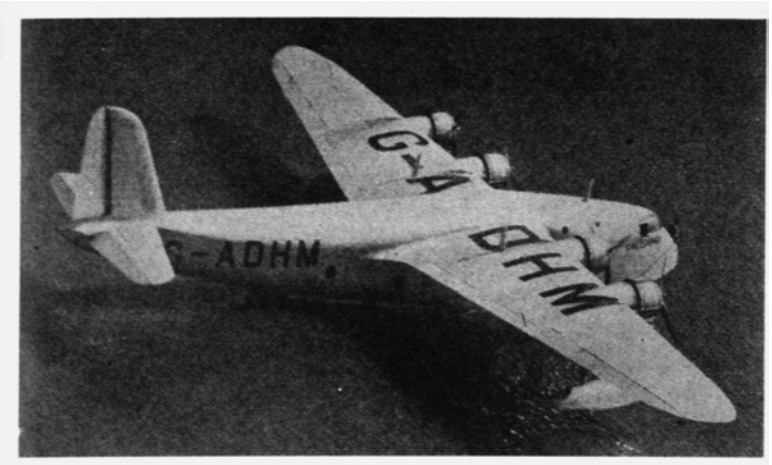
The Short Empire Ocean Air-Liner

FROM OUR COVER TO THE MODEL WORKSHOP COMES AN IMPORTANT NEW PLANE IN A FINE SOLID SCALE MODEL, COMPLETE WITH MINIATURE BEACHING GEAR.

By William Winter



THE Short Empire flying boat, designed for Imperial Airways' far-flung routes to the East and for the transatlantic service, is a giant as airplanes go.

The span of the four-motored monoplane is 114 ft., and the length is 88 ft. 6 in. The height from the water line when afloat is 24 ft. Construction is of metal throughout. For day service, 24'passengers are carried. As a sleeper, 16 passengers will be carried. The crew numbers five.

The four Pegasus 740 h.p. engines are expected to yield a top speed of approximately 200 m.p.h., and a cruising speed of 150-160 m.p.h. The wing flaps are of generous area and permit a reasonable landing speed.

Our 1/8" scale model is of the *Caledonia*, the second Empire boat of a series of twenty-nine to be constructed. It differs from the *Canopus*, the first to be completed, in that the *Canopus* is to be placed on the Mediterranean hop in the India service, while the *Caledonia* is said to be intended for Atlantic flights. Incidentally, the principal difference between

these two boats that is evident to the eye is in the number of windows. Since the weight of the *Caledonia* is 5,000 lbs. more than that of the *Canopus* and as most of the windows have been omitted on the *Caledonia*, it is probable that interior arrangements are designed for larger fuel capacity on the ocean-hopping-ship.

To start construction, trim a soft block down to the required outside hull dimensions. Draw the side profile of the body on the block and cut away the excess wood. On the top of the partially carved block, mark the top outline and again shave away the surplus wood. Round and shape the hull as required by the block cross sections given. Drill two holes for the 1/8" dowels. Sand the block to a satin finish.

Cut the tail surfaces from 1/8" sheet balsa and sand smooth, rounding the leading edges and pointing the trailing edges. Cement the finished tail units in position.

The wings are made in two halves and are cut from 1/2" balsa. Carve to the proper airfoil sections, checking with the patterns given on the plans. Slant the inner ends, which fit against the fuselage, to allow for the proper dihedral. Cut out sections, in the leading edges to accommodate the engine nacelles and sand the finished panels. The nacelles are carved to the required shapes from 1" square balsa. After a trial fit, cement them in place. Provide small holes to take the pointed ends of the dowels and force each wing panel in place, using plenty of cement. The fillets are molded from wood filler.

Carve the wing tip floats to shape from 1/2" square balsa. After sanding them carefully, mount them on streamlined or rounded bamboo struts. Do not add the bracing threads until the painting has been completed.

The four propellers are cut from scraps and are mounted on pins so that they are free to turn. Note that they are all left hand, in accordance with European engine custom.

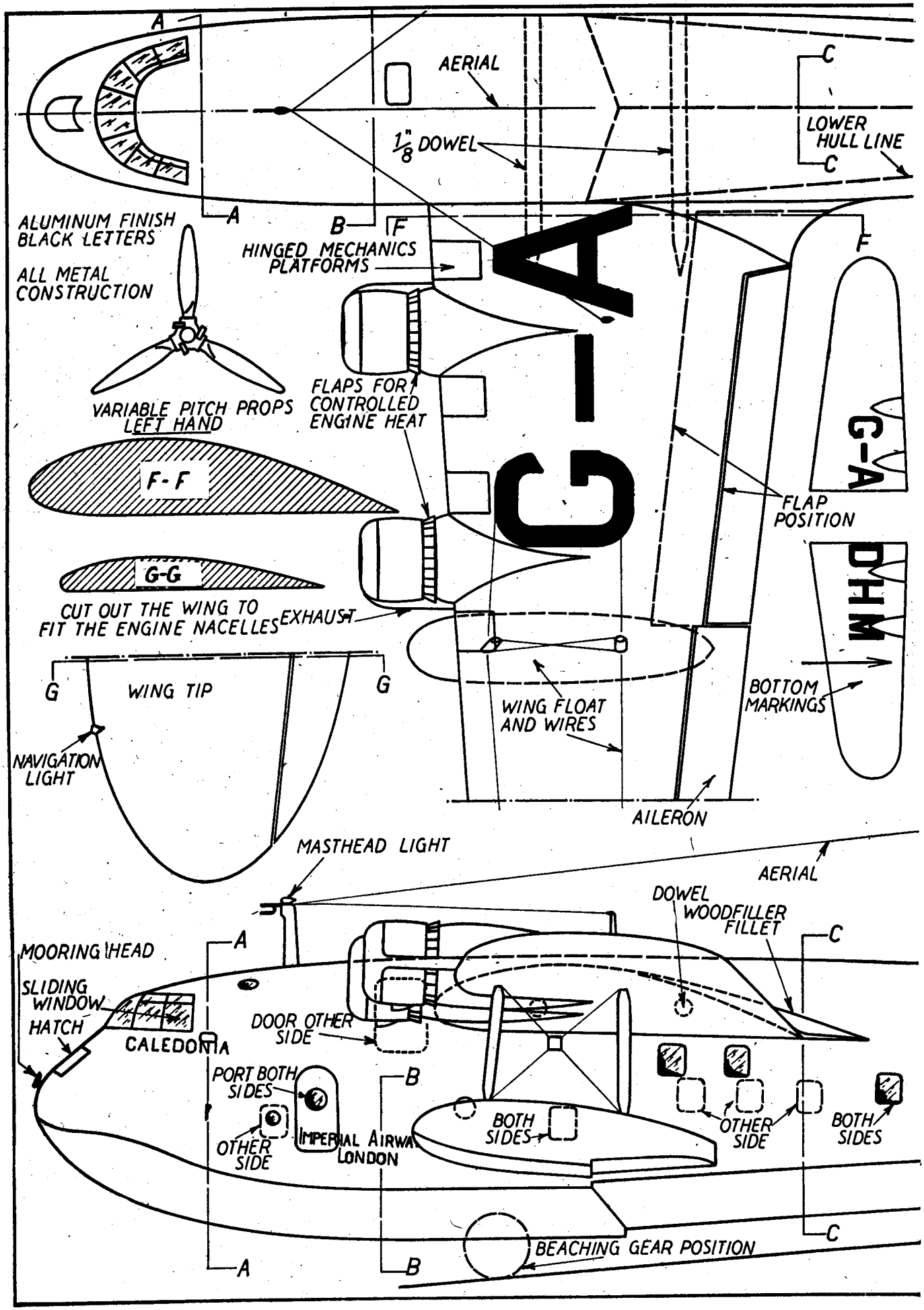
Give the model several, filler coats of clear varnish, sanding lightly between each coat with very fine paper. Finish the ship in silver, making all trim and letters black. Put the thread bracing wires on the tip floats and construct the beaching gear and dolly.

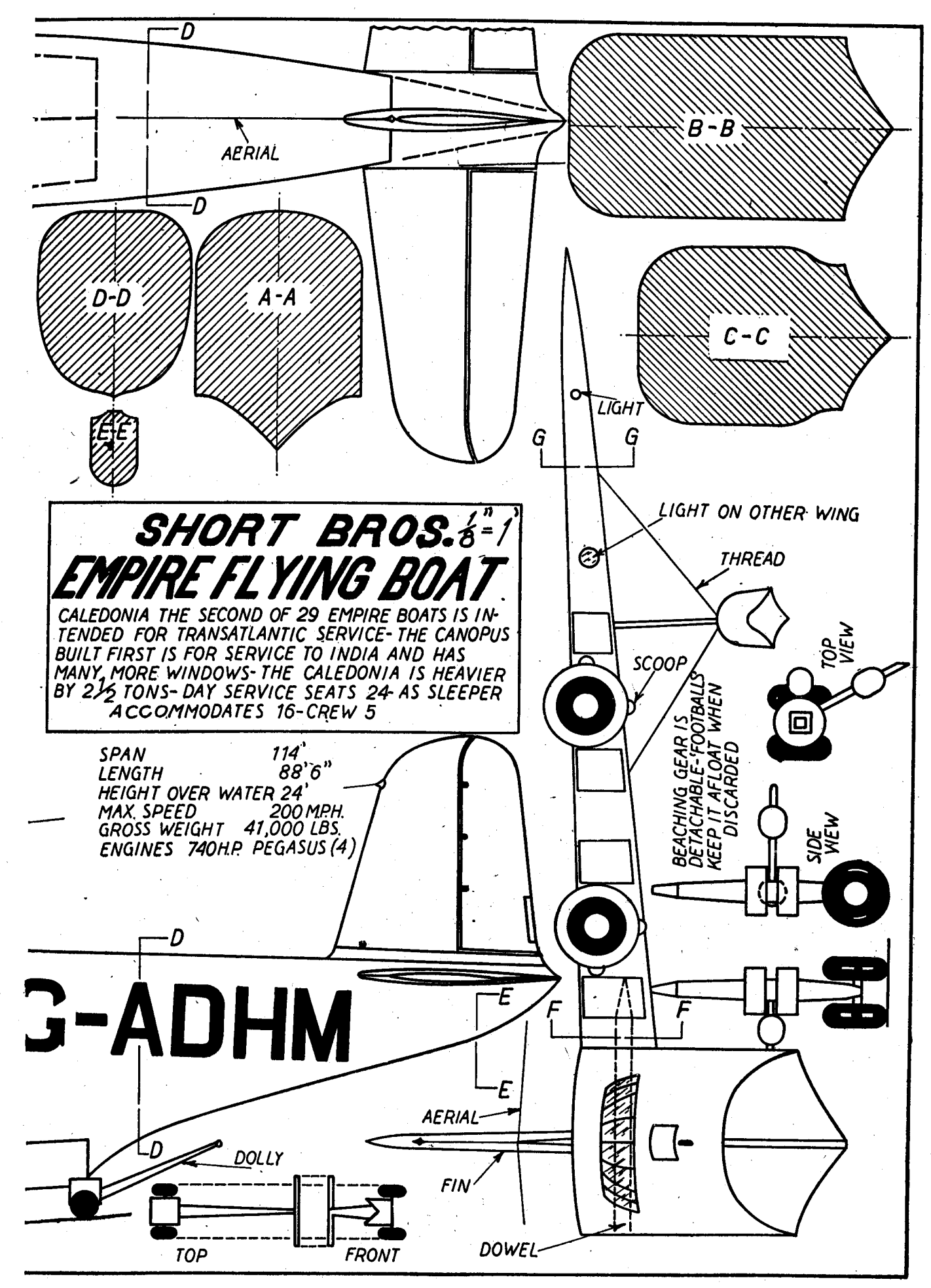
These last-named articles of equipment are used to facilitate the handling of the real Empire flying boats. A front view photograph of the beaching gear appeared in AIR TRAILS for October. The model beaching gear may be

made demountable by embedding pins in it for attachment to the hull. To display the model, the beaching gear and dolly will hold far more attraction than a stand.

MATERIALS

1 11 1/4 x 2 1/4 x 1 5/8"	1 18 x 1/8" dowel
1 1/2 x 3 x 13"	1 1/2" sq. x 4"
1 1/8 x 2 x 12"	2 oz. cement
1 1/8 x 3 x 6"	clear varnish
1 1" sq. x 8"	wood filler
1 1/16 x 1/8 x 6"	black #60 thread
	silver and black paint


AERIAL
1/8 DOWEL
LOWER HULL LINE
ALUMINUM FINISH
BLACK LETTERS
ALL METAL CONSTRUCTION
HINGED MECHANICS PLATFORMS
VARIABLE PITCH PROPS LEFT HAND
FLAPS FOR CONTROLLED ENGINE HEAT
F-F
G-G
CUT OUT THE WING TO FIT THE ENGINE NACELLES
EXHAUST
FLAP POSITION
G-A
DHM
BOTTOM MARKINGS
WING TIP
NAVIGATION LIGHT
WING FLOAT AND WIRES
AILERON
MASTHEAD LIGHT
AERIAL
DOWEL
WOODFILLER FILLET
MOORING HEAD
SLIDING WINDOW
HATCH
CALEDONIA
DOOR OTHER SIDE
PORT BOTH SIDES
OTHER SIDE
IMPERIAL AIRWAYS LONDON
BOTH SIDES
OTHER SIDE
BOTH SIDES
BEACHING GEAR POSITION


D
AERIAL
D
B-B
D-D
A-A
C-C
E-E
LIGHT
G
G
LIGHT ON OTHER WING
THREAD
SCOOP
TOP VIEW
BEACHING GEAR IS DETACHABLE-'FOOTBALLS' KEEP IT AFLOAT WHEN DISCARDED
SIDE VIEW
SHORT BROS. 1/8" = 1'
EMPIRE FLYING BOAT
CALEDONIA THE SECOND OF 29 EMPIRE BOATS IS INTENDED FOR TRANSATLANTIC SERVICE- THE CANOPUS BUILT FIRST IS FOR SERVICE TO INDIA AND HAS MANY MORE WINDOWS- THE CALEDONIA IS HEAVIER BY 2½ TONS- DAY SERVICE SEATS 24- AS SLEEPER ACCOMMODATES 16- CREW 5
SPAN 114'
LENGTH 88'6"
HEIGHT OVER WATER 24'
MAX. SPEED 200 M.P.H.
GROSS WEIGHT 41,000 LBS.
ENGINES 740 H.P. PEGASUS (4)
D
G-ADHM
E
F
F
E
AERIAL
FIN
DOWEL
D
DOLLY
TOP
FRONT