

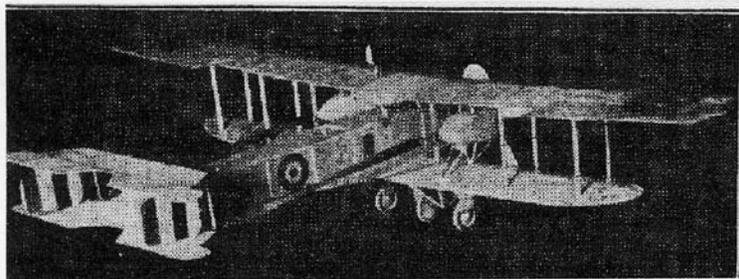
Build the Handley-Page Bomber

TRAIL BLAZERS OF THE AIR - NO. 11

FIRST "FLYING FORTRESS"

WHILE YOU'RE THINKING OF THE NEW YB-15'S AND THE YB-17'S AND WHAT THEY CAN DELIVER, HERE'S A WORLD WAR SHIP THAT LOGGED AT LEAST ONE THREE-THOUSAND MILE BOMBING HOP WITH ABSOLUTE SUCCESS. NOT SO BAD FOR TWENTY YEARS AGO, HEY? BELOW, HENRY STRUCK TELLS YOU THE FULL STORY OF THIS HANDLEY-PAGE BOMBER. AND HE SUPPLIES YOU WITH COMPLETE PLANS, AND INSTRUCTIONS FOR BUILDING A FLYING SCALE MODEL, TOO.

By stretching the rubber and using a winder, you can depend upon real duration when you turn this two-motored ship loose. The twin rudders are easily adjusted for flights circling either to the right or the left.



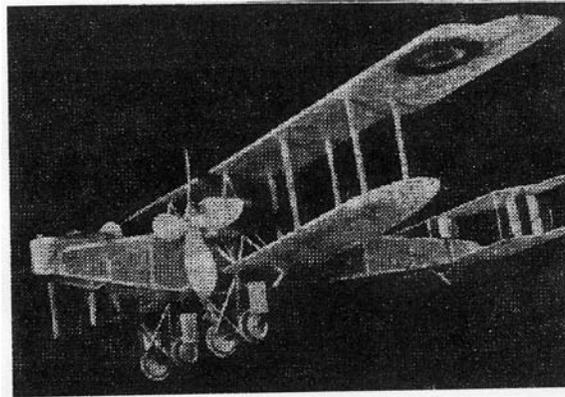
By Henry Struck

Before the World War, the defensive lines of a warring nation had always formed a definite barrier between the enemy and life and industry behind those lines. The only way in which the opposing forces could wreak ruin, gain control, or otherwise interfere with activities behind the battle

lines was for them first to drive back or break through the defenders.

With the coming of the war, however, and the consequent rapid development of the airplane as a military weapon, the entire picture of safety behind the lines was changed. And no longer could the civilian population of a nation feel entirely secure, when the distant drone of airplane motors in the night might mean the coming of enemy bombers. The ground lines may still have been complete, but the airplane had supplied the enemy with a valuable means of striking at strategic points many miles behind the trenches.

Among the Allied ships that proved most effective for this long range "egg-laying" was Britain's giant Handley-Page bomber.



Above: When the job is used as a display model, the rubber motors should be removed as shown here. Additional authentic detail for your replica can be copied from the photos of wartime H-P bombers in your picture files. We've printed a few, you know, in our 'Snapshots of the War'.

Designed especially for night work, this huge biplane first attracted notable attention in July 1917 (other H-P's had seen service, however, since '14).

The sudden publicity given to the 1917 ship was the result of a sensational bombing raid on Constantinople, Turkey. Heavily loaded with bombs, fuel, and spare parts for the twin Rolls Royce engines, and carrying a crew of six, the great biplane took off from London, effectively bombed the Turkish capital some sixteen hundred miles overland, and safely returned to London despite the fact that one of its motors had become dangerously temperamental during the trip. Six stops on raids were made for fuel.

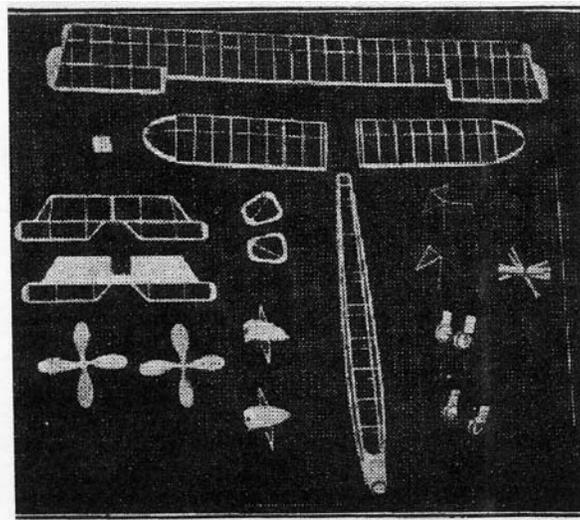
Two stories are told about how the Germans gained possession of their first Handley-Page for "laboratory study." One version has it that one of these bombers got lost in a fog while returning from a raid. Short of fuel, the crew landed their craft at the first aerodrome they could find. Unfortunately it turned out to be a German 'drome, and the ship was captured before its crew could destroy it or take off again. The other story states that the very first ship of a batch of 1917 H-P's flying from England to France landed on an enemy tarmac. Dirty work was suspected, but nothing was proved.

Besides the six-man crew, the Handley-Page could carry eight 260-lb bombs and as many 112-pounders. It carried twin nose guns, another pair that fired upward in the usual manner from the rear, and a single gun that projected downward through the floor. The top speed of the craft was about 95 m.p.h.

The ship was one of the first to be equipped with folding wings, which for the Handley-Page was a real necessity in those days of small hangars. The wingspan of the bomber was 100-feet.

No amount of folding, however, could hangar our model in the space allotted in the Trail Blazer department if the customary scale were used. Thus it became necessary to draw up the plans half the usual size, making the scale for this craft 1/4" to the foot instead of 1/2". This plan will be followed, incidentally, in all future Trail Blazers if the wingspan of the original plane exceeds fifty feet.

Should you wish to build the Handley-Page in proportion to your other models built from this series, double the material list given below, double all dimension figures given on the layout plates, and quadruple the size details on the three-view which is half-size.



Above: all set for the assembly line, and here's the complete set of parts for the 25" Handley-Page model described in this feature by Henry Struck.

BILL OF MATERIAL

A good plan is to assemble all needed material before starting. Altogether, you will need six pieces $\frac{3}{32}$ " sq. by 18" very hard balsa (all wood listed is balsa); two pieces $\frac{1}{16}$ " by $\frac{3}{16}$ " by 18" very hard; two pieces $\frac{1}{8}$ " sq. by 36" medium; two pieces $\frac{1}{16}$ " sq. by 18" medium; four pieces $\frac{1}{16}$ " by $\frac{1}{8}$ " by 18" medium; six pieces $\frac{1}{16}$ " by $\frac{1}{4}$ " by 18" medium; two pieces $\frac{1}{16}$ " by 2" by 18" soft; one piece $\frac{1}{8}$ " by 2" by 18" soft; four pieces $\frac{1}{2}$ " by $\frac{3}{4}$ " by 4" medium; one piece 1" by $\frac{1}{4}$ " by 2" very soft, and two pieces $\frac{3}{4}$ " by 1" by $2\frac{1}{4}$ " very soft.

Also, you will need such miscellaneous supplies as one sheet khaki tissue, two ounces cement, two ounces clear dope, two feet .028 piano wire, four $\frac{7}{8}$ " dia. balsa wheels; six feet $\frac{1}{8}$ " flat rubber, four bushings, twelve $\frac{1}{4}$ " washers, and small scraps of $\frac{3}{16}$ " and $\frac{1}{4}$ " sheet balsa.

CONSTRUCTION OF FUSELAGE

Got all that together now? Then you're all set for business. First, join together the side view on Plates 2 and 3, and cover it with wax paper to keep it from being spoiled with cement. Now, pin the fuselage longerons of $\frac{3}{32}$ " sq. balsa over the plan and fit the uprights, also of $\frac{3}{32}$ " stock, in

place. Make both sides at the same time, one on top of the other.

When dry, separate them and connect them by the cross-pieces Nos. 3, 4, and 5, all of which are the same size. Pull the nose and tail ends together and join them with the correct cross-pieces. Square up the structure, and insert the remaining members.

Carve the nose turret and cowl from a block 1" by 1¼" by 2", and fit it neatly to the front of the fuselage frame.

The wing ribs are made by pinning together forty slats of 1/16" sheet and five of 1/8" sheet and shaping the resulting block with knife and sandpaper to the airfoil section given. Assemble the wings in the usual manner. Pin the trailing edges to a board and cement the end ribs in place. Glue the leading edges against the nose of these ribs, and insert the remaining ribs and the curved portions of the wing outline.

Trim the rear of the tip ribs of the upper wing and insert an auxiliary spar of 3/32" sq. balsa on which the projecting ailerons are constructed. Crack the wings slightly at the No. 4 rib, raise the upper wing tips 3/8" and the lower ones 1/4" for dihedral, and re-cement the cracks.

The tail group is flat in section. It is built up with 1/16" sheet and 1/16" by 1/8" strips. Note that the lower stabiliser is not built up but is cut from 1/16" sheet to provide a solid support for the rear hooks for the motors.

COVERING AND ASSEMBLY

The entire framework should be sandpapered to remove any bumps that may spoil the covering job. Cover all parts with khaki tissue, using dope for adhesive.

Begin assembly by cementing the lower wings to the body at the correct angle of incidence. Bend the axles, A, from .028 piano wire. Slip the wheels on the wire before making the first bend, and add the shock absorbers, B, before the upper ends are bent. Cement this unit securely to the underside of the wings.

Four sets of N-struts, built up of 1/16" by 1/8" very hard streamlined balsa, are added to complete the landing gear structures.

The cabane struts, C, 1" long and also of very hard balsa, are cemented to the fuselage top.

The upper wing is attached to their apex with the same incidence as the lower wings. The Inter-plane struts, D, of 1/16" by 1/4" streamlined balsa, are inserted to connect wing panels.

From blocks of 3/4" by 1" by 2 1/4" balsa carve two identical engine nacelles. Using a straight length of thick wire, drill a shaft hole in each. Then force the splayed struts, E, of 1/16" by 1/8" streamlined balsa, into the nacelles. Cement the apexes of E between the No. 4 ribs, and cement the rear of the motors to the adjacent inter-plane struts, D. The remaining braces, F, G, and H, are fitted in their proper places.

The lower stabilizer is firmly cemented to the underside of the body at 0° incidence. Mount the upper stabiliser on a streamlined pylon of 1/4" sheet balsa, and glue the twin rudders lightly in position to allow easy flight adjustment.

Spray the entire model with water. Apply a coat of dope when dry.

POWER PLANTS

Four-bladed propellers, two of them, are required. To make them, first make two right and two left-banded props as shown on the plates. They should not prove difficult because of their comparatively small size. Use the 1/2" by 3/4" by 4" blocks. When they have been carved and shaped to the flying prop blade pattern given, each pair is recessed at the hub and joined with plenty of glue to form a four-bladed prop.

To serve as bearings, washers with bushings inserted are cemented to the front of the nacelle, and the rear of the interplane strut, D. Form the prop shafts with .028 wire. Slip them through nacelles, and embed and cement them in the faces of the hubs.

Install a couple of the washers between the propellers and front bearings. The rear hooks are also bent from .028 wire. Using plenty of glue, anchor them solidly on the leading edge of the lower stabiliser.

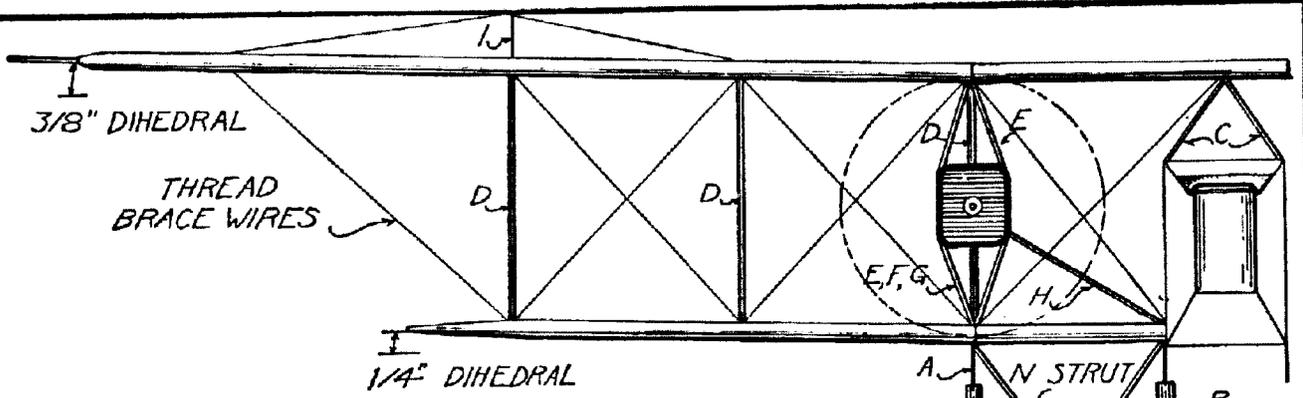
FLYING AND DETAILS

Four strands of 1/8" flat brown rubber, lubricated, furnish the power. Before attempting any flights, ballast the ship's nose with clay until the ship balances level at a point 3/4" from the leading edge of the wing. A convenient place to put this weight is inside the fuselage against the nose turret block. After correct balance has been secured, the model may be glided.

Minor adjustments can now be made by warping the elevator downward slightly if the tendency is to stall and upward if the glide is too steep. Due to the opposite rotation of the twin props there is no torque, and the rudders may be set to circle the Handley-Page in either direction. By stretching the rubber and winding it with a double winder, motor run can be greatly increased.

If your H-P is to be an exhibition model the rubber motors should be removed. Brace wires of light grey silk thread, and appropriate insignia cut from colored tissue, may be added. Black India ink will do nicely to mark the radiators, lettering, window frames, and the like. Further authentic details may be found by studying photos of real Handley-Pages.

BUILD THE HANDLEY-PAGE BOMBER—Plate 1



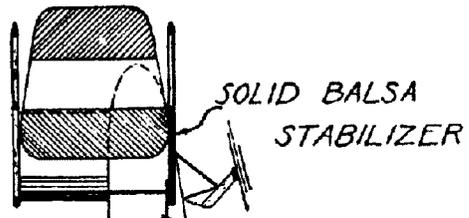
FRONT VIEW

SPECIFICATIONS

- SPAN - 100 ft
- LENGTH - 62 ft
- HEIGHT - 21 ft
- MOTOR - 2 ROLLS ROYCE
OR SUNBEAM

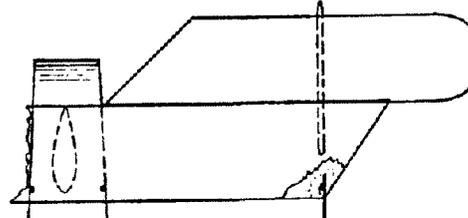
COLOR

- ENTIRE PLANE - KHAKI
- NACELLES - ALUM.
- DETAILS - BLACK



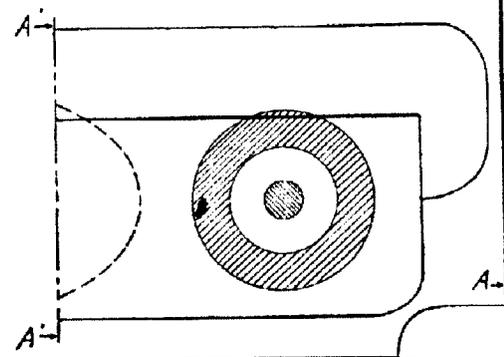
SOLID Balsa
STABILIZER

SIDE VIEW

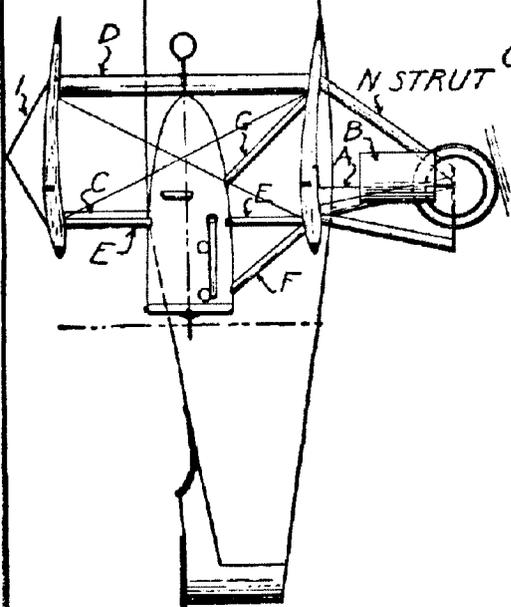


TOP VIEW

JOIN A'-A'
TO A-A



- BLUE
- RED



HANDLEY PAGE BOMBER 1917

SCALE 1/8" = 1'

