. Nationality, flags or government had nothing to do with my decision.

I claim no personal achievement of great patriotism, for I was one of about 250 other volunteers who went when the war drums first rolled. I simply wangled my way to Halifax, Nova Scotia, and from there worked my passage to Liverpool on a cattle boat feeding 800 horses destined for the British army.

Once in England I joined a Territorial Yeomanry regiment that went over to France on November 5, 1914. The outfit was soon dismantled, of course, and it saw the beginning of trench warfare and the last cavalry charge of that war at High Wood on July 14, 1916.



What I had experienced in this decorated organisation had disillusioned me about the glories of battle and the hope I might one day enter across the Fields of Flanders with six Uhlans spitted on my lance. Just prior to the Battle of the Somme I had seen an old pusher biplane do battle with a Jerry fighter and from that minute on I relinquished all desire to emulate any of Mr. Kipling's foot-slogging 'heroes.

Reasoning that there would be no horses to groom in the Royal Flying Corps and that not so many people shot at you at the same time, I applied for a transfer and within a few days wound up as an aerial gunner aboard the Fee Biplane-fighters of No. 22 Squadron.

The Fee, actually an F.E. 2b (Farnham Experimental) was an ungainly pusher. The tail assembly was carried on four flimsy bamboo booms and the engine set in a nacelle built up on the main spars of the lower wing. The pilot sat just in front of the engine and the gunner or observer had a blustery post out in front. Armament was composed of two rifle-calibre Lewis guns. One was mounted on a telescopic-pipe arrangement and could be pushed up and fired over the top plane. It could, if the gunner stood with his feet on the upper edges of the nacelle. This acrobatic contrivance was provided to offer some defence against enemy aircraft attacking from the rear.

The second gun was mounted on a piece of gaspipe swivelled in the centre of the gunner's cockpit and could be fired at targets ahead and below.

It was aboard this Goldbergerian monster I put in most of my 740 hours over the enemy lines—as a gunner. In due course, I graduated from two-seaters and became a single-seater (Camel) fighter pilot. However, during all this aerial gunner time I was conscious only of an impersonal enemy. I knew the Fokker and Albatross planes flown by the enemy and I knew how to fight them. The personal factor never entered my head.

This is a point I have tried to explain for years. We on the front did not know the names or faces of stars like Wolff, Schaeffer, Lowenhardt or von Schleich. We just called them all Jerries. We could not recognise individual characters in the air since, like us, they were always bundled up in some shapeless equipment, goggles and fur-lined chin-pieces. Oh, a few star performers went in for brightly decorated machines but the fortunes of war made it highly improbable that they would be flying the same aircraft day after day.

On one occasion during the Battle of Cambrai I did three patrols in one day and used a different battleplane each time.

On April 13, 1917, von Richthofen returned from a patrol and wrote in his log: "Victory No. 42—between Monchy and Feuchy; Vickers-2; two occupants, their fate unknown, downed behind the British lines."

The details (my version) of this incident are still clear and distinct in a little black notebook I carried on all patrols in those days. The page is dirty, wind-torn and oilstained. My notation read as follows:

10:30A-7244
4-13-17Captain Bush
	Clouds at 4,000
6 E.A.11:30 over Lille
10 E.A.12:10 over Roulers

Engaged12-35
Shooting at usA E.A. over Roulers
Shot down near Monchy Red Plane

The interpretation of these cryptic notes is as follows. We took off at 10:30 a.m. in a Fee No. A-7244. My pilot was a Captain Bush with whom I had been flying for several weeks. Our six-ship flight was led by Captain Carleton Clement of Vancouver, B.C.

We were slated for a camera-protection show for we were considered hot as fighters and practically every man in our flight had a good score. The camera planes as I remember were RE-8s (affectionately known as Harry 'Tates) and we rendezvoused with them over Arras.

Those clouds encountered at 4,000 feet were no help for good reconnaissance work and I have another note in my book which reads: "There are the camera planes—over Arras. I see eight E.A. (enemy aircraft) coming up from behind Douai. Better keep our eyes open." This information I showed to my pilot to make certain he was aware of the whole situation. Why I was so precise will be understood later.

Von Richthofen's Circus, I have since learned, was operating from the village of Marck, a few miles north of Courtrai.

There's always something hackle-raising about a photography show. You seem to be continually held up for some situation that is never quite clear or justified. But here we were with half-a-dozen Fees and three sluggish old camera busses. The Boche were stalking back and forth only a few miles away and watching us like vultures.

I sensed they were climbing for height, but figured since we had nine aircraft against their eight and had flexible guns to compete with their fixed weapons we stood a reasonable chance of holding them off. Below, I could plainly see the camera crews hunched over their equipment.

When at last the camera ships signalled that they had their pictures, we turned back toward Arras and escorted our photo aircraft back toward the line. A few Jerry anti-aircraft guns belched at us but we ignored them.

Up to that point it looked like we had picked a cushy show and I devoted a few minutes to routine observing and taking notes for the report I was expected to turn in for Wing H.Q.

Suddenly, out of nowhere came a cavalcade of Albatross D-3s that did not waste a slug until their props were almost chewing up our rudders. Fortunately most of the other gunners were more alert than I and they opened fire smart enough to at least make the attackers break off.

I managed to get up on my locker and fire a few frantic bursts over our top plane and thanked my lucky stars some of the other boys had been less interested in routine matters. When I lowered my gun and set out my office again the camera planes were beating it across the line with their priceless plates.

During this short action a green-and-white Albatross went down carrying a blue-black smoke streamer. I have no idea who got him. I didn't.

They came in on us again. I was fascinated by their blue noses, red wheels, green prop-bosses and yellow-striped wings. I was came at us from a stiff angle that had my gun blocked off by my own wing-tip. I tried shooting through the struts until flush yelled at me, so I climbed up on the edges of the nacelle again and used the rear-action gun.

Another Jerry went down in flames, throwing his tail away as he twirled to his finish. Captain Bush dived over the Fee all over the sky and we finally managed to drive off the Germans. Nevertheless, Bush continued



to stunt with wild evasive tactics—until he stunted us clean out of the formation!

"You all right?" he bellowed.

I nodded and wondered where the rest of our formation had gone. There didn't seem to be an aircraft of any nationality anywhere in Europe. It was that lonely.

Next, instead of beating it for our side of the line, Bush turned north. I gave him a questioning stare, but he just sat there wearing what we now call a dead pan.

"You're heading for Roulers, you know," I explained and showed him our position on my map.

He squinted, nodded and seemed perfectly contented. I pointed ahead where I had spotted an enemy formation of about ten machines only about two miles away.

"Theirs or ours?" he inquired.

I glared, crossed my two index fingers to indicate enemy insignia. "Theirs—and there's too many of them!" I yelled.

Still he flew on studying them with his calm grey eyes and finally to my consternation turned east, heading deeper into enemy territory.

I should explain that while Captain Bush was a most skillful pilot and had already won the Military Cross one of his cosier qualities was that he was never quite sure where he was, so again I explained our position to him.



He peered at my map for several seconds and gradually the truth began to sift through. A clatter of Ack-Ack fire made us dance with concussion and four "black carnations" blossomed dead ahead. I took a second or two to write: "10 E.A. 2:10 over Roulers."

Then out of the sun-gilded blue they came. Four gaudy Albatri! I glanced about and discovered that in spite of a vague intent to turn back to our line, Bush had somehow managed to stay over Roulers. I gave him a dirty look as I could contrive and whirled on the Jerries.

Bush gave me a splendid opening and I was able to snap home a telling burst. They were coming on in a tight Vee-formation and I knew it was impossible for more than one to get a real bead on us since they were armed only with fixed guns. As long as I could make them point their gaudy noses elsewhere, we were in clover.

The oncoming leader took my first packet smack in the nose. He zoomed up so stiff the others had to swerve sharply to clear him. As they split up I swung my front gun in a hosing motion and lashed them from all directions.

They moved off and reformed behind us. I had to scramble up on the nacelle again to man the one gun that provided an arc of fire over the top plane. Only three came back this time when I blazed away and for a few seconds I was panic-stricken for Bush was throwing our Hue all over the sky and there I was holding on with one hand and hosing the sky with the other.

When Bush stopped his wild antics only one of the Albatri seemed to be left in action. This one was a scarlet baby and again I was fascinated by his gaudy get-up. Nevertheless, I yelled to my pilot: "Beat it! There'll be more of them if you stick around Roulers. I know these Albatri devils!"

Believing he would finally take my advice I concentrated on that very red Hun who came out of the second

flurry. He was a persistent swine and I wasted a lot of valuable ammo on him from my breezy position astride the nacelle.

It was then we got ours!

From somewhere below echoed a terrific burst that crashed through everything we had. It was a distinct metallic bang followed by a terrifying rattle. I stayed up there wondering what had happened and the first thing I noticed were several gaping holes in the upper wing.

Bang! Clank! Bang!

It was one of those situations where your first impression offers the possibility of someone throwing flat irons. The holes in the top wing were bigger than my gloved fists. Our machine jerked and dipped and I pondered on the comforts and conveniences of a German prison camp.

I was positive we had no hope of making our lines the way this Bush bloke had been courting Roulers. I just hoped we landed right side up.

The Fee leaped again and I tried to catch Captain Bush's eye but he was twisting back and forth in his seat, obviously looking for the lout wielding the sledge hammer. I saw him paw at the ignition switch and then I peered about to see where the enemy aircraft were.

It was then I noticed that our propeller had stopped, but instead of being in the usual position, the four blades were facing up toward the sky.

For an instant I couldn't figure what had happened. At first I presumed we were in some sort of a nose-dive, but when I glanced down at Bush he was sitting in a normal position. I looked back at the propeller again. It was still showing the flat sides of its blades to the sky!

This was a very strange situation to me.

Another chunk of old iron went through the top plane and that red devil screeched over our heads. I tried to spray a burst at him but another Hun in a giddy get-up incorporating a white nose and a green tail swished past our rudder, so I gave him a dose.

My now Bush was shouting at me and his words were clear and distinct since the acoustics had been somewhat improved with the failure of our engine. He was saying nothing of importance and I was still trying to figure out what had actually happened to us.

It turned out he wanted to use one of the guns—having little else to do; but I stayed up on the edge of the nacelle still wondering about that crazy propeller.

While taking pot shots at the Albatri I finally realised that the rear portion of our engine had somehow been cut away and the crankshaft had buckled in such a manner that the four-bladed prop was left in a horizontal position. Later, it was disclosed that a chunk of Ack-Ack shell had slammed through the crankcase and severed a connecting rod. The lower half of the con-rod had continued its merry whirl and had completely severed the last two cylinders away and then split the crankshaft, leaving the propeller resting on the lower tail booms at this fantastic angle.

But there was no time for mechanical theorizing. That red Hun was still acting nasty. I tried to hold him off, but whenever I got a bead on him that green-tailed swine would smash in from the other side and between them they had me leaping up and down like a leather-padded shuttle.

Finding himself with very little to do but hold our hulk in a reasonable glide, Captain Bush had odd moments to sit and laugh at me—which he actually did! I suppose I did look ridiculous and I know I was acting wilder and more scared by the minute. I knew we were not winning this time and I had reasons to believe I was probably experiencing my last few minutes on this earthly vale.

Gradually, my old dread of cowardice rifled through me and I resented playing this ill-omened role. I suddenly switched to a mad display of recklessness that roiled up into a scarlet fury. It was not because that Albatros was red. That point never entered my mind. I believe I was more afraid of that green-tailed merchant who continued to snipe with such devilish timing. The red Albatros didn't bother me at all.

At the same time I worried about Captain Bush and wondered what weird trick he'd get up to next. I knew he might try to "go around them", forgetting we were out of power and no longer "on strength". I had to make sure he would continue to glide toward our lines.

I took a quick glance at the landscape below.

"Go that way!" I yelled, "and dive like hell!"

We dove!

On the way down the two Jerries hanged at us with everything in the boxes. Bullets smashed our struts and slashed long tears in the fabric. Bush huddled back as close to the engine as he could and held the stick between his knees. I hoped he'd stay there and get me down safe, but in the meantime I had to remain in the open and keep my gun in action.

In the von Richthofen report the Red Knight states he was flying with a Lieutenant Simon and that after a long flight, "during which I so manoeuvred that my adversary could not fire a single shot at me, the enemy plane plunged to the ground between Money and Feuchy."

That statement was typical of the German braggart. Perhaps I did not fire a single shot at him, but I certainly poured a lot of short bursts in his general direction. His pal Simon went home somewhat the worse for wear. (I have since learned that he actually crashed.)

At any rate they both broke off as we neared our own line and I might add that nothing they had fired at us had done any serious damage. An anti-aircraft shell had downed us, not von Richthofen. But we had most certainly crashed two of his mob.

We managed to slip across our trenches through clots of whiffy smoke and the crackle of machine gun fire. We took it because we had no choice and I was most relieved to see men in khaki waving up at us as we slithered in to safety.

Bush sat grinning at me until time came for him to give attention to our forced landing. Monchy was only a mile or so inside our lines at that time and we had glided about twelve miles which would put the actual point of attack near Arleux.

The last I saw of the Red Knight that day was when he and his pal were beating it past some Jerry balloons with six British Sopwith Camels in hot pursuit—and I didn't blame him for exhibiting haste.

The Jerry long-range gunners continued to bang away at a low angle, but Bush made a very good landing, thumping across a shell-pocked field and coming to a halt about ten yards from a low scrappy hedge. We sat there for several minutes, Bush laughing contentedly while I tried to get my breath and relieve the knots in my stomach muscles.

"You all right?" he finally inquired.

I nodded but looked myself over to make sure. My leather jacket was in ribbons and splintered shrapnel crunched under my feet like furnace clinkers.

"Are we on the right side of the line?" he asked. This was the gentleman who persisted in floating about over Roulers.

I hooked a thumb backward. Three British Tommies came charging through the hedge.

"My word! We are lucky."

"A very nice landing, sir," I said and prepared to crawl down.

"You chaps all roit?" a blustering Cockney bawled at us.

"Yes thanks. Quite all right," Bush replied.

"You ain't 'arf lucky, you know." Tottenham Court Road blared back. "Know who it was you was fightin'?"

"Oh, a couple of giddy Albatros blokes," Captain Bush grinned.

"Albatros blokes?" the Cockney gargled. "Look 'ere, mate. That was the Bloody Baron. Didn't you see 'is red plane?"

"Oh stow it," Bush said pulling out his cigarette case.

"I know it was!" the Cockney insisted. "We've seen 'im dozens of times."

"Who?" I broke in finally.

"The Bloody Baron!" he said in a husky tone. "Gawd! I thought all you Flying Corps chaps knew about 'im. Mark my words mate, you ain't 'arf lucky."

"Well," I chipped in, "perhaps we are lucky, but we knocked two of his mob down before that chunk of ack-ack shell . . . or whatever it was, got us. That's what winged us, not your Bloody Baron bloke."

The Cockney couldn't make head or tail of what I was saying and when I slipped out of my heavy jacket he was further amazed to see that I was just as common a private as he. His puzzlement was pitiful.

"So it's the Bloody Baron, this week," muttered Captain Bush who had spent many months in the trenches. "Leave it to the gravel-crushers. They'll find someone to idolize. Tomorrow it will be a Mad Major and the next a Green Griffin. Up in our old slots they once swore they saw a girl flying a German plane. Let them enjoy themselves."

The Cockney went around to take a squint at our damage. "Cool Ain't you lucky, though?"

We scrounged around, found an artillery outfit and invited ourselves in for lunch. There, too, we got a message through to the squadron. They sent a lorry up to collect what remained and we didn't get back until late that night—but in plenty of time to be available for an early morning show the next day.

But something about that scrap got under my skin. Somehow I couldn't forget that red plane. I never knew who the pilot was then, but ten years later I happened upon Floyd Gibbons' book and immediately remembered the camera show.

Outside of the mistaking our Fee for a Vickers the details of von Richthofen's report fitted perfectly. The mistake was made time and time again since both the Fee and the Vickers were pusher biplanes with the same seating and armament arrangements. The Vickers, however, was powered with a rotary engine, a feature that might be missed during the heat of an engagement.

But we were NOT shot down and we were not the Bloody Baron's 42nd victim in the sense he hoped. We had been disabled by anti-aircraft fire—the only such experience I was to have in many months of front line flying.

Still, as our Cockney friend explained over and over again: "Coo! But weren't we lucky?"



Aeromodelling Step-by-Step

MAKING SYMMETRICAL
SECTION WINGS

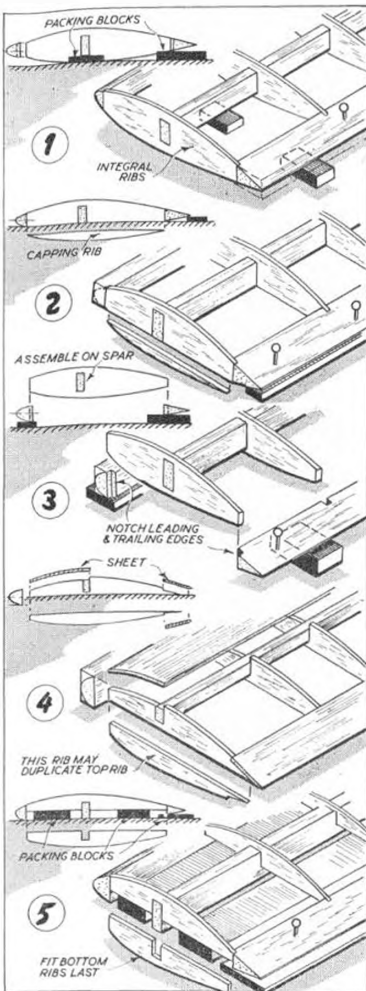
THE STRAIGHTFORWARD method of building a symmetrical wing is as in (1). This entails packing up the mainspar and trailing edge the correct amount off the plan. Only the trailing edge is pinned down at first. Rib positions should be marked on the spar, and the ribs then slid in place, but not cemented. Cementing the ribs into the trailing edge then enables the assembly to be laid out directly over the plan. The leading edge is cemented on last. After checking the alignment, the ribs can be cemented to the spars. Notching the leading and trailing edges accurately provides an automatic alignment for the ribs.

Building a symmetrical wing flat over the plan entails splitting the ribs. The method shown in (2) is only applicable where the leading edge and trailing edge members are the same depth, which is a little unusual (usually the leading edge is deeper than the trailing edge). The resulting spar position is not perfectly symmetrical with regard to the rib depth, but this is of little significance. This is a simple method of building the wing very accurately and can be adapted to thinner trailing edge sections if the trailing edge is blocked up the appropriate amount to compensate. It is most important that where a shaped trailing edge has to be blocked up it is positioned correctly with regard to the centre line of the rib. Otherwise you will end up with a wing having either a reflexed or flapped trailing edge. Such differences are far more likely to affect the performance of the section than the actual shape or profile of the section.

A generally satisfactory method of building a symmetrical wing with integral ribs is to locate the leading and trailing edges accurately over the plan, blocking up the required amount. The ribs are then assembled on the spar and then cemented into the leading and trailing edge slots (3). Again alignment of the ribs will be automatic if the slots are cut accurately (a small warding file is the best tool for cutting slots); and the ribs are cemented to the spar as the final operation. The ribs should always be cemented in place whilst the assembly is still pinned down over the plan. If done after removing from the building board, contraction of the cement on drawing may induce warps.

Symmetrical wings can also be built split along the exact centre line of the ribs. In this case the leading edge must be added later and the trailing edge must be built up. Then the first half of the wing can be laid out as in (1) and the under ribs, under trailing edge and leading edge added after the first assembly has set and removed from the building board. It is not an entirely satisfactory method since there is some possibility of distortion in completing the assembly. Also fitting on the leading edge is not too easy for a perfect joint line along the whole length of the leading edge sheeting. This sheeting could be added later (e.g., as the final stage), but this increases the possibility of distorting the structure.

A very accurate method involving identical wing rib halves is shown in (5). Preferably the leading edge and mainspar should be the same depth, when these can be pinned down flat on the plan. Only the trailing edge then needs to be blocked up before pinning down. Long packing strips are then laid between the leading edge and spar and spar and trailing edge as "bottom" supports for the ribs, when cemented in. When set, the assembly is then simply inverted over the same packing blocks, pinned down again as an extra precaution, if desired, and the set of bottom ribs cemented in. This method can also be adapted to shallower leading edge sections if provision is made for blocking up the leading edge.



No torque troubles with this Canadian twin-rotor egg beater

LAURIE ELLIS'S

CONTRA-GYRO



"CONTRA-GYRO" is the result of curiosity rather than design research! Having built a couple of normal autogiros, Laurie Ellis was prompted to see what would happen using contra-rotating blades, for it had been noticed that with the normal autogiro one could experience difficulties with certain trim conditions. It was thought that, with one rotor cancelling the torque of the other, it should be possible to trim for left or right turn, or to have straight ahead flight—also the fuselage should not counter-rotate on descent.

The model resulting has come well up to expectations, for one can fly it in calm conditions from an area smaller than a football pitch, and it answers trim in a docile manner with no apparent vices.

This model is not recommended for beginners. All components employ ordinary construction, but accuracy must be assured for the rotor shaft and hub. The whole secret of successful autogiro flying rests on the correct angles of rotor shaft and blades.

Rotorhub Assembly.—Hubs are shown full size, and the specified 14 s.w.g. wire should be adhered to. Cut tinplate discs to size and drill to accommodate copper or brass tube bearings. Tin the surface of tubes where they will contact the discs; surfaces of the discs; and the root end of the rotor arms. Jig the hub assembly by using a piece of board about 8 in. square, drilling a $\frac{1}{4}$ in. deep hole to accommodate the bearing.

Mark out position of the rotor arms and insert hub in jig, making sure it is vertical. Slide on one disc and locate rotor arms in their proper location, holding in place with pins. (Note.—Dihedral angles, etc., are bent into the arms AFTER the hub is assembled.) Firmly solder the arms in position, using plenty of solder to ensure firm holding. Now slide other disc in position and sweat into place.

The second hub is made in similar manner, with blade connectors pointing in the same direction, bearing in mind that, when mounted on the shaft it will be inverted to allow opposite rotation. Once the hubs are completed bend in 3 degrees dihedral in the lower hub arms, and 4 degrees in the upper. Bend the blade connectors to give minus 5 degrees angle of attack.

Fuselage is a straightforward box construction, but it is important that Former 2, which has the rotor shaft sewn to it, is set so that the backward slope of 5 degrees is incorporated. Engine bearers must be positioned to accommodate motor employed.

Tail and fins are of normal construction, as are the **Rotor Blades**. Note that the blades are completed before the hub attachments are cemented in place. The

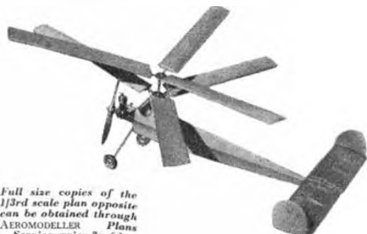
simple method of attachment allows the blades to be simply dismantled for repair or transportation, the rubber bands holding the blades firmly by passing from the hook under the arm and back to the hook. The rotor shaft should be rubbed with graphite to ensure smooth operation, and the retention of hubs on the shaft can be by means of a soldered washer, or the shaft threaded to take a small nut, thus making for ease of transport.

The engine is mounted with 5 degrees downthrust and 3 degrees right sidethrust.

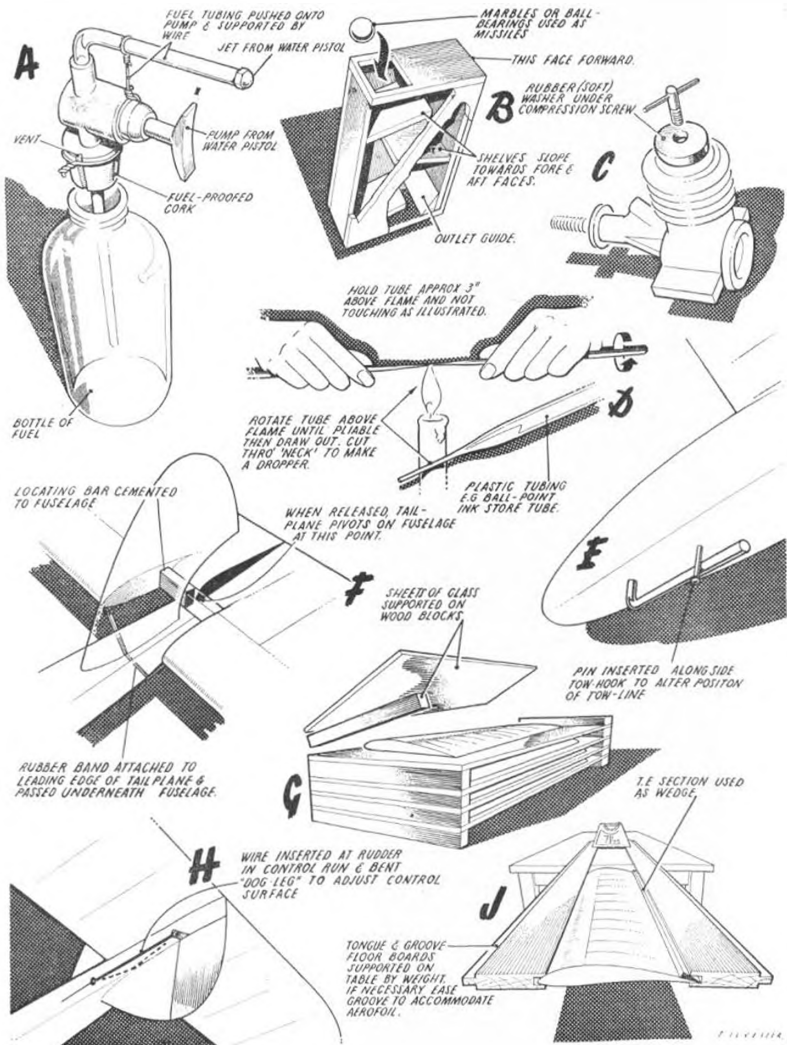
Trimming and Flying.—Test glide by holding the model at arm's length overhead, walk into the wind to get the blades spinning, and then—with the nose level—release the model with no forward thrust. If the C/G is where shown on plan, the model should slowly descend in a slightly nose-down attitude.

Carry out initial power flights over long grass for safety, with engine running at half speed for about 15 seconds. Walk into wind until the blades are spinning rapidly, holding the nose pointing upwards at about 30 degrees. When blades are spinning fast, stop forward movement, lower nose to level attitude and release the model. If model stalls, pack up leading edge of tail by $\frac{1}{8}$ in., or if model dives place similar packing under trailing edge. Compensate any tendency to slide to the side with rudder trim tabs.

"Contra-gyro" is very robust and can take a lot of punishment, and will give hours of fun. It is by no means a contest flyer, but is ideal for sport flying and will give hours of fun. Vertical rate of descent is very slow, so look out for thermals, for this model can take advantage of such lift as well as any winged machine.



Full size copies of the 1/3rd scale plan opposite can be obtained through AEROMODELLER Plans Service, price 3s. 6d.



WITH THE CHRISTMAS festivities fast approaching, it is only fitting that our opening item should be one not entirely disconnected from a little light-hearted banter. Gadget **A** concerns a water pistol of the variety that has been used by team race pit crews to wage battle with one another when they should have been counting the laps—and it uses the liquid dispenser for priming an engine or filling a tank. Take one pump mechanism, attach two lengths of neoprene, fit brass tube in the outlet for tank filling, or the water pistol nozzle for priming, and adapt the other (feed) side to fit a work and enter a bottle. A few pumps will fill the gadget ready for action, and presto! each push on the plunger delivers a squirt of fuel wherever directed. Robert Lawther of Stockport

alongside the towhook as a temporary remedy and it works well. Still on the glider track, gadget **F** concerns the tail unit as used for dermalising action of K. Brown's models from York. Make a cut-out about 1 in. deep in the tail leading edge which is the same width as the tailplane platform and a block stop. This serves the dual purpose of keying the tailplane in position, and, with the hooks for the rubber bands fixed as shown, ensures a positive "pop-up" d.t. action every time. Mr. Brown also sent in **H**, which, although widely used by many glider enthusiasts, will probably be appreciated by the thousands who seek an easy way to auto-rudder line adjustment. Simply set a length of 22 gauge piano wire in the control run, and bend until the slack is taken up in the line.



Gadget 'Review



sent this one in, and he tells us that a coat of fuel proof on the cork is to be advised.

Keeping to the novelty side, idea **B** is a bombing device that might have other applications for any fertile mind to develop. It comes from W. G. Carver at school in Colwyn Bay, and is rather like an enlarged matchbox with a series of baffles inside, set at alternating angles to one another. This is set in a fuselage, and a suitable missile dropped in at the top. During the course of a flight, the missile tumbles from shelf to shelf and finally drops out of the bottom. . . ker-r-r-rash!

T. M. Unsworth of Stockton-on-Tees, had his fill of diesel compression levers slackening off, and apparently missed the dozens of gimmicks that have already appeared in this feature to cure the fault. So he thought up **C** where an ordinary pencil eraser is cut into a disc, drilled smaller than the diameter of the compression screw, and sandwiched between the cylinder head and Tommy bar. As the comp. is tightened, so the rubber is compressed, and the tension is sufficient to hold the setting indefinitely. Great benefit is that the engine is unmarked in the process.

Idea **D** could well go in collaboration with **A**, for it is an ideal way in which one can make fine diameter priming nozzles for fuel cans. A. Teleki of Whitechurch suggests using an old ball-point pen ink container, which is washed clean with glycerine or thinners, and then heated over a candle and drawn out when supple. It cools in a hard state and is just the job for getting into baby engine exhaust ports.

E is one of those very useful quicky thoughts that come in so handy when out on the field trimming a new model. Frequently it so happens that the new glider won't behave on the towline and the hook position is suspect. R. A. Shuter of Birmingham has used a steel pin pushed into the fuselage bottom

This may come in handy for *Aiglet* builders too.

Back in the alphabet to **G** which is from an aeromodelling glass salesman, who has a fine use for oddments obtained from his trade. As seen in the sketch, this is a model storage arrangement and one which will keep those flying surfaces warp free when put aside to await the next outing. Odd ranges of glass in narrow widths suitable for tailplanes and flat wing panels, can be obtained quite cheaply and trimmed with a Woolworth's glass cutter. Get blocks of balsa equal in thickness to the actual tail or wing to be stored, and sandwich the model part with glass as shown. There's nothing so flat as a sheet of glass, and the slight pressure of each succeeding "layer" holds any warpy surface true—or so A. A. Weston of New Addington tells us.

It must be our twisted minds at work! Next item, **H** is yet another warpy one, using tongued and grooved timber suspended out from the table. This is not so useful for keeping a wing flat, but C. Hewitt of Gloucester suggests the method more as a solution of the "how to hold it while it dries" problem rather than for storage. Quite often a model surface has a projection built into it, which prohibits pinning the wing or tail flat on a board while being doped. Mr. Hewitt's idea eliminates this, providing the timber is perfectly flat, and gives one a completely free hand in applying successive coats of dope without altering the set-up.

No illustration is required for the suggestion sent by J. Bray of Bristol, who sent us a sample of bright silvery sheet metal sold in packets of five sheets measuring 3 in. x 12 in. for only 10d. They are intended for use as bird scarers: but as John Bray has discovered, they make most realistic covering of cowls on scale models, team racers or can be used to cover a 1/48th scale solid. We suggest Evo-stick or Pliobond as a suitable adhesive.

'George'

A character not unknown to most of us
—by "Archeopteryx", illustrated by "Russ"

IF YOU HAD CHANCED to come visiting our flying field last summer, you might have been aware of an unusually tense and nervous atmosphere. We spend the later summer months mainly in preparing for the eliminators for next year, and there is usually a quiet, purposeful air about such occasions; so it is obvious that some quite serious factor was at work on our club.

It might seem unlikely that one person should be able to create such havoc with the mental processes of a whole clubful of reasonable souls, as I think we can say in all modesty that we are, but that was just what had happened.

We never learned his full name. His first name was George. Think of somebody who is tall and thin, dark haired, with rimless glasses and a long, pointed nose, and you have George. Think of somebody, too, whose voice, when raised, has an unpleasant nasal quality, and who raises it far too often. Think of somebody in a duffle coat, with a soft corduroy cap perched squarely on his head. The total is George.

When we first saw him it was as a harmless, though conspicuous, spectator watching us on the field. We thought he must be one of the lay public of the same type as pick up your single blade folder rubber model from their garden where it lands with the commiseration that, though the rest of the model is all right, you have a broken propeller, and they looked for, but couldn't find, the other blade. An ordinary citizen in fact.

However, it soon became obvious that George was not like that. George was, or appeared to be, completely genned up, as we learned soon after his first appearance. He was often in the company of similarly oddly-dressed pals, or arty-looking girl friends, and would explain to them in his loud,



carrying voice just why this or that club model wasn't flying properly. The insinuations did not fail to strike the modeller involved to the heart, even when he pretended he couldn't hear them.

We could have stood it at that level, though, if he hadn't moved in. He was there by himself one evening when we arrived, coming up and greeting us like old friends. We tried to be polite without geniality. It was the night Derek finished his A/2, and he intended giving it a few tests on a short line. There was a slight wind, which would not have worried him except that it was coming in gusts.

Derek hand-launched the model, and found it nose heavy at first heave. He put some packing under the trailing edge of the tailplane and launched again. This time the model glided flatly along.

"I say," said George, "You're inviting a stall, you know, old boy, when you've got it on the line."

Derek pretended he hadn't heard, and I held for him while he spun out a short length of line.

He signalled he was ready, and the model slipped through my hand and was off.

"You could have made a better job of that," said

George. "You want to follow through more with... ..Run, man, run! Stop! That's it; now run again—good lord, man, to the right, the RIGHT!..."

The cries utterly unnerved poor Derek who was always a nervous sort of chap, and though he tried to follow his experience, he panicked completely and the model dove steeply into the deck, breaking off the fuselage just in front of the tail.

It wasn't long before we realised just what a nuisance George was. He wouldn't take a hint, gentle or otherwise, and most evenings we went flying found him there, as likely as not. Funny, but he left us alone at the weekends. Derek wasn't his only victim. He moved with an easy grace through other people's wrecked hopes and models, and was always ready to say just why they crashed.

"Why don't you come up to the clubroom and give us a lecture one club night?" Ginger asked him once, after being particularly nettled by remarks about his glider.

"When is your club night?" asked George, a trifle quickly, we thought.



"Oh, we meet on Wednesdays," said Ginger. "You come and tell us a lot of things we don't know about trimming."

"Oh, I'd love to, but I can't manage Wednesdays, as it happens. Wednesday's the one day in the week I can't make it. Classes, old boy . . ."

We smiled gently at him. But more was to come.

One night, just as we were packing up flying, the Course could be heard all over the field as he told us how to improve our power models.

"Of course, you know, you shouldn't be so keen on those floating tabs. They're tricky, and can so often lead to trouble, like that one did tonight. You



must tackle the problem in another way, as I did on my model . . ."

"So you had a model," said Ginger. "It must have been a real beauty. You lost it, maybe?"

"Of course not. I always believe in fitting a reliable dethermalizer. As a matter of fact, I have several models, of all different kinds. I believe in covering a wide field."

"You believe in shooting a big line, too," said somebody very quietly, out of his hearing.

"We haven't seen you flying any. Of course, we were probably too busy trimming to notice . . ."

"Perhaps you're waiting for a really calm evening . . ."

"Oh, I don't have my models here," explained George. "I fly them when I go home at the weekends. There's no room for models in lodgings."

We openly scoffed at this. "Go on," we said. "You bring along a model next week and show us how to fly."

"All right," he said, "I'll bring something along to show you."

Next Monday evening came, and we were all there on the field. However, there was no sign of George for once.

"What did I tell you?" said Bill Davis, the secretary. "He hasn't come and he won't be coming, either. He hasn't got a model."

"Here he comes now," shouted Derck, "and he hasn't got a model with him."

We all turned round to see the familiar figure approaching.

"What's the matter?" asked Ginger when George came closer. "Have you forgotten it?"

"Yes, as a matter of fact, I have," George

announced calmly. "You know, I came away in such a rush last night that it completely left my mind. I had a model all looked out, too, ready to pick up. Never mind. I'll pick it up next week. I must be off now, though. Busy swotting, you know."

And he made off down the field. We looked at each other in amazement, and Ginger said knowingly "And that's the last we'll see of him, I bet. We called his bluff. It's a wonder we saw him tonight at all. Returning to the scene of the crime, if you ask me."

On Friday the good spell of weather broke down, and we spent the weekend building at home. It was not till the following Thursday that things improved and the weather suddenly became decent once more.

Well, we all got out to the flying field early, by general agreement, so that we should get some flying done in peace if George should turn up again. There were few other people about, somebody away down to our right was flying a rubber model, but we had the place almost to ourselves. We soon sorted ourselves out and got the test glides over. Soon the air was full of the familiar blue and yellow colours of the club, and I was timekeeping for Ken, whose power model was flying very nice and stably. Fairly far up, a rubber model climbed into my view in beautiful right hand circles, and enhanced the lovely evening. Ken had an overrun, and my attention wandered to the strange model. As there was little wind, it floated overhead, its feathering prop. just flicking over in the indoor manner. It swooped lower and I could see just how perfect it was. By this time the whole club was watching. The geodetic surfaces were an elegant high aspect ratio, the semi-streamline fuselage a tribute to the creative skill and ingenuity of whoever built it. It landed softly near us, and we crowded round.

"What a glorious model," said Bill. "Look at the construction of that prop!"

"I wonder what our George could have to say about this job if he showed up now? There's not much here for him to complain about."

Just as I spoke there came a familiar figure cutting through between us. He had crept up on us while we were examining the model.

"Excuse me, old boy," George pushed me aside, bent down and picked up the model. "That wasn't a bad flight, was it? Just wait till you see it when I give it full turns."





World News

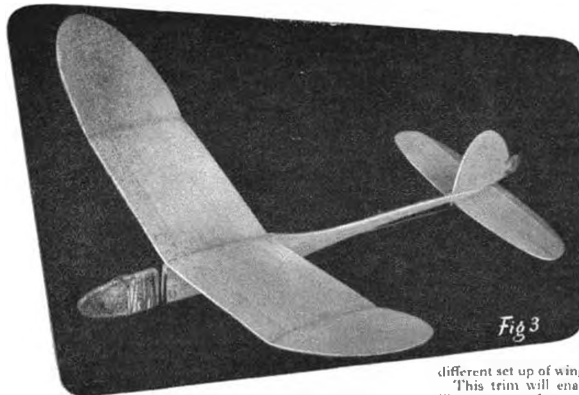


NEWSLETTER FROM the Montreal M.F.C. in **Canada** dated back in July, gives one the impression that they were having a fine summer with plenty of modelling activity in the St. Lawrence Zone. Familiar British names like those of Duve Sugden, Mike Thomas and Barry Haisman, frequently occur in news from the Canucks and up-to-date info. tells of the 1956 Annual Wakefield Challenge betwixt Montreal and Boston, U.S.A. Having won last year's contest, Montreal were hosts at Hawkesbury, Ontario. Only the Boston team, consisting of Ed. Dolby, Lee Renaud, Ed. Warnock and Stan Coulson, were able to make the long trip north. Event began before breakfast on Sunday, October 7th, and first round put Montreal ahead by 25 secs. Then torrential rain drove everybody into town for breakfast. From then on, Hawkesbury appeared to be the centre of a series of violent weather disturbances, wind gusting up to 35 m.p.h. (Naturally—the weather man heard there was a model contest on!) Take-offs were hazardous, fine displays of aerobatics being made by Dolby and Haisman. Boston seemed to thrive however, and drew ahead by 1:28.

As retrieving took so long, rounds were clipped from five to three, and in spite of Don Mackenzie's prop being held together with pins and wall-power he, Jerry McGlashan and Barry Haisman all turned in max's for Montreal in the third round. This left Lee Renaud in the position of having to make 2:39 to win, but he had trouble and was down in 1:29. Result was Montreal 23:08, Boston 21:58, based on the top three times of each four-man team. It was a tough, nerve-racking contest and the type we like to hear about at AEROMODELLER, for they do a lot to stimulate the International spirit and foster improvement through competition.

In **Finland**, the annual autumn competitions at Turku attracted two Swedish entries across the water via the overnight ferry, and they returned with top place in power and third in Wakefield. Conditions were fine, with cloud, but no wind. A 2 was won by A. Keiminen with 830 secs. Power by S. Gustavson (Sweden) with 900 secs. followed by Pimenoff's 861, and Wakefield by R. Hyvarinen, also with full max's at 900 secs. Sounds like a topline contest with those times. A second autumn meeting at Helsinki on October 14th had had weather. Three rounds were flown and once more, Wake went to Hyvarinen with 416 secs., Power to B. Storgards with 384 secs., A/2 to S. Niemela with 462 secs. and A-1 with F.A.I. loading, calling for a minimum weight of 7.6 ounces, went to L. England

Top left: Snow scene earlier this year, offers a comparison between an old school F.A.I. glider and an A/1. Young K. Hecner has swapped ownership of the latter with F. Krattin, during a Czechoslovakian winter contest. Recovery seen by all's. Next Czech picture shows a control line scale Indonesian Nikaubane with the uni-l international markings of that State, by D. Meslinth for 2.5 c.c. Below left, a happy group at Rio de Janeiro in Brazil, where modelling has just been given a boost by Air the Ministry Santos. Dumont contest. See p. 639.



Chuck Glider —introducing

A NOVEL DIVERSION
FOR BETTER CHUCK
GLIDER PERFORMANCE
FROM George Woolls

OF ALL FORMS of Model Aircraft, the chuck glider is the simplest and cheapest. However, for the aeromodeller, novice or otherwise, of an enquiring nature, this elementary type of aeroplane can be most instructive, and at the same time provide a lot of fun.

Despite its simplicity such a glider is really a high powered aeroplane. The human arm that can hurl cricket balls at fantastic speeds, and throw weights and javelins tremendous distances, can also impart enough power to a chuck glider to make it comparable to a V.T.O. type of power model—with the attendant trimming difficulties.

This is not an article on advanced aerodynamics, the author does not claim the qualifications to be able to write one, but a résumé of the basic problems involved in stabilising such high powered models will be helpful at this point.

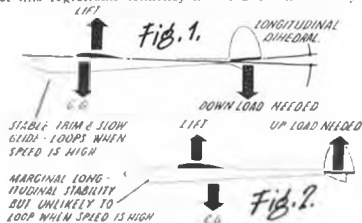
Two main requirements are called for in a model aircraft; as much stability as possible and as long a glide as can be achieved.

The latter is generally achieved by trimming the aeroplane to glide just below the stall, which means slowly with the mainplane operating at a fairly large angle of attack. Stability is at its highest when the centre of gravity approaches 25% of the chord from the Leading Edge of the wing.

The C.G. being in front of the Centre of Lift of the wing, a download is required on the tail to bring the aeroplane into balance. (Fig. 1).

As soon as the plane is launched under power the speed is very high, and the wing develops excess lift, so that the aeroplane just loops. The more the power the better the loop, and the harder the contact with the ground.

Development over the past 20 years or so to counteract this regrettable tendency has resulted in the very



different set up of wing, tail, and C.G. as shown in Fig. 2.

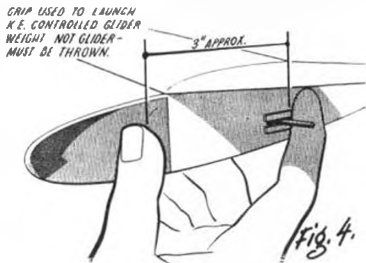
This trim will enable the aircraft to shoot upward like an arrow, fast and smoothly to a great height, and also—unless great care is taken, to descend just as rapidly and spectacularly, to impale itself firmly and destructively in the ground.

In order to prevent this unfortunate occurrence, the glider is trimmed to circle on the climb and thus lose a little of the excess lift that was the start of all the trouble. This turn opens out at the zenith of the climb and the little extra lift created enables a fast glide to be made. However, the C.G. is still in an unfavourable position for good stability.

The problem therefore, is how to combine the set up in Fig. 1 (for best glide and stability) with Fig. 2 (for safe, fast, climb) and get the best of both worlds.

This may be done, in the case of power models, by connecting a two-position elevator to the engine timer, permitting a change in angular set up between wing and tail, to occur when power ceases.

The motive power of our chuck glider is provided by the kinetic energy imparted to its mass or weight while being thrown. A considerable portion of this



weight lies in the weighted nose required to balance the aeroplane, and this can be easily imagined as flying forward and dragging the rest of the aeroplane behind it. Loosely connect the two, and that is exactly what would happen.

Here then is what we are looking for. Something that moves in relation to the main body of the aeroplane and has enough energy to operate our elevators.

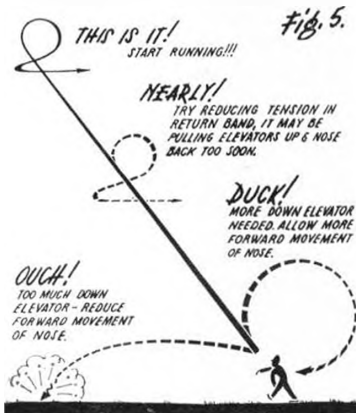
All we have to do is to mount the weighted nose of our glider in such a way that when it (the weight) is thrown it will move forward a little before towing the rest of the plane behind it.

with a difference

Kinetic Energy Control

The nose is connected by thread to the elevator which is pulled down against the tension of a light rubber spring. When the energy in the nose weight subsides, this return band lifts the elevator to gliding trim, at the same time returning the nose to its rearward or static position. Fig. 3.

With the aeroplane trimmed to glide with optimum set up, i.e., 2 or 3 degrees angular difference between

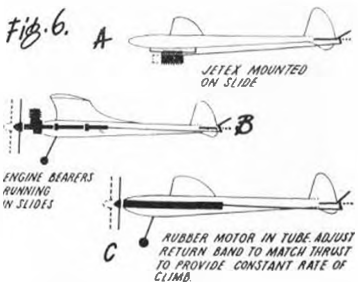


wing and stabiliser, (weight back), the "Power on" climb (weight forward and elevator down, giving the familiar 00 setting), is fast and arrowlike.

At the top of its trajectory the kinetic energy in the nose weight dies off and it returns to its normal position and the elevator goes up. The result may be a stall or snap loop, either of which is easily controlled by the very stable trim. Actually neither need occur, as the glider may be adjusted to go into a turn at the top of the climb. Fig. 3.

On the practical side a few points should be borne in mind. The weight and not the model as a whole, must be thrown. In order to achieve a similar grip to that used on orthodox chuck gliders, i.e., thumb and middle finger holding the fuselage with forefinger behind the wing, an extension to the weight terminating in a trigger is used. The forefinger rests against this to add to the force of the throw. Fig. 4.

The return band must be adjusted so that the nose is only just pulled back when the aeroplane is held vertically. The bearings of the weight-slide should be as friction-free as possible and oiled to maintain this. Trim the glide by launching the entire model, not just the weight, and adjust it until a smooth slow flight results. It will be slower than that usually associated with chuck gliders, so launch fairly slowly.



For initial "power" flights at least, use an overhead throw, not side arm. This will cause a straight climb which, now no longer automatically associated with a loop, is safer than a bank and under-elevated turn, possibly straight into the ground. Refer to the trimming diagram for "power on" adjusting. Fig. 5.

The chuck glider shown forms a practical demonstration of the idea, and turns in flights well in excess of thirty seconds in non-thermal conditions without particularly fine trimming. It has a very short nose so that a rather heavy weight is required. However, this provides lots of kinetic energy to work the elevators. Also the short nose-moment provides rapid recovery from the possible stall at the top of the climb.

Obviously this design can be cleaned up and developed. The weight slide could be built into the fuselage for a start. There is a practical limiting factor to be remembered when designing a glider incorporating this kinetic-energy control. The distance between first finger and thumb and forefinger is about three inches. This positions the trigger in relation to the moving nose.

Devotees of a catapult as a means of propulsion may have been wondering whether there is anything in this idea for them. Of course there is. Just loop the catapult over a hook fixed to the movable nose, and haul back on the tail end. On release, the weight will be thrown forward thus operating the elevators.

The principle underlying this idea may be applied to all types of powered models. A Jetex unit could be mounted in such a way that it could slide forward slightly under the action of its thrust, and thus operate the elevator. This may prove more effective than the frequently used vane placed in the jet stream. Fig. 6a.

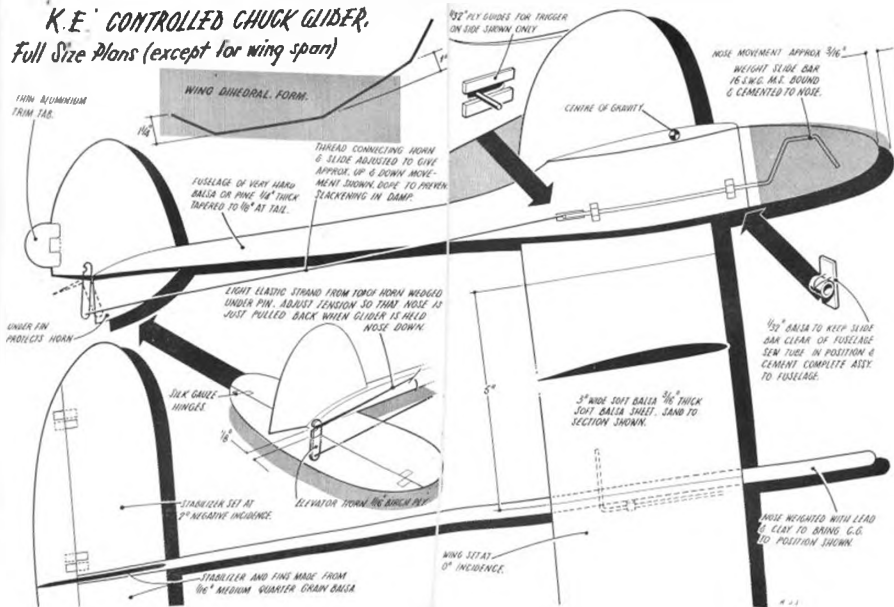
Power models could have their motors mounted on sliding bearers, thereby operating the elevator. Fig. 6b.

Rubber models present more difficulty, but it is conceivable that the motor could be mounted on a separate stick in the fuselage and the whole slide forward a little under the action of the thrust. Careful adjustment of the return band could balance the varying thrust and so maintain a steady climb throughout the power run. This could also hold true in the case of Jetex models. Fig. 6c.

Whether kinetic-energy controlled chuck gliders will eventually prove to be superior in performance to the present standard type with 0-0 setting, remains to be seen, but experiments definitely indicate that they are safer to fly and less critical to adjust.

Full-size Plans Overleaf

K.E. CONTROLLED CHUCK GLIDER. Full Size Plans (except for wing span)





Armchair Aeronautics

50 years of flying

Great Moments in Flying by JOHN W. R. TAYLOR (Phoenix House Ltd.), 7s. 6d. 126 pages. Illustrated.

One of a series of "Great Moments" publications being produced by Phoenix, this work embodies twelve stories of flying history, ranging from an account of the Wright Brothers' epic feat back in 1903, to Chuck Yeager's burst through the sound barrier. The 50-year-story of flying is so full of great moments that it could have been no easy task to select a dozen examples to include in this book, and the author has been wise in going around the world for his heroes, for this could well have stayed as an acknowledgement of the feats of one nation. Intended primarily as a book of interest to the younger element, facts are presented in a pleasing manner that makes the assimilation of detail easy on the mind.

Where there's a Wills there's a Weihe

On being a Bird by PHILIP WILLS (Sailflying Press Ltd.), 5s. 112 pages. 14 illustrations; 29 drawings.

When we reviewed the original (15s. 6d.) version of this entertaining book three years ago, Philip Wills was the acknowledged British expert in the high art of glider piloting. That he still maintains his eminence in spite of increasing competition says much for this dozen of motorless flying, for his "slide-rule mind" and skilled hands have lost none of their co-ordination.

By the generosity of the original publishers, it is now possible to produce a cheaper edition of these highly entertaining stories of performance, thrills, comradeship, and anecdotes, both humorous and serious, that make this book of absorbing interest to those with any interest in the air. Aeromodellers will find much to interest them in this account of gliding flight and all that it entails, and at the new price of 5s. is a darn good buy.

Fighter story

Wing Leader by GROUP CAPTAIN J. E. JOHNSON, D.S.O. and two bars, D.F.C. and bar. (Chatto and Windus Ltd.), 15s. 320 pages. 20 art plates.

The story of the top-scoring allied fighter pilot in World War II is told with such compelling authenticity and puts the reader so close to the scene of action that it becomes the classic among a host of other titles of similar vein. Johnnie Johnson takes one through the fluff of Britain in the cockpit of his Spit I, transposes you through the progress of war, and Supermarine development of Marks II, V, VI and IX Spitfires to the final Battle for Europe. It is an absorbing tale, so true to type, and accurate in detail that it earns our

admiration for the brilliant retentive memory and the talented pen that wrote it. If you have a bookshelf, and have had any connection with the R.A.F. or are at all interested in a truthful pilot's view of the war, then *Wing Leader* is an absolute "must".

Four fine reference sources

Aeroplanes and Aero-Engines (4th Ed.) (Temple Press Ltd.), 5s. (Illustrated above). 24 sheets, 11½ x 8½ ins. Illustrated.

This is an up-to-date edition of a regular favourite. 24 cutaway drawings by five of the World's leading aeronautical illustrators are reproduced on large sheets, some measuring 24 x 12 inches to provide the enthusiast with detail that only countless hours of research could reveal. Indispensable for the scale modeller and an object lesson for all who think they can draw, this book makes the perfect moderately priced Christmas gift.

Britain's Aircraft (Temple Press Ltd.), 2s. 32 pages, 11½ x 8½ inches. Illustrated.

An inexpensive summary of the aircraft industries products during 1956, with three-view silhouettes and a good photograph to illustrate each. Sold for no more than the cost of a quality magazine, it is excellent for the keen spotter who likes to be on top of his subject.

The Triple Crown (Temple Press Ltd.), 3s. 6d. 38 pages, 7½ x 9½ inches. Illustrated.

Britain holds the international maximum speed records for land, water and air travel. This book relates the story behind each record, and illustrates them with a fascinating series of photos and drawings. We learn of the problems associated with success, are given the background of the three fastest men, and full data on their craft.

Military Aircraft of the World (Hiffe and Sons Ltd.), 3s. 6d. (Illustrated above). 68 pages, 11½ x 8½ inches. Illustrated.

A mass of information for the enthusiast. Photographs and data on all the types that come within so embracing a title. This is particularly useful to the solid model maker wanting to obtain authentic markings for his subjects, and for the flying scale man for the collection of close-up views showing detail of sundry fittings. An inexpensive reference worthy of all aeromodellers' study.



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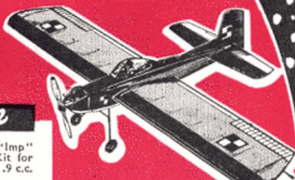
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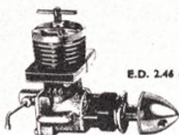
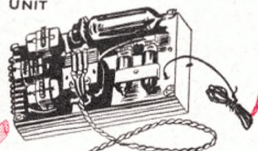
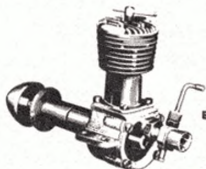
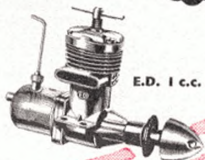
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Seen at the World Championships

Wakefield in Sweden

If 1956 is to be taken as a criterion, Wakefield design has changed little in recent years if one discounts the disappearance of some trends that had almost become accepted as synonymous with present day International rubber driven models. Most significant is the abrupt

swing away from twin motors and return gears, which a few years ago became almost universal following the Swedish successes of Blomgren and Stark, not forgetting of course, the double-win of Aarne Ellila of Finland.

Notable was the very high percentage of models employing folding props at this year's event, and the general lengthening of fuselages—not necessarily to contain a longer motor, but with a view to placing the empennage even further back from the nose.

Most discussed models were the Russian entries. Apart from the most typical Russian type of narrow long fuselages, with the fin positioned well forward of the tailplane, several spanning the line for "hot" wings with thin airfoils, extremely forward and spread out. Fuselages in general were of square cross-section merging into triangular section aft of the rear motor fins. Constructionally, the models were excellent, and demonstrated a high degree of skill and ingenuity in the use of materials foreign to most of us. Whilst the use of reeds, etc., means a certain loss of building time, the resulting structure has a high ratio of flexibility, simply called into service in the gusty conditions reigning at Hanoi.

Majority of models were well constructed, with good finish predominating. Tattiest looking were probably the O'Donnell entries, carrying the scars and weathering of much flying, proving that a spectacular polish and aesthetic appearance does not necessarily produce those extra seconds.

Take-off and landings to the higerant!) were varied in their shape and action, though most favoured the single stinging-back leg with a couple of rudimentary points at the rear to give the required 'three-point' stand. The fact that some really could stand on these tripods was purely coincidental! Rigid application of this (and the no-pitch release) could hold but many well-known names lower in the list. It is to be hoped that the F.A.I. will abolish the R.O.G. rule after this year, thus removing one of the most controversial aspects from such contests.

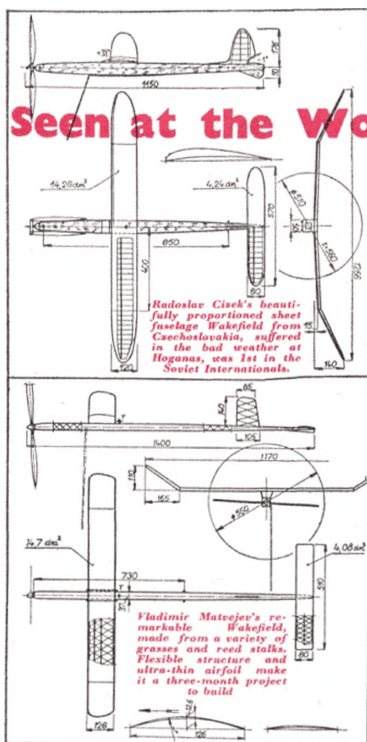
Biggest model axes were definitely those belonging to the British party. It is hoped they learnt some "quart-into-pint-pot" tips from their overseas contemporaries, for the manner in which quite lengthy models dismantled into short and compact components was an education. Most novel box belonged to a Finnish comestitor, consisting of a tube of thin plywood some 8 ins. in diameter, capped at both ends with circular pined disks. The way the complete Wakefield models disappeared into this handy carrier was a revelation.

Wing mountings and fixings were varied, ranging from firm to flimsy, the latter usually stiffened by the use of wire struts. Twin runners mounted on top of flat or diamond fuselages seemed most popular, with a marked tendency towards four pylon positioning of the mainplane.

Power at Cranfield

CONSISTENCY ALWAYS wins contests, and the British team excelled at being able to repeat their flight pattern every time. Only Conover, Fresl, Bergamaschi and Thompson were serious rivals to our team, yet there were twenty more models on the field capable of making 3 : 00 without thermal aid at some time or other. This trim-consistency is the result of hard contest work in S.M.A.E. and Rally events. Wing warps for roll on the climb or turn on the glide are carefully locked into construction. Motors are run to their maximum efficiency. Timers checked and re-checked. Nothing is left to chance. Some hope for luck, but to win, one must be good enough not to need it. This is the require-

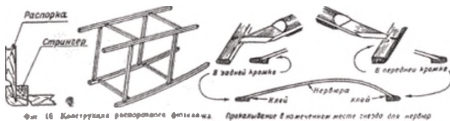
ment for a World Championship power modeller, and the top four at Cranfield met the specification perfectly. Draper and Conover flew right-right, climbing "on the wing" with large area models, while Posner and Fresl spiralled almost vertically, using wing warp. Ultimate height gain was in favour of the latter pair: but the larger wing area of former two showed advantage in the



Extremely unorthodox airfoil section shown at left is employed on Matvejev's Wakefield.

Matveyev

Illustrations below are from a Russian modelling book, and show methods used when constructing from reeds. System entails great accuracy when slitting leading and trailing edges, etc., and takes much longer than our customary balsa construction.



Фиг. 16 Конструкция распорного фитинга. Применяется в качестве места стыка для перфорированных труб.

glide. It is the old story of balancing rate of climb against rate of sink, and we fancy that with the 1/2 h.p. figure of the modern 2.5 c.c. engine, Draper's selection of a 480 sq. in. wing strikes the happiest medium.

With 57 power Internationalists on the field, it was inevitable that we should spot a number of gadgets and design features which would be of use to all contest

had unique application of table tennis bat facing on the wing platforms. Forms a perfect grip, can be bought easily, does not compress sufficiently to affect trim. Her models were a source of great admiration for their finish and the shallow dihedral. How they get away with a tight spiral climb is a mystery to some modellers. Frau Maria's model box was the finest we have ever seen. Clear varnished knot-free ply was elaborated by internal fittings to take each component, including a pair of spare engines on mounts at each end.

George Zigic of Yugoslavia told us that Perspex, dissolved in

new construction • engine mounts • flying techniques

power modellers. Firstly, concerning design:—

Besides being larger, most models also employed larger tail moment arm than before, and the system used by Mike Gaster (after the original Goldberg Zipper and Sailplane designs) of employing some or similar sections for wing and tail, has apparently received the favour of a large number of modellers. Incidentally, we were wrong when we stated that Gaster used his ED 240 model first and finished with the Tiger version; it was the other way about.

Engine mounts show a new trend to the oldest of all systems, the three point screwed rod method, permitting infinite adjustment to angles of offset. This calls for radial conversion of some beam mounted engines, the Swedish Wehra Mach 1's being adapted by steel plate.

Wing shift is a dangerous fault, and Frau Maria Rudolph of Germany

Ilzenro, makes a perfect fuel proofer. Takes four days to dissolve the shavings. His models could be supported horizontally by one wing tip and shaken like that. Try it on yours! 1

Emil Frel had a fine model that should have been in the fly-off; featured a tip-down tail that pivoted at 66% chord where the fuselage terminated. Strong hinge point here enables whole weight of model to stand on tail for 1/2 T.O. without risking damage or trim upset.

Japanese model had mixed halva and cypress construction, with the hard wood for spars; had a two-wheeled undercarriage as well as a V.T.O. stick so that the proxy could try either way.

It was almost an all-pylon entry, the Australian pair flying high thrust line designs; and Robert Haecht of Italy, his traditional shoulder wing, Tucano. Though the pylon may have been common to most models, it could never be used that design is stagnating, for variety was there in profusion, and when all is said and done, appearance matters little—it's the trim that counts!

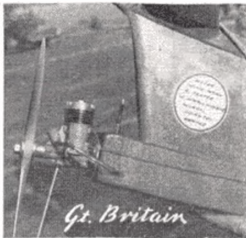
SEE HOW THEY MOUNT. Six International model noses display a variety in techniques. From Sweden, Rolf Hagel adapts the Wehra Mach 1 with steel radial plate and mounts with three screwed rods. Internal tank is shut off by camera timer in pylon. Canover's model in capable Lanfranchi hands, had Torp 15 on alloy radial plate, internal tank shut-off by Tatune "tick-off" clutchwork timer. Note low pylon. Draper's winning OS Max-15 was on a fibre radial mount killing 2-gs. load weight. Elvino diesel timer trips auto rudder and fuel line link. From Yugoslavia, Emil Frel's own motor in streamlined nose, with his folding prop. German model is Hugo Lappert's, showing Mach 1. Autoknips timer and tank in close order, while K.D. plastic prop is swept forward deliberately. Lastly, the Czech AMA 2.5 had a most sensible link mounting over the needle valve, with camera timer operating the shut-off. Note three-point fixing.



Sweden



U.S.A.



Gr. Britain



Yugoslavia



Germany



Czechoslovakia



Famous Biplanes No. 6 by G. A. G. COX



the ALBATROS D.III. & DV.

THE ALBATROS D.III and DV series are generally considered to be the most beautiful aircraft produced by Germany, if not by both sides, during the first World War.

The series started with the DI, produced by the Albatros Werke in 1916, under the factory designation L15, which has the same fuselage and tail as the D.III, but with square-tipped wings and parallel interplane struts. The cabane struts were steel pressings meeting at the wing centre-line. The D.II followed (L16 and L17) and was substantially the same except that the cabane struts were now of the D.III pattern, giving much better visibility.

In the autumn of the same year came the D.III, or L20. This machine had completely redesigned wings and vee interplane struts which helped to offset the ungainly appearance of unstaggered wings. The D.III, most famous of the Albatros series, was produced in large numbers and was at least a match for the contemporary Allied scouts. Baron von Richthofen scored many of his victories in a D.III, and had also fought in the DI and D.II, but never in any succeeding Albatros types, preferring his Fokker Triplane to any other machine.

Early in 1917 there appeared a much-improved version, the DV or L30. This time the wing and tail structures were unchanged, but the fuselage, although plywood covered like its predecessors, now became an oval-sectioned streamlined shape unequalled in its day for aerodynamic efficiency. The gap was reduced to improve the pilot's vision and this, with a different gunsighting arrangement, necessitated the raising of the seat and controls. A headrest became a standard feature on this model.

The DVa, also bearing the maker's serial L30, differed only in minor respects. The gap was further reduced, and the headrest, now taller than on the DV, became optional. The rudder was redesigned, and round

the axle was fitted a narrow auxiliary wing which, it was claimed, gave enough lift to support the weight of the landing gear when in flight. The DVa was the first aeroplane to have an electric starter fitted as standard equipment.

All Albatros fuselages were unbraced wooden structures with plywood covering; the fin and stabiliser too, were all-wood. Control surfaces were of welded steel tube with fabric covering, and the wings were of wood with the traditional wire trailing edge, giving a scalloped outline when the fabric was shrunk.

Armament of all Albatros types from DI to DVa was two fixed Spandau machine guns, although some sources mention special DVa's with three guns.

Approximate speeds were as follows:—

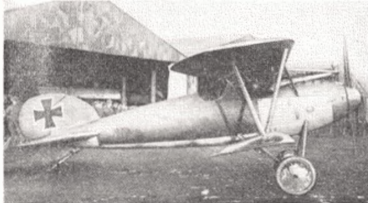
DI, DII (160 h.p. Mercedes)	110 m.p.h.
D.III (" ")	125 m.p.h.
DV (170 h.p. ")	130 m.p.h.
DVa (180 h.p. ")	160 m.p.h.

This month we take a step forward from the usual all-balsa construction using hardwood and fibre—a method strongly recommended to modellers who have yet to try it. Abura was used for the model illustrated, but closer-grained timbers such as English Lime, Bass, or Rauli and more pleasant to work with and even easier to finish. When buying timber, do insist on well-seasoned stock—shrinkage and warping would be disastrous.

Fibre was used for the wings, since it combines great strength and excellent workability with stability. It may be shaped with saw, chisel, knife or file. This material is available in a wide variety of thicknesses from $\frac{1}{8}$ in. to 1 in. and is sold by weight. An indication of the cost is that $\frac{1}{8}$ in. fibre costs 3s. 6d. per square foot. Where to get it? London modellers should call at Messrs. Farmer Bros., 164 Fulham Road, S.W.10.

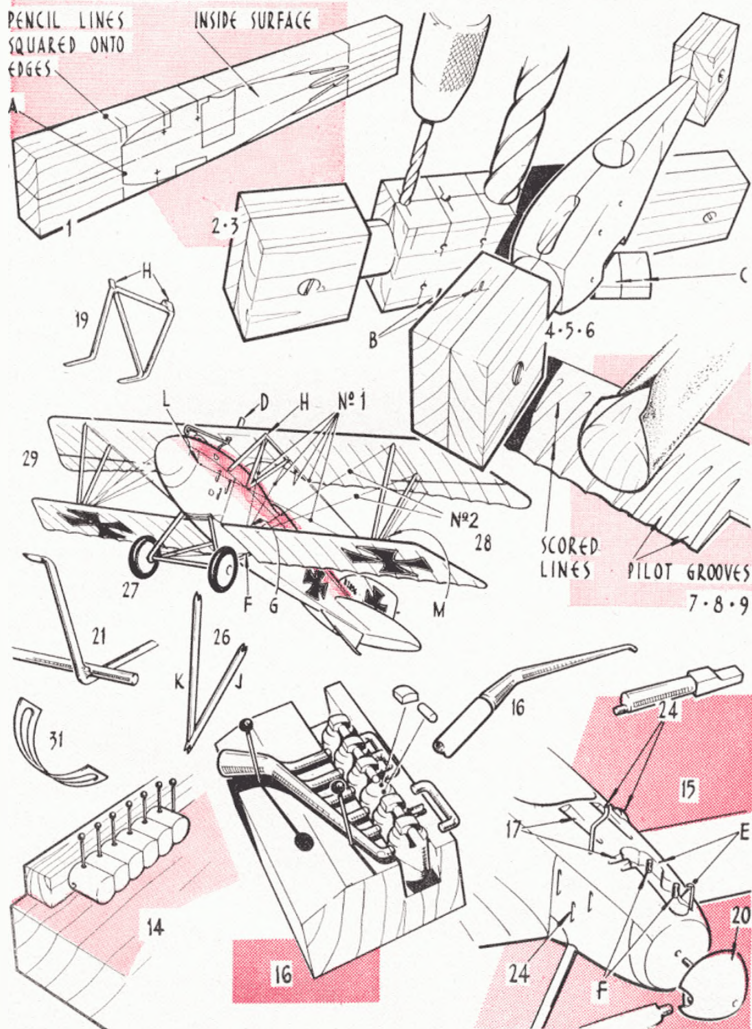
Continued on page 654

Heading shows George Cox's fine 1/48th scale D.III model which employs hardwood and fibre construction. At right is the Albatros emblem, seen on rudders. Flaming red and gold sun surmounts the black trademark. Below, captured D.Ia and D.III compared, note different fuselages and French insignia on the D.III.



PENCIL LINES
SQUARED ONTO
EDGES

INSIDE SURFACE



ALBATROS (continued from page 650)

Tools. Although a normal woodworking kit is an advantage, only the plane is essential for the initial reduction to size. A good modelling knife is indispensable.

Illustrated stages are marked with an asterisk (*).

1. (*) Plane a piece of hardwood accurately to 15 in. \times $\frac{1}{2}$ in. \times 1 $\frac{1}{2}$ in. and saw in two. Gauge the centre line all round each piece. Locating the line "A" and centre line of drawing and wood, carbon the fuselage outlines onto the wood. Also mark the cabane and front u/c struts and the front and rear engine cylinder centre lines. Square these lines across the edges of the fuselage blocks.

2. (*) Matching all lines, screw the blocks together, then drill $\frac{1}{8}$ in. and $\frac{1}{4}$ in. holes for cockpit and cylinders, using a depth gauge on the drill. (Sticking plaster will do). Square the strut hole lines onto the outside faces of the fuselage, step-off the distances from struts to C.L. with dividers and drill $\frac{3}{64}$ in. holes.

3. (*) Mount the fuselage on a lathe, and turn part of the front waste wood down to the nose diameter — if no lathe is available — carve as best you can. With a razor saw, cut down lines "B".

4. (*) Unscrew the fuselage halves and shape to profile with a chisel or saw, leaving the waste blocks intact. Check the edges for "squareness". Cut out engine cavity.

5. (*) Screw together again, and shape to plan outline.

6. (*) Holding the waste block in a vice, shape the fuselage to the correct cross-section. Modify the cockpit outline, then separate the halves and hollow the cockpit. Remove rear waste block and with a fret-saw make the tailplane slot in each piece and remove the blocks "C". Glue the fuselage halves using the front screw and gentle clamp pressure at the rear to hold the halves together. When the glue is dry, remove the front waste block and finish shaping the rear end.

7. (*) Cut the lower wing from $\frac{1}{4}$ in. fibre ignoring the T.E. scallops. Following the instructions in the October issue, shape the underside and then the top surface. Use a rasp, coarse file or chisel to remove most of the waste before resorting to glasspaper.

8. (*) With a sharp modelling knife and try-square, score the rib lines on both sides, then gouge narrow pilot grooves between the rib stations as shown. These

are to prevent the glasspaper skidding in the next stage.

9. (*) Wrap glasspaper round a 1 $\frac{1}{2}$ in. dowel and work the fabric s.g. between the ribs, tapering the hollows to nothing at about 1 chord. Trim the T.E. outline with

glasspaper. Holding the L.E. press the T.E. onto the bench to give "washout". Bend at the root rib line to give dihedral. The wing will hold this shape permanently. Drill $\frac{3}{64}$ in. holes for the interplane struts.

10. (*) Repeat the process with the upper wing. Make vee-cuts at the aileron hinge line. In case the aileron snaps off it is better to carve the washout in this case. Score the radiator lines on both surfaces of the wing, and carve a small recess for the expansion reservoir "D". Drill holes for struts and radiator pipes and pierce holes for the aileron wires.

11. Make the tailplane, fin and rudder from $\frac{1}{4}$ in. fibre and the underfin from $\frac{1}{8}$ in. fibre. Include the tailskid, carving the outline with a knife. Saw slots in the elevators for control horns.

12. Trim the fuselage so that it is a perfect fit with lower wing and tailplane and glue these in place. "Cascamite" glue gives a strong bond. Replace the block "C". Fill any crevices with glue.

13. Turn a 5/32 in. dowel from a hard, close grained wood such as box. It is safer to remove the last $\frac{1}{8}$ in. with glasspaper in case the dowel snaps under the pressure of the chisel. Mark-off seven (one spare) lengths with a score line. Sand flat surfaces on opposite side of the dowel, then hold in a vice while drilling the exhaust holes. Drill an extra hole in one cylinder for the radiator pipe. Sand a radius at the top edge of a cylinder, then saw it off with a razor saw. Repeat this process until all the cylinders are parted off.

14. (*) Make sure that the overall length of the engine is correct, then glue together as shown.

15. (*) Bend brass wire to form inlet pipes, locate the engine in the nose and mark the cut-outs "E". Fit the carburettor pipes "F" into holes in the engine cavity.

16. (*) Mount the engine in a soldering jig. Fit the individual exhaust pipes. (Note that two of them go right through the cylinder to form inlet pipes as well.) File a taper on a 1 in. diameter rod, bend, then cut off to make the exhaust manifold. Solder the exhaust and inlet pipe joints. Cut rectangles of fibre to represent the cam housings on top of the cylinders. Fit dowel "camshafts".

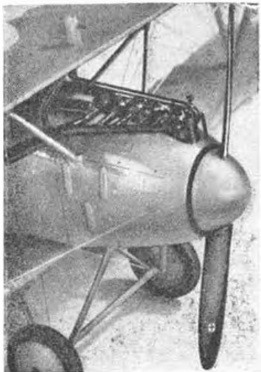
17. (*) Carve grooves for the two rear exhausts and the machine guns.

18. Fill the grain of the fuselage, if necessary, then apply the finish. (See separate notes on page 670.)

19. (*) File brass wire to an oval section, then bend to form the cabane struts. It is easier to make these from a single length of wire, so that no soldering jig is necessary, but this raises the complication of making pegs to fit in the wingholes. This snag may be overcome by leaving a hlob of solder at the top corners which may be filed to shape as shown.

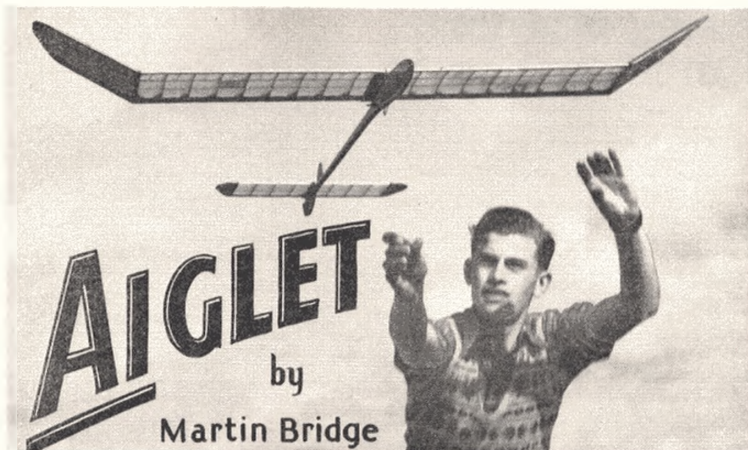
20. (*) Turn a dowel to spinner diameter and drill holes for the propeller blades and mounting pin before shaping and parting off. Fit blades made from fibre.

21. (*) Make the undercarriage legs from 16 s.w.g. piano wire, then file to oval section. Make the angle 2 or 3 degrees too big so that when the rear holes are drilled the legs spring into place. Check the u/c angles.



Four solid models can stand up to the searching eye of the camera, especially when viewed at this close-up as left of George Cox's fine model





Introduction to your Free Plan with this issue

WHEN AEROMODELLER INTRODUCED the Nordic A/1 glider formula to British readers in our June, 1955 issue, we made no claim for originality: but emphasised that here was a size of model that would meet the pressing need for shorter duration, club events. The subsequent interest shown in the A/1, mainly through the very popular "Golden Wings" design, has indicated that the clubs were quick to seize upon the smaller model specification and there is every indication of the "half-size" A/2 becoming a very popular feature of inter-club contests.

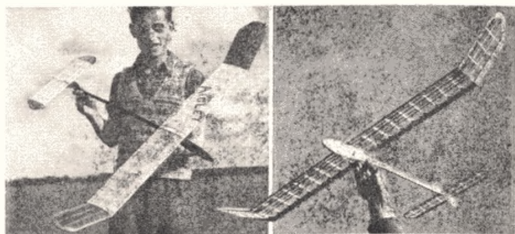
As we said at the time, our local Watford and District M.A.C. had been flying the class for some six months prior to May, 1955 and had built up a useful backlog of experience with the type. The club still holds regular events for the class, and over the past two seasons, design detail has progressed so that we are able to present full-size plans with this issue of the appropriately named *Aiglet*—the latest in the line from Martin Bridge's series of five A/1 models.

It is a cleaned-up version of the square-tipped model featured in April *Model News* this year, and with attractive lines, no matter what the viewing angle, we feel it is destined to be a favourite for beginner or expert. As a subject for the novice under instruction from senior clubsters, the *Aiglet* provides a simple exercise in model construction with a guarantee for satisfactory flying performance in the final product—so why not tackle it as a one-model competition with beginner/expert classes in your own club?

Technically, the refinements of A/1 design boil down to provision for stable towline performance, plus the ability to circle fairly tightly and give a low rate of sink. *Aiglet* has all these assets, with a 23 per cent. tailplane and modified M.V.A. 301 airfoil section on the 10:1 aspect ratio wing to bring it up to date with latest high performance fashion—a well trimmed version could well be capable of a 1:45 average in calm air from a 164 ft. towline... Get building!!

**Build an
A/1
for fun and
contests!**

On the field, or before covering, *Aiglet* has attractive lines and is a handy model size for transportation to and from the local flying site



Early Morning An'Ticks — by Brian Fry

"I WOKE EARLY a few mornings ago to the ticking of a clock—nothing strange about that except that there isn't a clock in my room. I immediately thought of time bombs and sabotage, but who'd want to do a thing like that? Alright, I know you would!

Hurriedly I stuck my head out of the window lest it should be a clock sounding from the house next door; but no—it definitely came from my room.

I made a thorough search of my room. I dismissed the idea that it was my clockwork timer because it doesn't tick, anyway at the time it was on loan to my pal Bill for his "Tototl".



Finally, I came to my ducted fan "Sabre" hanging nose down from the picture rail. It was *ticking*, but jets don't tick—wait a bit—my mind was cast back to the mid-1940's, when an article was printed in *AEROMODELLER* about 'planes that ticked; I believe it was put down to a "Balsa Bug" or something of that nature; it had never been

actually seen although it was often heard—and now I actually had one in my room!

I went about discovering it slowly and scientifically, it seemed quite intelligent, for if I put my hand on or near the 'plane it went dead quiet, but resumed its ticking quite happily at a rate of 180 taps per minute as soon as I took my hand away.



Then again it could have been quite dumb, being overcome by the permanent odour of diesel fuel on my fingers, and quickly coming round when my hand was removed.

My Sabre's wings are attached by the tongue and box method, but every time I tried to remove the wings, the ticking would stop. Eventually I isolated the port wing as that holding the creature, the ticking would stop.

and razor-blade poised, I waited for the ticking to begin that I might carve up the wing in the interests of science and find the "ticker".

Then the ticking started somewhere between ribs R3 and R4 and, as quickly as I could, I slashed



off the tissue in that area and looked—but did I see the "ticker"—no! I tore the tissue farther, but still no sign of the evasive creature.

But then I realised that no-one had actually seen a "ticker", one aeromodeller reported having carved a model up and found a small grey insect $\frac{1}{8}$ ins. long, but theappings in my "Sabre" could be heard at 20 feet, and even allowing for magnification of the sound by the wing, I feel that my "ticker" was not that small.

Success!
One ticker
 $\frac{1}{8}$ ins. long



I waited several days, but not once did I hear my 'plane tick again, so I still don't know what the "ticker" looks like.

Although this occurrence is factual, yet another thought came to my mind—perhaps it wasn't an insect—our model 'planes still crash or fly o.o.s. just as often.—Yes, I think I'll put it down to Gremlins...



CONTEST KITS

EMPRESS

Completing the finest range of sailplanes available anywhere comes the graceful Empress. Within the A.2 specifications it is ideal for contest work, while being attractive enough for highly enjoyable sport flying. The prototype won the Blackheath Winter Gala with a two-flight total of 5 mins. 49 secs. in the snow!

THE KIT CONTAINS: Ready-cut balsa and ply wing ribs, fuselage side runners; strip balsa and spruce; shaped trailing edges; printed balsa sheet; dowel; wire; celluloid; four sheets of coloured Modelspan; top quality plan; separate building and flying instructions.



From your usual
dealer or mail order
house

29/6

CALYPSO

50 in. power duration for 1.5 to 1.8 engines or the AM.10. All parts ready-cut 12/6



CRAWWELL

26 in. semi-scale rubber model - propeller parts shaped and drilled 7/6



INCH WORM

A new-style kit includes all ribs ready-cut and a revised plan 19/6



CRESTA

38 in. span rugged, easy-to-fly sport model for 1.5 to 1.8 diesels 15/9



SQUIB

A top performance Jetex 35 or 50 powered model of 13 in. span. 3/11



CYGNET

Attractive, easy to build and fly, the 24 in. span Cygnet is the most popular small glider available 4/11



XC-4

This delta catapult model really goes—speeds over 100 m.p.h. have been recorded! 6/11



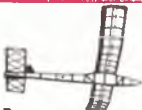
CAPTAIN

With all parts ready-cut the 24 in. span Captain is an ideal "first model" 3/11



DAB

Top performance 34 in. span A.1 glider. 9/11



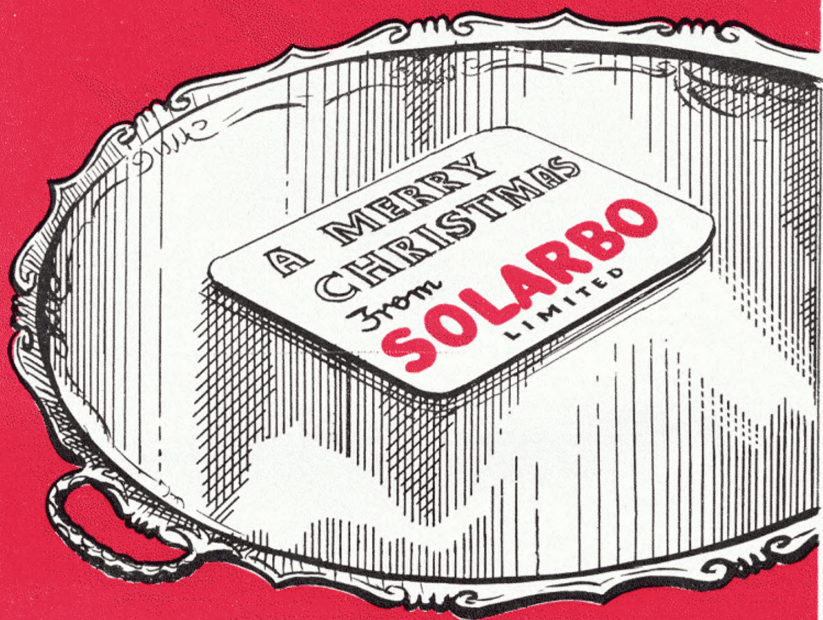
CONTEST KITS

LEIGH-ON-SEA

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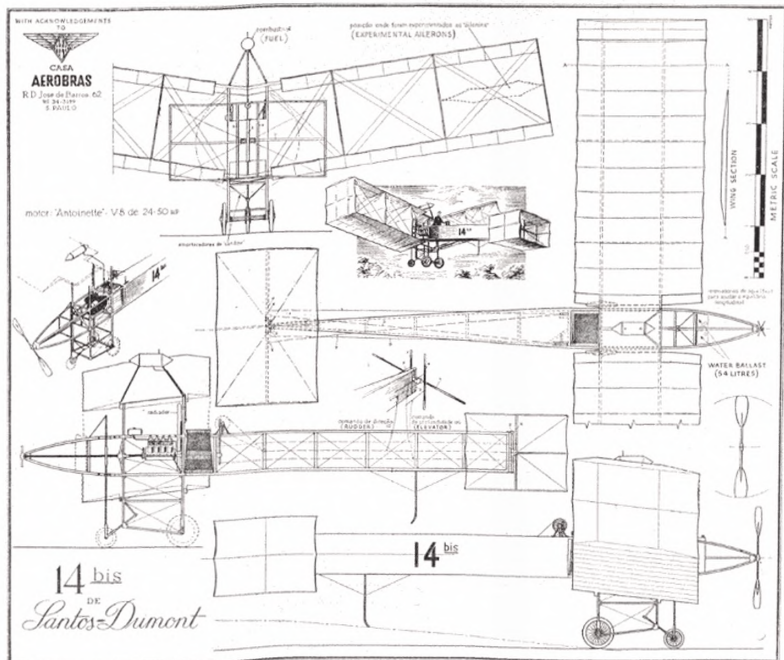
In honour of a great pioneer **Santos-Dumont**

BRAZILIAN MODELLERS CELEBRATE A 50th ANNIVERSARY

A CONTROVERSIAL PIONEER, Alberto Santos-Dumont of Brazil is acclaimed by many as having made the first flight in Europe on October 23rd, 1906. By doing so he won a 3,000 franc prize offered to the first to fly 25 metres, and later that year he flew his Hargreave box-kite "aeromobile" known as 14-bis for a distance of 685 feet in 21 seconds at a height of 10 feet.

Slight of build, courageous, wealthy, and an experienced balloonist, Santos-Dumont established himself in a leading place in aeronautical history and throughout Latin America, his popularity surpasses that of the Wright Brothers, who needed catapult assistance to become airborne.

14-bis took off under the power of its own 8-cylinder motor and was indeed a most adventurous canard aeroplane. We wonder how it would make into a flying scale project, using the same aerofoil section and pusher prop arrangement. The Brazilian Air Ministry has opened a contest this year for modellers to build replicas of the famous machine, and prizes are to be awarded to regional winners as well as those who reach the finals in Rio de Janeiro. Absolute top prize is a round trip to the U.S.A. by air with a 10-day stay including attendance at the "King Orange" Internationals in Miami during the last week of December. Kits for the model have been made up by Aerobras, whose plan we reproduce below, and we were most agreeably surprised to see that the well-finished 1/32nd sheet balsa bore the stamp of SOLARBO—each sheet of which had crossed the Atlantic twice!



IN HONOUR OF THE 50TH ANNIVERSARY OF SANTOS-DUMONT'S FIRST FLIGHT, ON OCTOBER 23RD, 1906 IN PARIS (BAGATELLE)

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or **ACCESSORIES**
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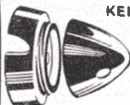


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need no timer or
cut-out!

7/16



**KEILKRAFT "SCREW-ON"
PLASTIC SPINNERS**

The perfect finishing
touch for your power
model.

1 1/2 in. diameter ... 2/8
1 1/2 in. dia. 3/16-1 1/2 in. dia. 3/4-
2 in. dia. 3/7

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Strongly moulded in
best quality rubber.
A "must" for all power
model fans.

Sponge rubber streamlined type.
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Sponge rubber balloon type.
1 1/2 in. dia. 3/16-2 in. dia. ... 4/3
Hard rubber streamlined type.
1 1/2 in. dia. 1/16-2 in. dia. 2 1/2 in. dia. ... 3/7



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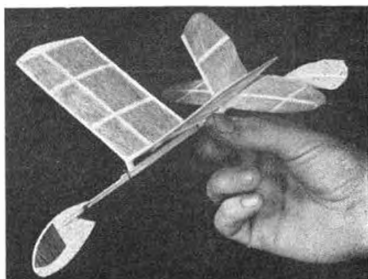


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EVEN IF YOU ARE NOT going to have duck and green peas for your Christmas dinner you can still have fun building and flying this little indoor free-flyer, as the heart of the model—the propeller—can be made from any type of small well-formed feathers that may happen to be handy. A spot of sabotage on my younger daughter's shuttlecock provided the excellent little pusher-prop shown in the photo!! And if you just cannot lay your hands on a couple of feathers, then a 1/32 balsa sheet-bladed prop will undoubtedly get this little lot airborne. Any bod, moreover, who describes this little bit of aeronautical fun as being fitted with

Featherfly

A FEATHER PROPELLED
INDOOR FLYER
by Ray Malmstrom

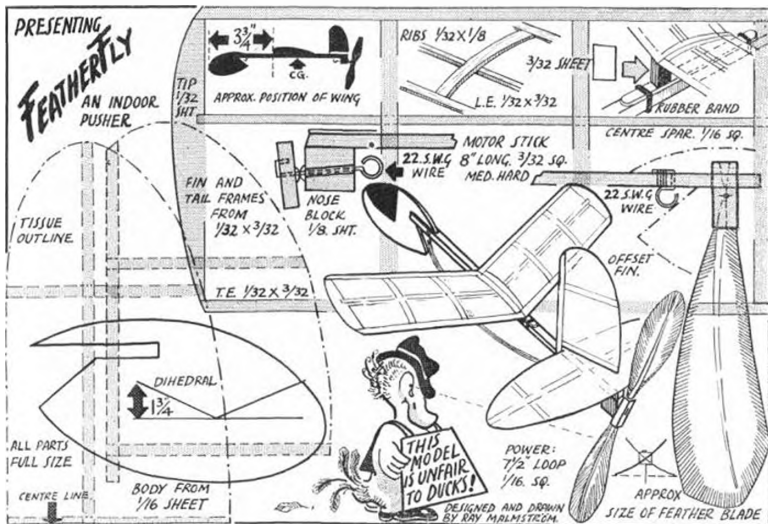


a fully-feathering prop will be given his cards!

The plan below gives all the parts full size. Build left and right wing panels, and then cement together at the correct angle. The lightweight tissue covering must *not* be water shrunk or doped. The wing mounting which is cemented to the wing incidence block and trailing edge, is a strip of $\frac{1}{4}$ in. x $\frac{3}{32}$ in. x $2\frac{1}{2}$ in. Tie thin pieces of rubber around the motor stick. Slip these over the wing mounting to hold the wing in position. When cementing the fin, offset it to give a right turn. Set the feather blades into the hub at approximately 45 degrees to the building

board and remember—make it a pusher!! To keep the weight down, lightly sand down all the strips of 1/32 sheet, before assembly.

Adjust the wing to obtain a slow flat glide, after having warped the leading edge of the righthand wing Up, and the leading edge of the lefthand wing Down. This is most important. Cut a 15-in. length of $\frac{1}{4}$ -in. strip in halves and make up into a 7½ in. loop of $\frac{3}{8}$ in. Lubricate well. Maximum turns are about 300. Handle this wee job with care and you are all set to dislodge the dust from the rafters in your clubroom!



Team Racing, U.S.A. style

by Bob Lutker

THE ORIGIN of Team Racing dates back prior to 1950 when some of the top California speed flyers of the famed F.A.S.T. Club began racing semi-scale models in team competition over a ten mile course. The event was patterned after the famous Good-year Trophy Races that were so popular in American aviation in past years. Rules were established to govern Team Racing, and as interest in the event grew, races were being run regularly. Basically those same rules still exist today, with a few modifications throughout the years. The following is an excerpt from the Academy of Model Aeronautics model aircraft regulations setting forth the objective of this event. "It is the purpose of Team Racing to fly semi-scale, realistic airplanes in direct competition through a series of heat races leading to a feature race for the most consistent racers of the day."

Here we have the makings of an exciting and fascinating model competition. The event was first introduced in U.S. National competition at our 1950 National Championships at Dallas, Texas. That first year there were few entries, but the apparent interest in Team Racing was high. The following year, at the 1951 Nationals, again at Dallas, it was my good fortune to win first place, finishing the ten-mile final race with a time of 10 minutes, 34 seconds. My model was designed to the minimum dimension requirements of the rules, constructed very light, and powered by a Torpedo "29". Its light weight of just 17 ounces gave it terrific acceleration, with a top speed of about 85 m.p.h. That year there were only 18 entrants, but each year since has seen increased entries. The best time I've seen here in the U.S.A. in a ten mile race was at the 1954 Nationals in Chicago. George Moir, using a specially hopped Fox "29", took first place that year with the very good time of just under 8 minutes, which is fast in competition flying. Better times have been flown, although I've never seen them, and I have heard of ten mile races being covered in slightly over 7 minutes.



Bob Lutker and the "MIGRATOR". He has named this version of the design "Little Willie", after his wife.

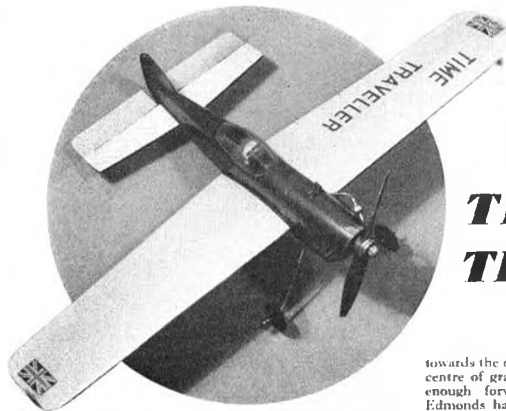
This year's 1956 Nationals, held at Dallas, Texas, on July 23rd-29th showed a strong interest in Team Racing with a total of 56 entrants. However, only 30 planes made qualifying flights. The job of directing this year's event was given to me. We had a very close race throughout, with some of the top Team Racing flyers entered. First place was won by Kenneth Moss of Galesburg, Illinois, flying a Torpedo "29" with a finishing time of 10 minutes, 29 seconds. The finish was close, with Richard Heist, Jr., of Fort Worth, Texas, coming in next just two seconds behind Moss. The times weren't especially fast, but the competition was very close with evenly matched airplanes, which always makes for a good race.

Team Racing is ever growing in popularity throughout the world. While in Europe I witnessed some of the finest Team Racing I've ever seen. The competition at the 1954 World Speed Championships at The Hague, Holland, was unsurpassed anywhere, as was flying at the VIth Criterium of Europe in Brussels in 1955. Much to my disappointment, there was no Team Racing event at the 1955 World Speed Championships at Paris. A regrettable and most unfortunate oversight for so important a competition.

F.A.I. rules requiring 2.5 c.c. engines were predominantly used in Europe. I personally like this class very much and would like to see it become more popular here in the U.S.A. Judging by the performance of Team Racers in the F.A.I. 2.5 c.c. class, I am inclined to believe that we here in the U.S.A. would have a hard race on our hands in competition with Europe's best, and in fact would likely have difficulty in even keeping up. I have yet to see finer flying than seen in Europe.

An event such as Team Racing requires something more than the average model airplane event. It takes a high degree of team work and perfection to consistently turn in winning performance. The pilot must be highly skilled in control-line flying to

Kenneth Moss, left, of Galesburg, Illinois, winner of this year's 1956 U.S. Nationals Team Racing Event being presented with the famed F.A.S.T. Club Perpetual Team Racing Trophy. Presentation is made by an Admiral of the U.S. Navy. The Navy is host to the Nationals.



Dick Edmonds

lets you into the design secrets
of his very successful F.A.I. racer

TIME TRAVELLER

REMEMBER the furor created when the F.A.I. Team Racing specifications were first announced? With loud cries of "Too big" — "Tank too small" and "Lines too long", the British fraternity were considerably upset by the metric requirements for the International class: but they could hardly have foreseen that the most important of the 1956 races were all to be won by these "oversize" F.A.I. designs. We refer to Pete Smith's *Fingerprint* (A.P.S. drawing CL 589), J. Howard's *Finger Print* and Dick Edmond's *Time Traveller*. All three have flown for Great Britain at Continental meetings and all have done well, with perhaps the highest honours, home and abroad currently due to the latter.

Why should a model, first considered to be too large, be developed into a winner against all-comers? One cannot deny that the team racing skill of big Dick Edmonds counts for a lot, whether he is using a standard 70 sq. in. wing or the 104 sq. in. in *Time Traveller*; but there are hard facts that Dick can give in favour of the bigger model which add together to spell a better chance of success.

First, the size of the wing itself has no measurable affect on airspeed. It's the motor-prop combination that provides the performance in the air, assuming, of course, that the demon drag is kept to a minimum with clean lines. Checks with both High Wycombe and the Forester's models have shown the F.A.I. racers to be just as fast as the S.M.A.E. variety. Where they actually gain advantage is in the take-off and landing characteristics.

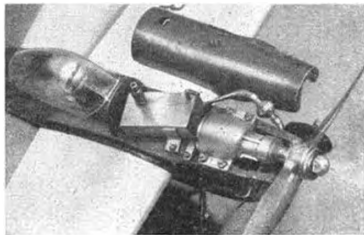
But it is not wing area alone that gives the advantage if we study Dick Edmonds' design features as embodied in *Time Traveller*. One must have a high ground angle for that snappy, almost VTO take-off, and to get this, the fuselage should be as short as the appearance requirements in the rules will permit. This gives a further advantage in drag reduction, for the rear fuselage can be tapered off with smallest possible "wetted area", and in turn, the reduction in tail weight structure calls for a shorter nose length, meaning less nose area and even more important still, a better balanced flying position. Control-line flyers will know that a long nose very often means a hard pull on the lines when at full speed, and the model flies in a constant state of yaw

towards the outside of the circuit. By balancing with the centre of gravity close to the pivot point (but just far enough forward to retain excellent control) Dick Edmonds has a model that sets its flight path firmly on the radius of the circle and minimises speed wasting drag. Note too, how the fuel pick-up point on Dick's tank—either the 10 or 15 c.c. size—is arranged close to the C.G. and in line with the centrifugal pull on the lines. This accounts for the absolute consumption of all the fuel on every flight, and an average of 54 laps at 85-90 m.p.h. on S.M.A.E. line length of 46 ft. 8 in., or 40 laps at the same speed with the smaller tank on F.A.I. 52 ft. 3 1/2 in. lines.

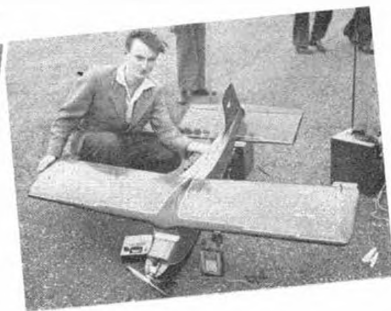
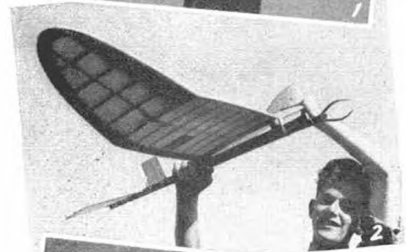
Those who have long admired the pit stop technique of Dick Edmonds (he always pits his own model) will know he can send a model off single handed (as required by the F.A.I.) in the time it takes to squeeze a bottle and flick a prop just once. His pressure valve is indispensable for such fast refuelling, and we should warn intending builders that it is not possible to unscrew the ball non-return valve by squeeze bottle pressure alone. Make a nozzle for the bottle so that when forced over the filler, a wire or tube projects to push the valve down. Such valves can be unscrewed for changing from tank to tank.

Performance? Built for the Criterium d'Europe this year, where it was only 5 seconds behind the winner in spite of a prop change, *Time Traveller* has won the Dartford and Enfield races (N. Heights Cup), was 2nd at the All-Britain and 2nd in the London Area rally at Heston.

Fuel used: 45 per cent. Aladdin Pink Paraffin, 35 per cent. Either, 20 per cent. Castor oil, to which 3 per cent. Amyl Nitrite is added.



Fused Oliver Tiger, fuel filter and angled pressure filled tank form the prize-winning power unit for *Time Traveller*



Model News

LET'S SEE WHAT our roving eye has spotted in recent weeks at the model rallies—starting with a cracking scale biplane in bright scarlet and white trim which we located in the Watford encampment at Radlett. Do you recognise the subject? It is a famous racing aircraft that made its name at the 1921 Aerial Derby where it greatly attracted builder Herby Jackson—who got around to making this fine flying replica some 35 years later! Martinside Semiquaver is the proper title, and Herby has piled on all the detail that his fine recollection of these vintage types provides—including the prominent proboscis of the full-size pilot!

My, what a big pair of tip fins you've grown Mr. P. Dingle of Oxford Meteors, in **1**, who we caught at the S. Midland "do" at Cranfield. All that dihedral too, we bet it goes up like a churn on the line: but will it circle? The next item certainly orbits when it wants to, as its appearance might indicate in **2**. Apprentice Creggan of Hulton won the S. Midland Area picnic "White Elephant" event with a pair of Slicker 50 wings, Lula tail, .5 c.c. pylon model fuselage sans pylon, a pair of pliers, a cork incidence block and a pin for the towhook. He was given this selection from a pile of "junk" brought by the picnickers—and made a two-minute flight off the first launch! Ah well, this is not the year for the purists, as they found out at Florence.

Two quickies now, both at Radlett and with A.P.S. designs of particular merit. Each is very well made, and a credit to the builder—**3** is J. H. Field of London, N.1, with an Allison Merlin powered B.A. Swallow, and **4**,



5



6



7

P. Brown of Sidecup with his 3-reef equipped Waveguide (de Long 3.0 engine).

John West of Southern Cross is looking pleased with life in 5 and no wonder, for his Swiss Miss (Wehra Mach 1) has just collected the South Coast Power Trophy at the Gala held at Ashdown on September 23rd.

It almost seems as though Mr. Welham of Luton is agast at the thought of free-flight in 6 for he obviously favours control-line, and had a nice twin-Mustang type with Allen-Mercury 25 and 35 diesels at Radlett.

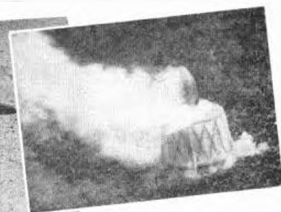
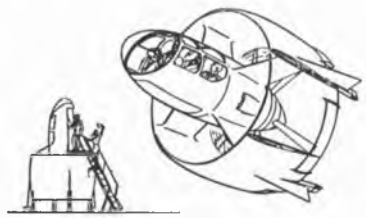
New kit in number 7 ?? We would not be surprised, for Colin Sinclair of Southport has a few designs on the market and this one takes the Allbon Sabre nicely. Won the Southport exhibition Championship Trophy.

Very nice scale twin is the De Havilland Dragonfly D.H.90 in picture 8, for two Allbon Darts and weighing 19 ounces. Built by Carl Roedding of Northwick Park and the D.H. Engine Co. Model Club, it is at the moment suffering teething troubles, but should soon be flying well. Elegant span is 43 inches.

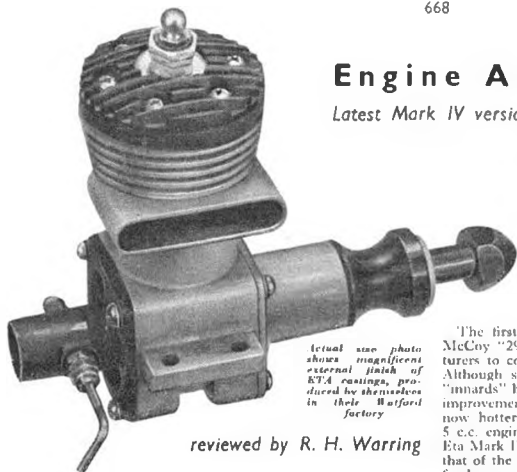
Closing our Christmas round-up, we have a sketch to prove to the doubtfuls that the Coleopter introduced last month really does exist as a project in France. Drawing shows the VTO attitude for take-off and the pivoted seats in action for level cruising—anyone care to try it? And so we say farewell to yet another year of aeromuddling with three of our less attractive shots to cheer you on your way. They are a chopped combat model believed to be of Derby origin, the demise of Pat Wheeler's R.C. Monocoupe 64 after the wings parted company (Pat hates two-piece wings now!)—even the 34-inch airwheels burst, and the poor 2-46 was smacked in half—and, finally, Ian Geddes' Coleopter in a state of misfire . . . water was not called for, it was a case of all smoke and no fire.



8



finis!



Actual size photo shows magnificent external finish of ETA castings, produced by themselves in their Watford factory

reviewed by R. H. Warring

WITHOUT ANY DOUBT the latest Eta "29" is a beautifully made piece of machinery. Perhaps that is being a little unfair to Eta's. They have always been noted for first class workmanship and the Mark IV "29" is only carrying on that tradition. It does, however, offer something extra in the way of performance.

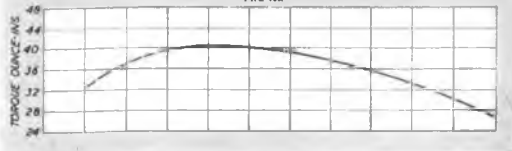
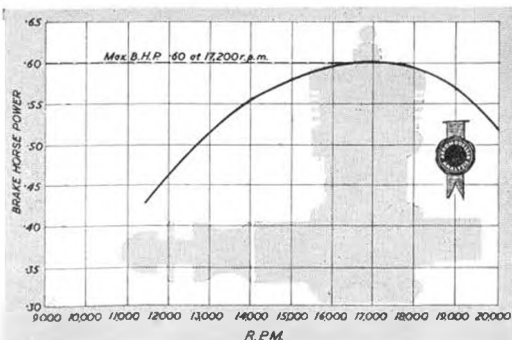
Engine Analysis No. 28

Latest Mark IV version of the

ETA '29'

The first Eta "29" was very much a copy of the McCoy "29"—not that Eta's were the only manufacturers to copy leading American designs at that time! Although still retaining the same general layout, the "innards" have been subject to detail modifications and improvements over the years so that the performance is now hotter than anything originally visualised for a 5 c.c. engine. Although a production job, in fact, the Eta Mark IV would appear to develop power as high as that of the individually hot-up engines of known or freelance origin.

Essentially, though, the Eta "29" is an engine for the specialist, mainly in the field of control line speed and Class B team racing. It is easy enough to start and handle, but can be a little "touchy" about how it runs and is quite different in characteristics to, say, the high-speed diesels. For one thing it has an indifferent—almost non-existent—performance below about 12,000



PROPELLER—R.P.M. FIGURES

Propeller dia. x pitch	r.p.m.
8" x 4 (Stant)	18,000
8" x 5 (Stant)	16,750
8" x 6 (Stant)	14,800
9" x 4 (Trucut)	14,300
9" x 5 (Stant)	13,000
10" x 4 (Stant)	11,000
8" x 9 (Stant TR)	12,100
8" x 8 (Stant TR)	14,600
7" x 9 (Stant TR)	14,500
7" x 8 (Stant)	18,000
7" x 6 (Stant)	18,800

SPECIFICATION

Displacement: 4.884 c.c. (2979 cu. in.)

Bore: .750 in.

Stroke: .674 in.

Bore/Stroke ratio: 1.11

Bare weight: 6½ ounces.

Max. B.H.P.: 605 at 17,200 r.p.m.

Max. torque: 40.5 ounce-inches at 13,500 r.p.m.

Power rating: 123 B.H.P. per c.c.

Power/weight ratio: 0.925 B.H.P. per ounce

Material specification:

Crankcase, Cylinder Head, Front

Housing, Rear Cover: First quality

Aircraft Aluminium.

Piston, Rotary valve: Hyduminium.

Ball races: Ransome and Marles

Connecting Rod: Hyduminium, bushed with phosphor bronze.

Piston Rings: Hepworth and Grandage

Crankshaft: 5 per cent. Nickel Chrome, hardened and ground.

Retail Price: £7 6s. 4d. (in P.T.)

r.p.m. At 13,000 r.p.m. it is still blowing as much fuel out through the intake tube as gets sucked into the engine, but above that speed it soon gets much happier and very sweet running. It can be taken up to 20,000 r.p.m. and beyond on propeller loads and still be easy to start with a flick of the finger, but the test engine did show one or two speed levels at which running tended to become a little erratic and could not be smoothed out by needle valve adjustment.

Stripped down later a possible mechanical cause was discovered. To put it crudely, the back rotor disc had "had it". Of light alloy construction, the disc by this time was a "wobble" fit on its bearing pin and had probably reached that stage of wear to influence the induction. This was at the end of some two hours total running time and although the engine was run at very high speeds for some considerable proportion of this time, it received no harsher treatment than it would have been subjected to in a model.

This early failure of the back rotor is a common fault with all production engines of this type—not just the Eta. It seems almost certain, in fact, that light alloy just is not good enough for the job. A Tufnol disc, on the other hand, will usually outlast the engine. We are surprised, in view of the engineering excellence of the rest of the engine, that this was not done as standard on the new "29".

New piston-cylinder fit

An unusual feature of the construction is the very tight fit of the alloy piston in the cylinder for a ringed glow motor. The piston itself is a very nice light casting, fitted with two rings and a characteristic deflector top.

The gudgeon pin is carried in plain bosses and two large transfer ports are cut in the wall. The piston fit in the cylinder *without* the rings is almost good enough for running.

This is apparently deliberate for the makers take pains to point out that the Eta "29" needs a considerable amount of running-in time and performance does definitely increase over this period until the engine has worked up to its peak. The engine received for test had already had a considerable amount of running, judging from the appearance of the top of the piston, but continued to "wear free" and run faster with the same propeller loads for roughly the next hour's running time. After that further running had no measurable effect, except for the previous-mentioned rotor trouble towards the end of the second hour.

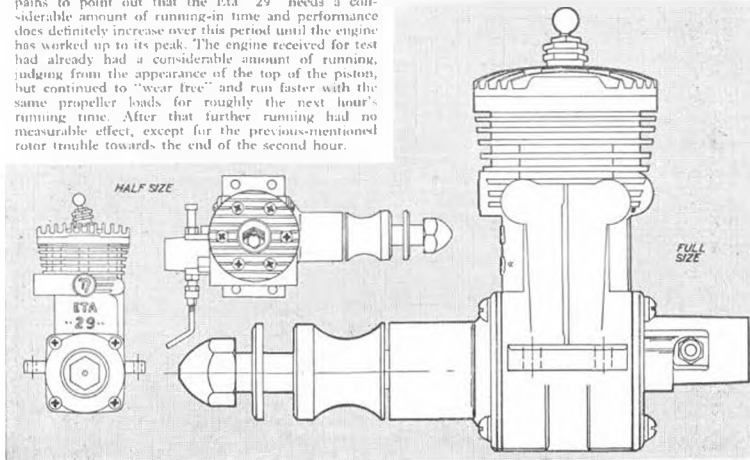
The Eta "29" gets extremely hot when running fast, but this does not appear to worry it at all. Even the anodised head stands up very well to this sort of treatment despite the fact that the glow plug may become discoloured because of the high temperature of the head. The cylinder liner appears to remain free from distortion and the head seal is maintained without the use of a gasket.

The head is a detachable unit, held down by six Phillips' head screws. The plug is mounted in the centre of the head, but angled to the right 10 degrees. The head cannot be assembled "opposite hand" because of the internal shape matching the piston top contours.

The liner is press fitted or shrunk into the light alloy jacket integral with the crankcase casting. Liner walls are approximately $\frac{1}{16}$ in. thick and are broken by a series of six holes spanning 180 degrees circumferentially for the exhausts and with the transfer ports opposite. There is a small amount of sub-piston induction at the top of the stroke, i.e., the bottom of the piston just uncovers the bottom of the exhaust ports, but this may be incidental rather than designed for. The exhaust opens fairly early and is quickly followed by the transfer opening.

The gudgeon pin traverses a "plain" section of the cylinder walls. The gudgeon pin itself is $\frac{3}{16}$ in. in diameter and $\frac{1}{2}$ in. long, press fitted into the piston. It is fitted with brass end caps. The connecting rod is bronze bushed at both big and little ends and both these bearing surfaces are slotted for oil pick up. The fits are extremely good and alignment excellent.

The cylinder-jacket-crankcase unit is a fairly intricate light alloy pressure die-casting to which the backplate assembly and front bearing assembly are plugged in and held by four Phillips' head screws (each cover). Gaskets are used on both these joints to seal. The crankshaft is carried on two ball races housed in the front casting, the



supported bearing length being one inch. The crank web is machined away into a crescent-shaped balance weight, the bottom of this having a small slot, presumably to act as an oil flinger. The crank pin is machined and ground to $\frac{1}{16}$ in. diameter.

The backplate casting incorporates an integral intake tube of quite formidable dimensions. The venturi entry diameter is $\frac{1}{16}$ in. tapering down to $\frac{1}{32}$ in. at the throat. The spray jet is located slightly "downstream" from the throat on the inner wall. The needle valve is $\frac{1}{16}$ in. diameter wire ground to a fine taper. It has no thimble, but is threaded and screws into the wall bush. The threaded length of this bush is split and compressed (thus providing locking action) by a special nut. This is quite positive in effect and can be adjusted to give any degree of tightness required on the needle valve.

The front crankshaft assembly is typical "racing engine" style with the propeller holder screwing on to the shaft. This section is $\frac{1}{8}$ in. diameter and 1 in. long. When screwed right home, with the front washer, it will not accommodate anything less than a 9 in. pitch propeller without further packing. Where a smaller pitch propeller was to be used consistently the prop holder length could, of course, be reduced.

Timing as given by the rotor disc appears to be slightly more than 180 degrees opening, starting around

45 degrees after B.D.C. and closing around 45 degrees after T.D.C. This late closing would undoubtedly account for its readiness to spray fuel out of the intake at low speeds and also explain why the engine does not like running slowly. As a very minor point, the intake opens cleanly but the cut-off when closing is not so perfect.

The performance curves speak for themselves. Essentially the Eta "29" is a high speed engine, but with the horse power curve nicely flattened around the peak region. Peak power, on the engine tested, occurs at around 17,000 r.p.m., or very slightly above, and is as good as any engine we have tested. Below about 13,000 r.p.m. it is not particularly consistent in running, although possibly this could be improved upon by experimenting with fuel mixtures. The fuel used for test was a heavily nitrated "racing" mixture containing between 25 and 30 per cent. nitromethane.

An 8, 9 or 10 in. pitch propeller would appear a logical choice for control line work, with diameter and blade thickness trimmed to give around 16,000 r.p.m. static. This can be achieved on a standard 8 x 8 team racer propeller by slightly reworking the blades, but a slightly higher pitch would seem advisable (with reduced diameter). For free flight, we would plump for something like a 9 x 3 propeller.



Prototype D.V. showing irregular hexagonal camouflage painted on fabric, pulley actuated ailerons and elegant fuselage shape. (Imperial War Museum Photograph)

22. Glue the struts to the fuselage, solder a 16 s.w.g. axle to the legs, then paint these members red.

23. Turn hardwood wheels, paint the discs red and the tyres matt black. (See editorial censure, October.)

24.(*) Paint the engine and its cavity black. Glue the engine to the model and add guns made from brass tubing, fibre and pins. Fit a windshield and a cartridge chute to the port side only. Cut louvers from paper and add to the model, also a down water pipe, which should be bent to fit in the appropriate hole on the radiator.

25. Make patee cross transfers as described in the February, 1956 A.M., but since the black may be superimposed on the white, no preliminary coat of clear dope is necessary. Print the fin serial with Indian ink.

26.(*) With the upper wing held in place by an elastic band, cut bamboo interplane struts to fit. Notch the ends as shown. (Because the metal-to-fibre cabane joint is weak, bamboo interplane struts are advisable for strength.)

27.(*) Pierce holes at "F" and in them glue lengths of Coats "Gossamer" thread, shade No. Y515. Cross the threads over, wind round the axles, and glue.

28.(*) One each side of the fuselage, pierce a hole at "G". Knot together two 12 in. lengths of thread at their centres, and glue the knots into the hole on the starboard side. There are now four 6 in. threads emerging from this hole. Take two of the threads (No. 11,

The Albatross (continued from page 654)

pass round the pegs "H" and glue. While the glue is still tacky, apply a spot of glue to each wing cabane hole, fix the wing, and pull the threads tight.

Glue the starboard strut holes, also the strut ends. Take strut "J", pass both No. 1 threads under the lower end and one No. 2 thread over the top and fit in place. Take the other No. 2 thread over the top of strut "K" and fit, then pull all threads tight. One No. 1 thread is now glued into the hole "L". Trim off all ends, then repeat the process on the port side.

29.(*) Glue the centre of a 6 in. thread into the hole "M" and glue the two ends into the holes in the upper wing.

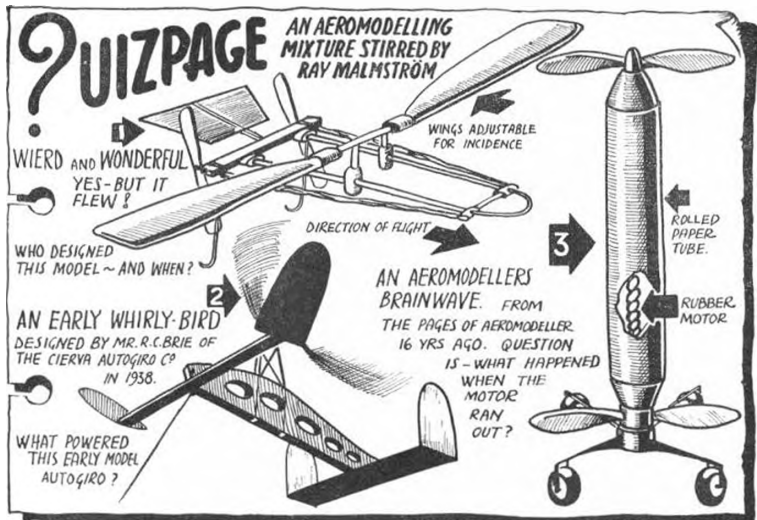
30. Fit celluloid control horns to the elevator, then add control cables as described in the Avro article.

31. Bend the up water pipe from brass wire to fit into the front cylinder and radiator holes. Add a landing-gear mounting strap out from thick paper. Use the sharpened end of a brass tube to mark the circular access doors. Pinprick all cowl fasteners. Make a radiator expansion reservoir "D" from balsa and a pin.

How to obtain a fine finish

Apply four or five progressively thinner coats of dope, rubbing down after each one with fine abrasive paper. When the dope is quite hard, dip a damp cloth in "Ajax" household cleanser and rub with moderate pressure until a dead flat dull surface is obtained. Obviously there must be an adequate thickness of dope to survive this harsh treatment. Beware of extra pressure at the edges which might expose bare wood. Rinse the parts under the tap, cleaning out clogged score lines with a soft brush.

Dry thoroughly, then polish with "Silva" as you would metal, rubbing for three or four minutes. Rinse in water to which a little detergent has been added, then dry. Finally, polish with liquid wax. There is a proprietary smoothing compound called "Proxomin" which may be used instead of the cleansing powder. It is made by the Berger paint company, and may be obtained from garages in 1 lb. tins.



Bruce Fergusson explains some odd associations with the Battle of Britain

THE OLD SOUTHERN Railway, now the Southern Region of British Railways, brought out a Class of Engine called "Battle of Britain Engines", which were named after famous fighter pilots, airfields, aircraft, squadrons and others associated with the Battle of Britain. This was a tribute to the part played by the Royal Air Force in defeating the Luftwaffe.

At the christening ceremony in October, 1947, the General Manager of the Southern Region said that the engines bore the names of those personalities, aircraft and stations associated with the Battle which was fought, for the most part, over the territory served by the Southern Railway. The first three engines were named, "Lord Dowding", "Hurricane" and "Spitfire". The Guard of Honour was formed by ex-R.A.F. men and women

employees of the railway company. Group Captain Douglas Bader, the famous limbless Battle of Britain "Ace" named one of the engines.

Last year, during Battle of Britain Week, R.A.F. Station Biggin Hill, associated with the famous Battle, a Spitfire and a Hurricane were dedicated by a special Service conducted by the Bishop of Rochester (the Right Reverend Christopher M. Chavasse, O.B.E., M.C., M.A., D.D.). These "stand on guard" outside the Station Memorial Chapel in memory of all those who fell during the battle.

A similar feature was adopted by R.A.F. Station Waterbeach, whose two aircraft stand by the Guard-room as a reminder of the war days when they were familiar sights on the airfield.

It has become a tradition now, since the end of the war, that on the Saturday afternoon of Battle of Britain Week, most R.A.F. Stations are "At Home" to the public.

The programme includes drill displays, aerobatics and static aircraft exhibitions, to say nothing of comic turns, and the "turn-out" of the Station band. Proceeds from the sale of programmes, etc., all go to various Service Societies which are responsible for the rehabilitation of airmen, their dependants and families.

1. The Whirly and wonderful model was designed by Cecil Brie who was known as the father of British Aviation. The 2. Autogyro had NO power unit, was flown to great heights by towline just like a kite. Appeared in kit form for assembly in post-war years also. The latter saved readers to build the model and find out? Well, why not?

ANSWERS TO QUIZPAGE

THE

F.E.2B.

by P. L. Gray



"A COW, A BLUNDERBUSS, a domestic pet, a kitchen range with wings on, a threshing machine, a loutish, lumpish, heavy, clumsy old brute, a butt and a joke, yet among aeroplanes of the war period, indubitably one of the great world's workers. . . . note the tiered nacelle, boldly opening its enormous mouth to gulp down as much drag as possible and then ask for more. Look at the wires and struts, the undercarriage, the gun mountings and consider whether there has ever been or ever will be an aeroplane to express more openly and visibly its contempt for streamlining and all that goes with it." So wrote Oliver Stewart (whose voice and wit is so popular commenting at Farnborough Display each year) of the F.E. 2B in "The Clouds Remember" some twenty years ago.

The F.E. 2B was produced by the Royal Aircraft Factory at Farnborough in an effort to wrest the supremacy of the air from the Fokker monoplane during 1916. Designed originally as a fighting aeroplane (the initials F.E. indicating Fighting Experimental) it was used in many other roles: reconnaissance, photographic patrol, bombing, coastal patrol, etc.

It was first powered with a 120 h.p. Beardmore engine, which although most reliable, was hardly powerful enough to lug a Fee (as the aircraft was familiarly known) around; later the 160 h.p. Beardmore was installed. A still more powerful version with a 250 h.p. Rolls Royce engine and 4-bladed propeller was known as the F.E. 2D. It might be as well here to correct the erroneous impression that a 2D could be distinguished from a 2B by its Vee type undercarriage; it was identified solely by the different engine. On both types the undercarriage was often modified at Squadron or Aircraft Park level by removal of the nose wheel and attachment of the radius rods to the points from where the front Vee struts had been removed. The amount of weight and drag thereby saved resulted in an increase of some 3 to 5 m.p.h.

When it first appeared in 1916 the F.E. 2B was armed with only a single Lewis gun (with water jacket) on a swivel mounting at the front of the nacelle; later a tall pillar "gaspipe" mounting was installed between the cockpits to enable the observer to fire rearwards and upwards over the top wings with another Lewis, usually without water jacket. This was only possible had the observer the necessary combination of nerve and dexterity to stand up on the front cockpit locker (with his knees well above the nacelle edges) to fire the gun, and at the same time somehow hang on to the mounting to prevent himself being thrown overboard (no parachutes then!) by combat manoeuvres. More than one observer was saved by his pilot "dropping" the controls to grab him.

It was on a Fee that Lieut. McCubbin and his observer Cpl. Waller managed to shoot down on June 18th, 1916, the top scoring German pilot at that time, Oblt. Max Immelmann (after whom the Immelmann turn was named) who was flying a Fokker monoplane. As the 2B came to be outclassed later in the year by the new Albatros D1 and Halberstadt D11

Unarmed F.E.2B with four-bladed prop and modified undercarriage for extra speed. (Imperial War Museum photograph)

scouts, the squadrons developed the famous "defensive circle" tactics in which, on being attacked they would form a circle, thereby each protecting the other's tail, while the observers could bring a concentration of fire to bear upon the Hun as they came in to attack. By the Spring of 1917 the new Albatros D111 appeared and when opposed to this the Fees were at an extreme disadvantage, but none-the-less continued to give a good account of themselves. Even as late as July 6th, 1917, Baron Manfred von Richthofen was shot down and wounded by Lieut. Woodbridge in an F.E. 2D of No. 20 Squadron.

Much praise is due to these observers as they were usually seconded Army personnel posted direct to squadrons with no previous flying experience or instruction of any kind.

There were several modifications to the F.E. 2 series including various trial engine installations such as the 100 h.p. Green (F.E. 2A) and 150 h.p. R.A.F. A special night-fighter version in which the seats of the pilot and observer were reversed was known as the F.E. 2C, but only two of these were built.

One of the most unusual duties the Fee was called upon to perform was on the night of July 4th, 1918, when 101 Squadron were ordered to fly about over the enemy lines in order to drown the noise of a large number of tanks which were being assembled under cover of darkness, preparatory to a large-scale attack.

Construction: The wings were of orthodox construction unstaggered with three bay interplane struts, and with all flying wires duplicated. "none" ribs were spaced between the main ribs and the whole covered with linen fabric. The nacelle was a simple wooden frame covered with ply and fabric with metal panels aft. The wooden tail beams were of round section "squared" at the strut junctions. The rudder was balanced and hinged to the sternpost, the triangular fin being mounted atop the tailplane to form a kinkout for the bracing. The undercarriage was a complicated steel tube structure with Oleo sprung main struts. Many aircraft had detail differences, these mainly being perpetrated by the several sub-contractors.

Dimensions:
Span 47' 6" Length 32' 3" Height 12' 7 1/2"
Chord 5' 6" Dihedral 4" Incidence 4' 10"

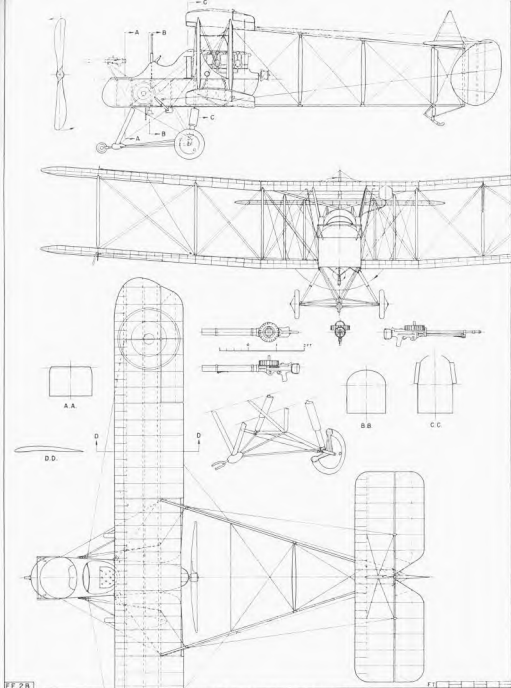
***Performance:**
Max speed 81 m.p.h. at 6,500' Climb f 6,500' in 18.9 min.
Service Ceiling 11,000' 10,000' in 39.7 min.
*With 160 h.p. Beardmore engine. Endurance 3 1/2 hours

Squadron Equipped:
Western Front: 6, 11, 16, 18, 20, 22, 23, 25, 38, 58, 83, 100, 101, 102, 148.

Home Defence: 33, 36, 51, 58.
Night training: 191, 192, 194, 204.

Serial Numbers: These were mainly four-digit numbers without a prefix, e.g., 4962, 5343, 5610 of 102 Sqdn, 6993, 6934 of 25 Sqdn, etc.

Colour Detail: All upper and side surfaces were doped the regulation dark green, undersurfaces were left natural linen, which was only tinted (a creamy shade, darkening with age) by the clear dope and varnish. The rudder was equally divided into red, white and blue divisions with the serial number painted across in black. Struts were either plain varnished spruce finish or doped green. Night bombing types were later dark green all over with no roundel on the nacelle and sometimes rudder stripes were omitted, one such aircraft was A852 of 100 Sqdn, which had the serial number thinly outlined in white. Sometimes squadrons obliterated white in the roundels with lampblack.



"F" TYPE 1/72nd SCALE REPRINTS OF THIS DRAWING AND "F" TYPE 1/35th SCALE DIE-LINE PRINTS ARE AVAILABLE PRICE 6d. AND 2/- RESPECTIVELY FROM THE AEROMODELLER PLANS SERVICE. QUOTE DRAWING No. 3659 WHEN PLACING YOUR ORDER



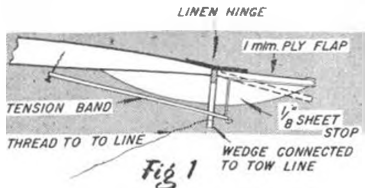
IN ORDER to pick up and stay in thermals, most contest gliders are trimmed to fly in tight circles and usually an auto-rudder is used to obtain this trim. If a gust of wind hits such a model in rough weather either the turn opens out and the model stalls or it tightens up and down goes the nose, the bank causing the rudder to become an elevator. In either case considerable height can be lost.

I considered the alternatives to rudder control for providing a turn and decided that the answer might lie in power and rubber models since most flyers leave the rudder severely alone except for very fine adjustments, to avoid making holes in the ground on full power.

To control a power model at full throttle a small amount of "wash in" is built into one wing, usually the starboard one for right turn under power and to maintain this right turn on the glide, the tailplane is tilted slightly with the port side low.

Many power and rubber models have excellent glides even with their "bits and pieces" hanging on the front, so I thought it might be worth while trimming an A/2 glider in a similar manner, using an auto-flap on one wing to give the required "wash-in".

Fig. 1 shows a ply flap, $\frac{1}{2}$ in. wide \times $\frac{1}{3}$ span, added to an existing wing. When fixed in position, weight should be added to the other wing to



METHOD OF ADDING AUTO-FLAP TO EXISTING WING

(FLAP ADJUSTED TO GIVE STRAIGHT TOW LAUNCH)

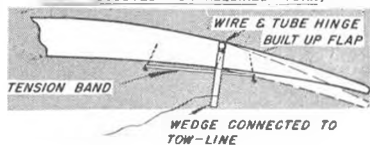
correct for balance. The flap operation, by an untapered wedge or stop connected to the tow line, is quite positive and shouldn't give any trouble providing no excess of thread can snag up during the launch. This is the simplest flap as it is easy to attach and adjust.

Fig. 2 shows a flap tapering from $1\frac{1}{2}$ in. wide at the root to 1 in. at the tip. In this case it is built from the root of one wing for $1\frac{1}{3}$ rd span and since the required angular movement is not so great as for Fig. 1, it gives a more efficient wing section. One of my A/2s fitted with this flap was in two R.A.F. Champs, being 1st in 1952 A/2 Class and 2nd in the 1953 Open Glider Class.

A NEW TRIMMING SYSTEM FOR GLIDERS, DEvised BY Pete Wyatt

Fig. 3 is still in the experimental stage. I am using this system on a shoulder wing A/2 on which the wings are "knock-offable". In this case the wings are built with slightly different airfoils; the flapped wing having a little more undercamber to make its trailing edge about $\frac{1}{4}$ in. lower than on the other wing. The whole trailing edge is raised on the tow to balance out the lift on the wings. This flap is operated as Fig. 4 and so far it seems to give a superior calm weather glide over types 1 and 2, though I have not had it fully trimmed for rough weather yet.

Fig 2 AUTO-FLAP BUILT INTO WING
(BOTH WINGS IDENTICAL ON TOW,
DROP ADJUSTED FOR REQUIRED TURN)



Here are a few points I have observed so far on my three flapped A/2s.

(1) Up to 5 degrees flap movement plus a tilted tailplane produce a steady turn and is the most efficient in good weather.

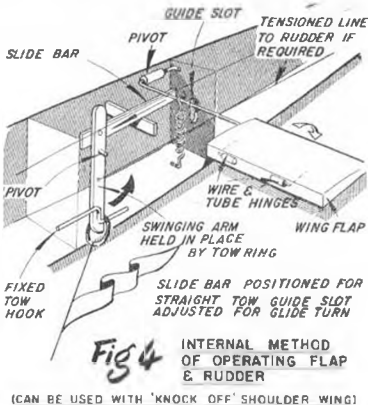
(2) 5-20 degrees movement. This may need auto-rudder as well as a tilted tail and there is a tendency to get into an opposite turn at a certain flap angle, depending on the model. This angle should be avoided or the nose will drop.

(3) 20-30 degrees movement. The flap is now producing considerable drag as well as lift and only slight tail tilt should be necessary. Not so efficient as position (1) but very effective in bad weather and the one I've had best results with so far. Auto-flaps seem to be most effective when used on the whole length of an inner bay of a polyhedral wing. There should be a reasonable amount of dihedral angle at the wing tips since if the turn is too flat skidding will

take place due to too little side area at the tip to correct for centrifugal force from the turn. This skidding can destroy the lift on the wings if allowed to build up.

I don't claim that an auto-flap control will provide any more than some of the answers as only an auto-pilot can do the whole job, but I hope some modellers find them useful in the future.

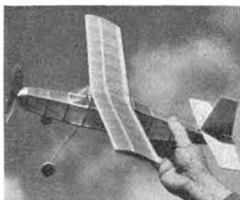
Fig 3 METHOD OF USING HIGHER LIFT SECTION ON PORT WING



A FLUSH of new kits has hit the A-M test bench, and have not as yet had the time to air-test all of them. One was from an entirely new quarter and because it lives up to its name of **Simplex**, by Simplex Models of High Road, Chigwell, Essex, we tackled this one first. There is an aim to this model, so the manufacturer tells us, and having made the job, we appreciate his points of view. It is specifically directed at the beginner. Prefabrication is introduced in fine quality; but the lad still has something to do for himself in making the fuselage and wings. The prop is a nicely carved Obuchi 8-inch type, the noseblock is shaped and has a brass bush fitted. Yes—this sets the beginner on the right road, and as for flying, well it exceeded our expectations as the big

prop took it farther, higher and for longer duration than any other 20-incher we know. Price is higher than usual for the size of model; but represents real value at 7s. 6d. for a kit that takes us back to the "good old" pre-war days for its quality and completeness.

A novelty line in the same size of model is the **Frog Delta 16**, which, as its name implies, is a delta of 17-inch span, and nicely produced in the new Frog style box colours of bright yellow background. Die-stamped parts, a plastic prop assembly and all accessories except dope and cement make this a fine selection for 5s. 6d. Also from the International Model Aircraft establishment is a new stunt model kit for the Frog 249 at the very reasonable price of 25s. We can visualise this becoming a most popular model with the controllers. The design is well "in fashion", the parts are neatly die-cut, the wood top grade, and the plan, for which most modellers look first, is explicit and immediately indicative of a fine end *Hunter in plastic by Randalls Ltd. ("Merit") retails at 12s. makes up into a fine model without unnecessary protuberances*



Simplex, also in heading, is a perfect introduction to aeromodelling

product in the 38-inch fully-flapped **Aerobat**.

Last month we reproduced a picture of Contest Kits Director Mike King testing the prototype **Calypso**, and now we have had the chance of examining this 19s. 6d. kit, we are sure that most A.M.25 and 1-5 c.c. owners will want to make this up to date pylon model. Kit is good quality, with ready cut wing ribs, printed tail ribs (rather thick lines, eh, Mike?) and a set of instructions. We presume that the missing line under "Fuselage" should be—"each $\frac{1}{4}$ inch longer to $\frac{1}{2}$ inch at rear"

Another new kit—the **Keilkraft Joker** has now passed junior's flight tests and at 11s. 5d. is more than good value—it is positively cheap! Designed for the baby size diesels, it loops with a Dart aboard, and is absolutely complete, with die-cut parts, only needing dope to finish.

North-Western

The BLACKBURN M.A.C. reports bad support from the town, so amalgamation with Accrington club is contemplated. New members should enquire at Mercer's.

News of a new club is of the WOOLTON WASPS M.A.C., operating in the southern suburbs of Liverpool. Owing to lack of flying space, main concentration is on C/L.

WHITEFIELD M.A.C. report quite a swing to C/L at the moment, though success in the national field has so far eluded them. In the midst of bags of items re comp. activities we like the story of the bright specimen who stayed up all night to finish a combat model for the morrow. He completed the job about 9 a.m. and set off all bleary-eyed to find a 'phone booth to ring a friend to make arrangements for the day's flying. Finding the booth occupied when he arrived there he sat down on a nearby form to wait, complete with new model and equipment. He awoke at 4 o'clock in the afternoon!!!

The COLNE M.A.C. announce a Rally to take place on December 16th, and I trust that some of you will be able to take advantage of this extremely short notice. No details are given of venue, but presume it will be known to visitors to the Colne boys.

Good support by the local model trade of their activities is reported by the WIGAN M.A.C., a recent series of contests going down well. Winners were: B. Talbot (power) with 3 x 3's plus; T. Rhead (rubber) with 8 : 28; and J. Aspinall (glider) 7 : 13. Youngest member of the club, 10-year-old P. Rowley, threw a scare into Aspinall when he scored 6 : 49, making him top junior.

East Anglian

October 11th was a red letter day for the BRENTWOOD M.A.C., when N. C. Willis gave an interesting talk on his experiences as a member of the 1956 British A/2 Team. Interested guests came from the Dagenham

and Anglia clubs. Meetings are held on the second and fourth Thursdays of each month at the Congregational Church Hall in South Street, and anyone interested in aero-modelling is very welcome.

South-Midland

The LUTON AND DISTRICT M.A.S. is slowly but steadily increasing membership with a corresponding boost in activity. At Radlett Duncan Wood placed second in Jetex and fifth in rubber, whilst in the final club contest of the season "Clem" Clements won with a two-second margin in a three-flight nomination event against the largest comp. entry in 1956. Sid Miller's new radio (similar to Kohina, but more streamlined) is gradually taking shape. Club is showing its own films at a show on December 13th, to which all are invited. Time and place: 8 p.m., St. Matthew's Institute, Wenlock Street, Luton.

During the South Midland Rally, members of the OXFORD METEOR M.C. flew their own contest for their J. Howe's Cup, winner being A. J. Crisp. Contrary to some, this club is experiencing a swing away from C/L, and several jiff jobs have been produced with good results. With the use of Port Meadow, this club has good flying facilities, and would welcome any other clubs in the district to trimming sessions and impromptu contests in the coming months. Contact 48 Hurst Street, Oxford.

North-Eastern

After a year of steady progress in which flying displays at various Shows proved very popular, THORNABY PATHFINDERS M.F.C. closed their 1956 season when a junior member, K. Walton, placed second in the Darlington Club rally. Not to be outdone, the Ux combine of Watson/Watters rounded off a sequence of trials and tribulations by winning the Class A event at the same meeting.

South-Eastern

The Area Gala was held in conjunction with the M.E. and Gutteridge contests, resulting in surprisingly good weather for Ashdown Forest. J. West (Southern Cross) won both glider and power events with times of 7 : 38 and 9 : 00. Reg Russell taking rubber honours with 8 : 33. Best junior was P. Bates, also of Southern Cross.

To celebrate the successes of club members Delves, Gates and Donald, the SOUTHERN CROSS A.C. held a "binner" on September 29th. This consisted of a dinner followed by trip to the Hippodrome to see Cole Porter's "Can Can", and our Man. Ed. "Rushy" and Mrs. R. were guests of this progressive club. This group is, of course, noted for its prowess in the tailless glider field, and their success in Holland last June means that the 1957 contest will be held in this country during the British Nationals.

South-Western

The S.W. RADIO CONTROLLED M.F.C. is making steady progress, and held its second rally at Salcombe, when a representative gathering of the class saw some excellent flying. Wind strength built up to 15 knots, which suited H. Stillings' model expressly designed for penetration, his winning score of 174 points being more than double that of his nearest rival H. O'Hellerman. We learn that one member, Mr. Courtenay Gill, must be the luckiest of modellers, for his wife not only expertly assists him when flying, but also helps to build the jobs. Would there were more understanding wives like this one. Plans are well ahead for next season, so anyone interested is invited to write to the Hon. Secretary at 6 Alpha Street, Heavittree, Exeter.

Sorry! Some reports have had to be delayed 'till next month.

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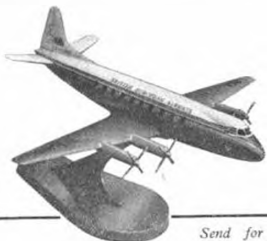
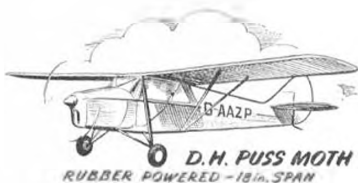
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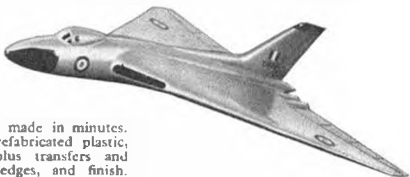
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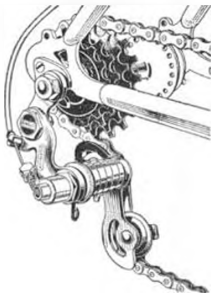
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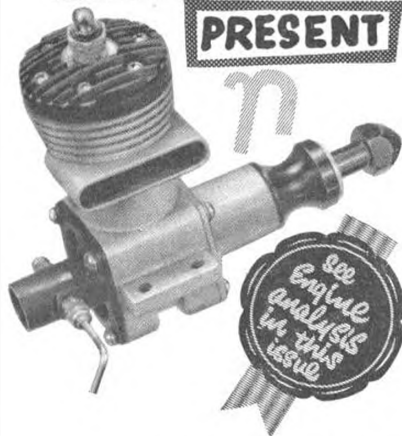
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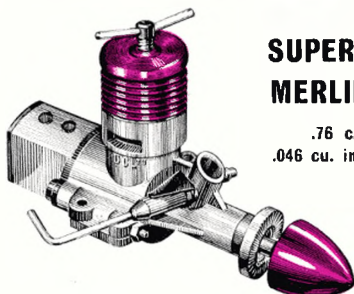
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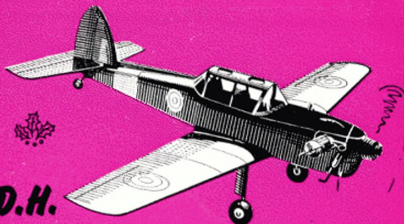
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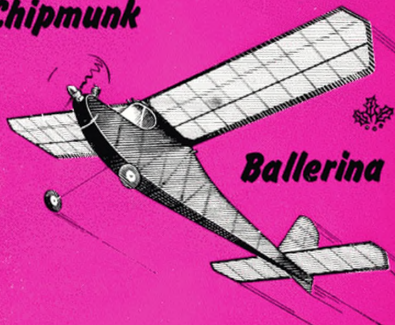
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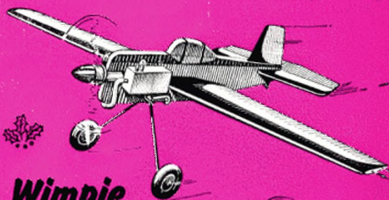


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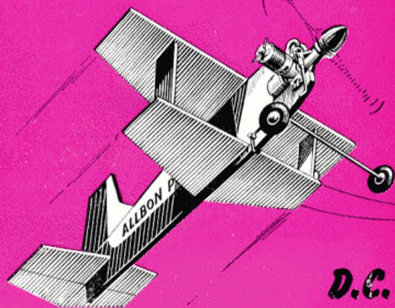
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Ballerina



Wimpie



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Bipe**

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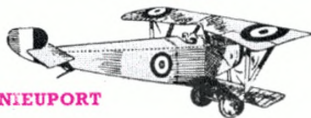
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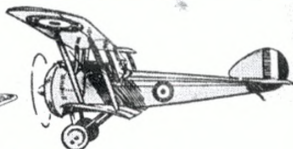
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