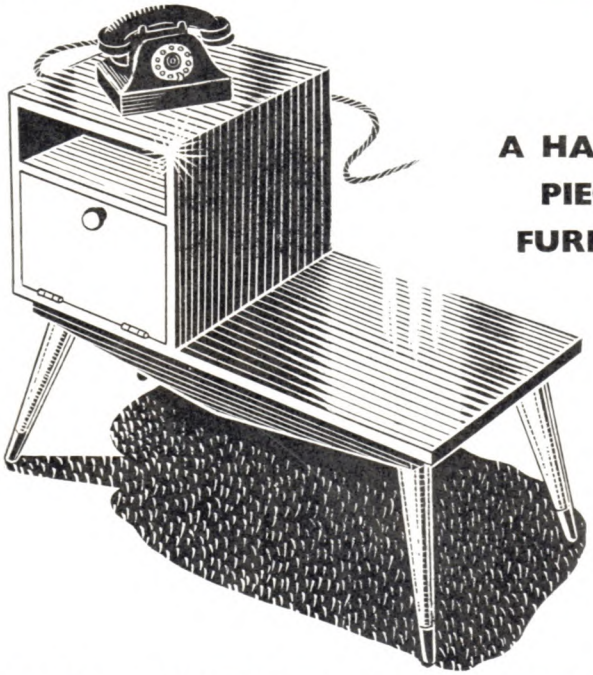
27th APRIL 1960 VOL. 130 NUMBER 3359

THE **ORIGINAL** 'DO-IT-YOURSELF' MAGAZINE

HOBBIES *weekly*

FOR ALL HOME CRAFTSMEN

FULL INSTRUCTIONS FOR MAKING . . .



A HANDSOME PIECE OF FURNITURE

AN ATTRACTIVE TELEPHONE SEAT

Also in this issue:

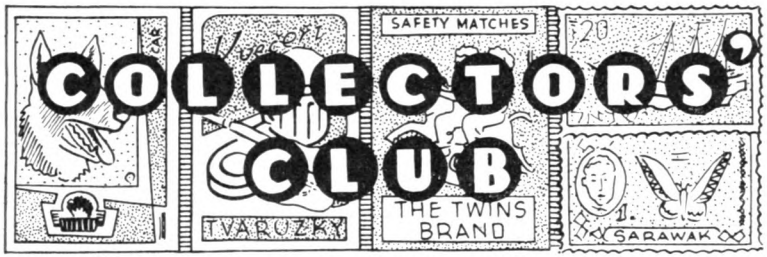
Hobbies

Up-to-the-minute ideas

Practical designs

Pleasing and profitable things to make

5D



An attractive picture of Carole Lesley, an Associated British star, with one of her pets

HOBBIES OF THE STARS

MANY readers who collect film star photos have asked for an article on their hobbies.

Recently Roy Curtis-Bramwell — Features Editor of Associated British Pictures Ltd — gave me some interesting details about artistes under his command.

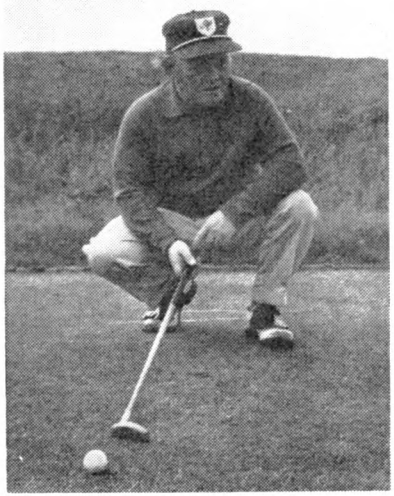
Peter Arne is a do-it-yourself addict. He has completely converted and decorated his present home.

Richard Todd is kept busy with his farm in Oxfordshire.

Sylvia Syms has been starring in many pictures lately. She gets little free time. But she is a 'chain-reader' whenever she gets the opportunity. She has also tried her hand at decorating.

George Baker is knowledgeable on the subject of food. He often puts on his chef's apron to prepare some complicated dish.

Glamorous Carole Lesley keeps pets. She has a Manchester Terrier called Rocky Marciano and a black Poodle called Di-Di.



Charlie Drake, an Associated British contract star, surveys the lie of the land

Paul Massie spends most of his spare time at his country cottage on the Suffolk marshes. He has done a lot of decorating to the cottage. It had no windows and hardly any roof when he first moved in.

Maggie Smith likes reading and music.

Charlie Drake plays golf.

Among the stars who have made pictures recently, Edmund Purdom ('Moment of Danger') is a keen Hi-Fi enthusiast. He has been doing research on the subject for many years.

Trevor Howard ('Moment of Danger') is a keen cricket fan.

Tommy Steele ('Tommy the Toreador') has studied hypnotism.

Donald Sinden ('Operation Bullshine') collects material on the early history of the theatre.

Arthur Fleming, an actor who is popular on American Television, is a keen student of history — as well as a sabre fighter and weight-lifter.

COINAGE — 2

THE Saxons introduced the terms 'scilling', or shilling, for 5 pence, and 'mancus' for 30 pence; but these were at first imaginary coins, representing a sum of money. It was only in the reign of Henry VII that the shilling came to be a real coin.

William the Norman fixed the Saxon shilling at 4 pence, and introduced a Norman shilling whose value was 12 pence. There were other imaginary coins in early Norman times; for instance, the 'mark', value 160 pence, and the 'pound', referring to a pound's weight of gold or silver.

Under the early Norman Kings the Saxon coinage retained its original appearance. But as time went on, and workers in seals improved their art, the Norman coins became more florid and ornate. Fresh coins, such as the groat, the farthing, the halfpenny, as well as gold pieces, were minted.

The coins of Edward I had conventional figures of kings, which continued for eight succeeding reigns.

Edward III assumed the title of King of France on his groats; and the words 'Dei Gratia' were also adopted in his reign. He also coined a new gold 'florin', the name being derived from a well-known gold coin of 'Florence'. This coin was, however, soon recalled, and the silver florin we now possess did not appear till long afterwards. The famous gold 'nobles' also came out at this time, their original value being 6s. 8d. The word comes, perhaps, from their appearance, or the noble metal they were struck from. They bore the legend, 'Edward. Dei Gra. Rex Anglo. et Franc. D. Hyb'. (*Dominus Hyberniae* or 'Lord of Ireland').

The obverse showed a kingly figure with sword and shield, the shield being emblazoned with fleur-de-lys and leopards, while the reverse showed a 'ship of state'.

The 'rial' (or royal), so called after the French coin, was in vogue in the time of Edward IV. He also issued the 'angel', which had a figure on the obverse of the archangel Michael piercing a dragon with a spear, and on the reverse a vessel.

Henry VII introduced a gold piece called a 'sovereign' (A.D. 1503), or 'double rial', the term 'sovereign', however, disappearing until revived by the new coinage of George III, in 1817. It represented the King in royal robes, seated; and also bore the semblance of a full-blown rose on the reverse, the centre of the rose containing a shield emblazoned with arms.

In the reign of Henry VIII the coinage became much debased. The King's head on the silver pennies showed the copper mixture so well that his Majesty's loyal but humorous subjects were wont to call him 'Old Copper-nose'. In this reign the pound Troy (so called from the fair of Troyes in France) superseded the older Tower pound in the Mint; and the standard or 'crown' gold was settled at its present composition, 22 carat fine gold to 2 carats alloy.

Herbert Ginters

Edward VI issued crowns and half-crowns of silver, and began to purify the currency; a work which was successfully carried on by Queen Elizabeth I, who showed her interest in the work so far as to coin some pieces with her own hands, and distribute them as keepsakes. The mill and screw plan of coining now superseded the older stamp, and gave a better finish to the pieces. Elizabeth also introduced a new type of sovereign. She also coined the first colonial money for the use of the East India Company.

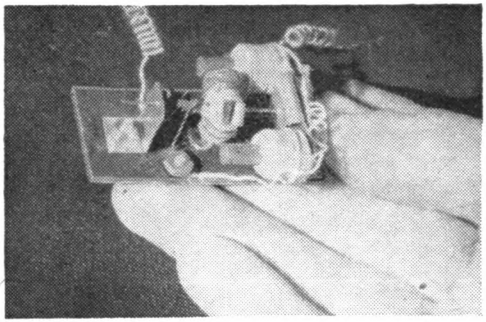
Herbert Ginters, a regular reader of *Hobbies Weekly*, collects coins. He has a fine collection. During a recent visit to my home he said:

'I think all people should have a hobby. Apart from coins I save beer labels, stamps, match, and hotel covers.'

Herbert would like pen friends. He lives at — 2 Elsham Station Cottages, Barton Road, Wrawby, Brigg, Lincs.

How to make this Miniature Motor

Described by 'Modeller'



THIS motor will run from batteries or a low voltage mains transformer, and can be made of very small size. If made as small as possible, the turning power obtained is not very great, and the motor is then best suited for fixing in a non-flying model plane, to rotate the propeller, or for similar light tasks. If made larger, much more power is obtained, and the motor can then be used in a boat, or for driving other models.

If the parts are arranged to fit as described, the actual size will not matter. But if the motor is very tiny, construction is more difficult. Dimensions actually given will allow a very small motor to be made, but not so very much reduced in dimensions that building is a critical job.

Armature

This has three poles so that the motor is self-starting. Two 3-arm pieces of thin iron or tinplate are cut so that each arm is $\frac{3}{8}$ in. long and $\frac{3}{16}$ in. wide. The arms are at 120 degrees to each other, as in Fig. 1. These two pieces are drilled or pierced for the spindle, which is a steel needle, and are soldered to it. About $\frac{1}{8}$ in. is then bent outwards at right angles at the end of each arm. The completed armature will then be about $\frac{1}{2}$ in. in diameter.

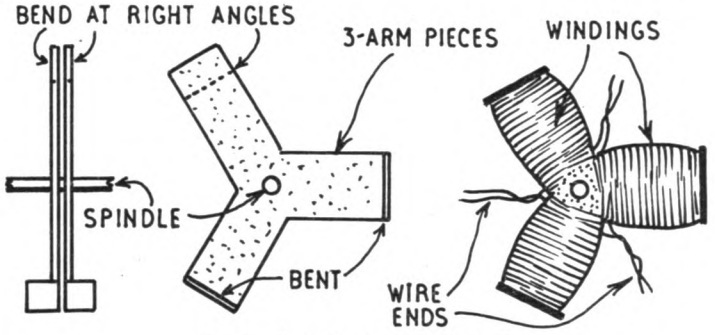


Fig. 1—How the armature is made

The space between the spindle and bent out ends of each arm is now wound full with insulated wire, keeping turns tight and evenly side by side. Cotton-covered wire is most suitable because the insulation may be scraped from enamel wire, during winding, so that short circuits are caused. Wire of about 32 S.W.G. is satisfactory, and approximately 100 turns should be accommodated on each arm. The actual number is not important, provided each winding is about the same.

The turns on each arm must be in the same direction. If the armature is held in the left hand, and each arm wound in turn with the right hand, in a clockwise direction, this will be so. The wire ends are bared, and the beginning of one winding joined to the end of the next, all round, as in Fig. 1.

Commutator

A piece of insulation about $\frac{3}{8}$ in. long is cut from a thin insulated wire, and

pushed on the spindle, forming the insulated sleeve in the enlarged diagram in Fig. 2. A layer of insulated tape will do instead.

between armature and field magnet poles. The space between the poles can be adjusted, if necessary, by bending the staple, or filing.

For the motor to run properly, the pairs of wires on the commutator must break circuit with the brushes just as the poles of the armature pass those of the

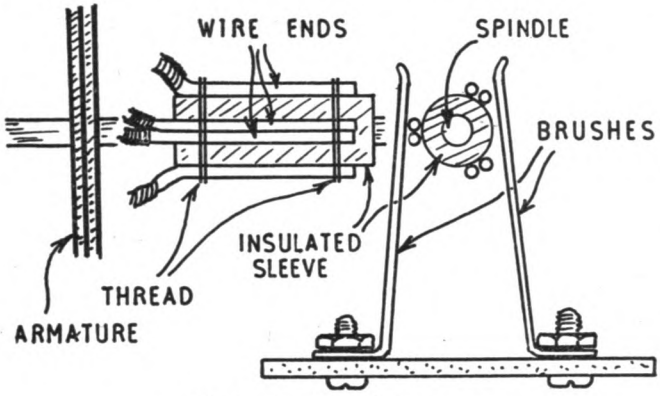


Fig. 2—Brushes and Commutator

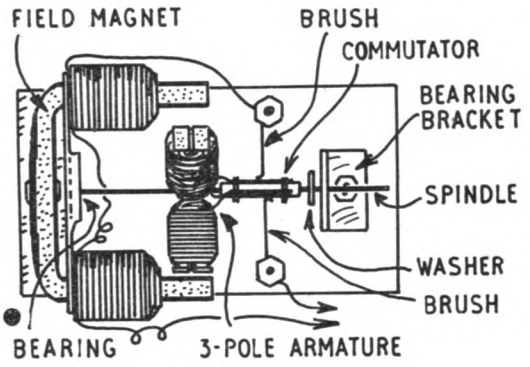


Fig. 3—Layout of parts

The pairs of wire ends from the armature windings are brought along this sleeve, as in Fig. 2, and bound with glued thread. The pairs of wires should be at 120 degrees to each other, as shown. The armature windings are painted with glue to hold the turns in place.

Field magnet

This can be bent from a 5 in. iron nail, or be made by selecting an iron staple just over ½ in. across inside, and sawing off the points with a hacksaw. A tinplate bracket is drilled so that the arms of the magnet project through, and the magnet is fixed with solder. This bracket has a projection about ½ in. wide and ½ in. long, which is drilled for the motor spindle, and bent over so that it forms the one bearing shown in Fig. 3.

The magnet poles are now wound, leaving space for the armature, as in Fig. 3. About 100 turns on each pole will do. When looking at the magnet from each end, one arm must have the current passing round the winding in the opposite direction to the other. This will be so if the direction of winding is reversed for the second pole, or if both poles are wound the same way, then the outer ends of each winding are connected together.

Assembling the parts

The field magnet bracket is bolted or screwed to a small piece of paxolin, wood, or other insulating material. The armature is then fitted, its spindle being the same height as the field magnet poles, and centrally between them. A small washer is put on the spindle, then the bearing bracket shown in Fig. 3 is cut and drilled, and bolted in position.

The armature should rotate freely between the poles of the field magnet, but there should not be too much space

The brushes consist of pieces of 30 S.W.G. or similar copper wire, each held by a nut and bolt (or screw) as shown in Figs. 2 and 3. They press lightly on the commutator.

One brush is connected to the battery or transformer. The second brush is joined to one end of the twin field magnet windings. The remaining end of the field magnet goes to the battery or transformer.

field magnet. This correct 'timing' can be found by trial, either by rotating the whole commutator slightly one way or the other, on the spindle, or by sloping the brush wires so that contact is not made at quite the same instant.

The speed at which the motor runs can be adjusted by changing the voltage. To make the motor run backwards, if this is needed, leads to the field magnet are changed over.

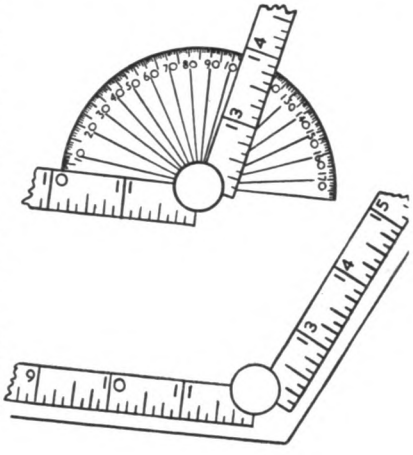
USE THIS METHOD FOR AWKWARD ANGLES

NOT all houses are built with perfect right angles to the corners of every room, and sometimes an error of a considerable degree is met with. Putting fitments into those corners can be difficult unless the angles are measured accurately. Fitting lino is another occasion when it is necessary to get the angles correct.

Most handymen possess a 2 ft. folding rule, and with such a tool any of these angles can be measured quite accurately and quickly. It is necessary, however, to be sure that the joint is fairly tight, and any looseness can usually be remedied by riveting it slightly. Only a few taps should be necessary, otherwise the joint may be so tight that it is difficult to move.

To find the angle of a corner of the room it is only necessary to push the rule tightly against each wall with its joint in the angle. You can then either transfer the rule to a sheet of paper, and draw along the two edges, or else use a protractor and measure the angle.

If you do not possess a folding rule you can make do with two narrow strips of wood bolted together fairly tightly, and used in a similar manner. (A.F.T.)



A game to make

'NOSEY NIMROD'

MEET 'Nosey Nimrod'. There is no need to explain why he is so named, but perhaps we should mention that his lengthy nose provided an idea for making a fascinating and teasing ring game. You will see that a captive ring is attached to his chin, and the object of the game is to throw the ring in the air, catching it on the nose.

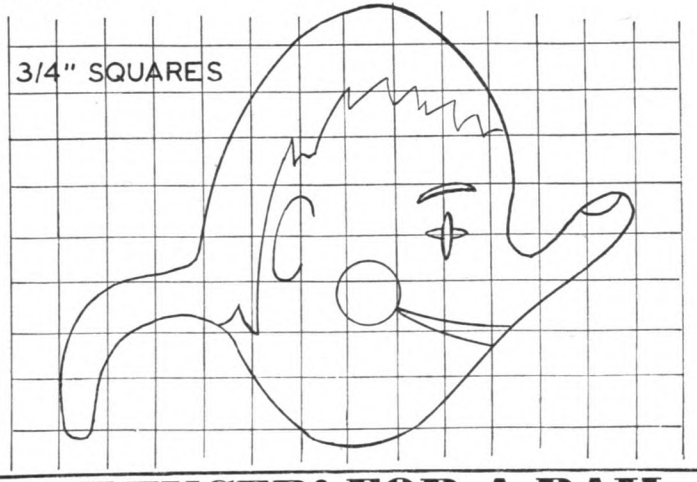
You will need a piece of tracing paper about 7 in. by 10 in. for preparing the pattern. First of all rule out the paper with lines $\frac{3}{4}$ in. apart, then lines at right angles similarly spaced, so that you finish with $\frac{3}{4}$ in. squares. Transfer the picture shown in the diagram to the tracing paper by carefully noting where the lines cross the squares, marking in the outline and all the details, such as mouth, ear, and eye.

The actual toy is cut from a piece of $\frac{1}{4}$ in. plywood measuring 7 in. by 9 in., and it is suggested that the pattern will be best transferred to the wood by placing a sheet of carbon paper between the wood and the pattern, using a pencil to trace the outline. Retain the pattern for the later use of filling in details, but first cut out the shape with a fretsaw. Note that the edge should be rounded and smoothed all the way round with file and glasspaper. This is most important if the toy is intended for a child, while it also makes the pigtail handle comfortable to hold while playing the game. Apply a priming coat of flat white paint to both sides and the edge, and when dry, fill in the details. Place the original pattern paper on the cut-out model, and outline all the details such as the hair line, ear, eye, eyebrow, and mouth, on both sides.

The hair, which extends to the handle, is coloured black, as are the ear, eye, and eyebrow. It is suggested that the nose, mouth, and spot are painted in bright red to produce an effect similar to the make-up of a clown. Treat the edge of the toy in the same colours as applicable.

The ring can be a rubber one as used for preserving jars or a ringboard, or you may make one from plywood. This should have an outside diameter of $2\frac{1}{2}$ in., and if prepared from plywood, it should be approximately $\frac{3}{8}$ in. in width. The ring is fastened to a 3 ft. length of thin string, and the other end to the chin of the toy. A small staple knocked into the edge will enable the string to be fastened securely.

'Nosey' is held in the hand by the pigtail handle, the ring hurled outwards and upwards in the air, and an endeavour made to catch it on the nose. This is a simple toy, quite easy to construct, which will prove fascinating in play. (S.L.)



'SILENCER' FOR A PAIL

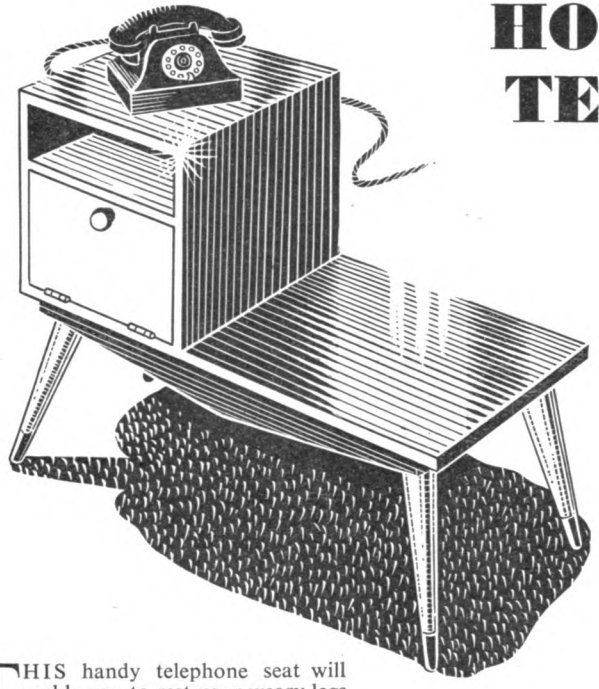
BESIDES making a considerable clatter, a metal pail can sometimes cause nasty scratches, particularly on a polished floor. Here is a simple little device which can easily be slipped over the bottom rim of the pail and will prevent both noise and scratches.

All you need is a piece of old cycle inner tube and a blob of rubber solution. Cut off a length of tube about an inch or two shorter than the circumference of the bottom rim of the pail, cut it open lengthways and then cut off a strip 2 in. wide.

Stick the two ends together with solution to form a ring and put aside to set thoroughly. The ring can be slipped over the rim of the pail for about three quarters of its width, when the remainder will gently curl underneath and form a resilient buffer between pail and floor.

(A.F.T.)

HOW TO MAKE A TELEPHONE SEAT



MATERIALS REQUIRED

Two Hobbies furniture panels R8, 36 in. by 6 in. by ½ in. 5/6 each.
Two Hobbies furniture panels S8, 36 in. by 10 in. by ½ in. 9/- each
Four No. 580 9 in. legs. 2/- each.
or Four No. 591 9 in. ferruled legs. 3/- each.
One pair 1½ in. light brass hinges. 4½d.
One ¾ in. No. 708 knob. 5d.
Nails, screws, and glue will, of course, be extra.
Postage and packing 3/6.

THIS handy telephone seat will enable you to rest your weary legs while waiting for your call. The seat is strong and comfortable, especially if a foam rubber cushion is placed in position. The small cabinet provides a stand for the telephone, a shelf for the directory, and a cupboard for note books which are tucked away out of sight. If carefully made this piece of furniture will make a handsome addition to the hall.

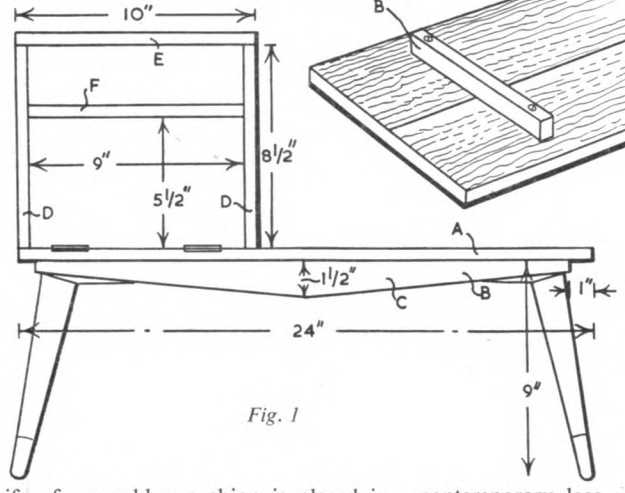


Fig. 1

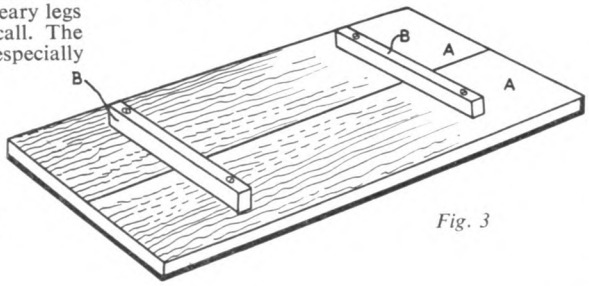


Fig. 3

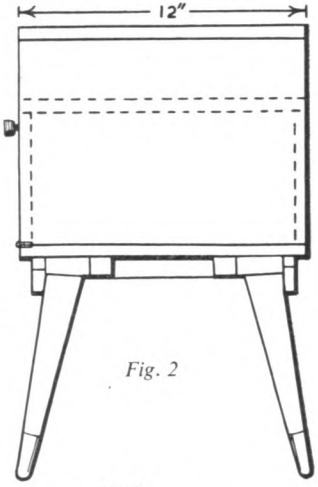


Fig. 2

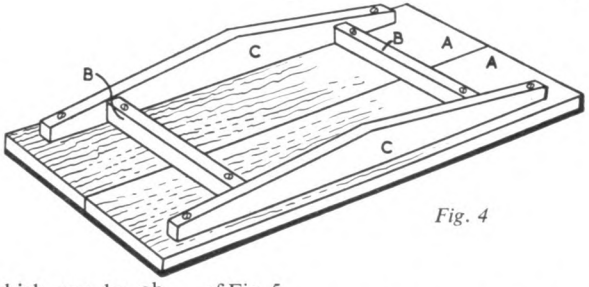


Fig. 4

The general layout, with measurements, is shown in detail in the front view (Fig. 1) and the side view (Fig. 2). Hobbies standard furniture panels may be used throughout in conjunction with contemporary legs, which can be obtained with or without brass ferrules.

The seat is made from two pieces A, 24 in. long and 6 in. wide, held together with the battens B, screwed about 5½ in. from the end, as shown in Fig. 3. The battens are 10 in. by 1 in. by ½ in. The shaped strips C are next screwed and glued in place as indicated in Fig. 4.

The cabinet is made from two pieces D and the top E, which are cut from a 10 in. wide panel of wood. The top E may be glued in position and strengthened with pins. Alternatively the top may be jointed as shown in the inset diagram of Fig. 5.

The interior shelf F may also be fixed in position now, and secured with glue and pins. The shelf may be housed into the sides D if desired.

The back and the door, pieces G, are next fitted. Note that the door is hinged at the bottom and a ball catch fitted as indicated in Fig. 6. A suitable knob or handle is fitted after staining and polishing. To prevent the door going in too far two small pieces of wood acting as stops

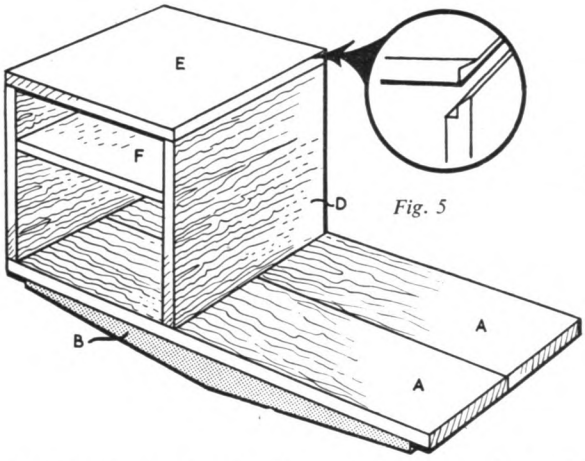


Fig. 5

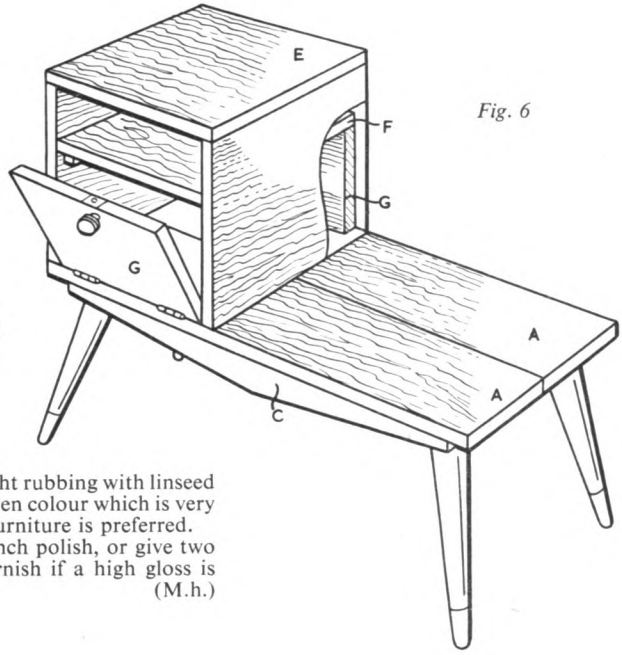


Fig. 6

should be glued under piece F.

The 9 in. contemporary legs are easy to fix. They are provided with blocks which are screwed underneath pieces A.

To finish, the whole seat and cabinet should be thoroughly cleaned down with glasspaper and then stained light oak. Alternatively a light rubbing with linseed oil will give a golden colour which is very pleasing if light furniture is preferred.

Polish with french polish, or give two coats of clear varnish if a high gloss is required. (M.h.)

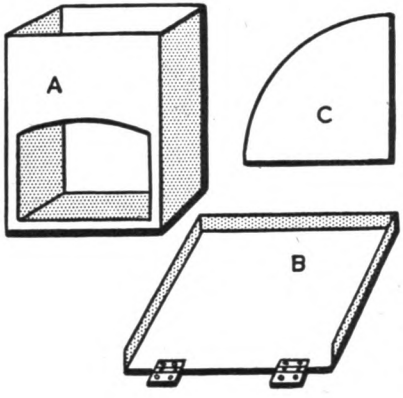
WINDSCREEN FOR A PRIMUS

By A. F. Taylor

WHEN out camping or on a picnic the provision of hot drinks may call for use of a spirit lamp or a Primus stove, but if the day is windy it is difficult to keep the flame alight without some protection. A suitable screen fitted round the flame will easily solve this problem.

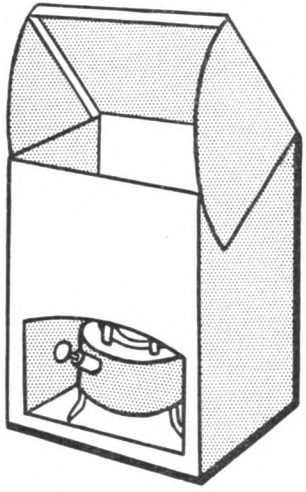
Sheet metal is best for the job, being fireproof and light in weight. An old tin which will hold the lamp or stove can often be adapted to suit your needs. For the average picnic a small primus stove is usually quite sufficient, and to house this an ordinary biscuit tin is ideal.

In order to get at the controls of the stove the bottom part of one side of the tin is cut away with a pair of shears as shown at A. Do not make this opening too large; just leave enough room to operate the pump easily and make any adjustments to the burner. All rough edges must be made safe by filing smooth.



The adjustable lid with its two 'wings' will give ample protection from even a strong wind, the back of the tin being turned to face the gusts. Two small hinges are soldered on to the lid and back of the tin after one of the flanges on the lid has been cut off to enable it to open and close easily–B.

A quarter circle of tin, C, will make the two wings, and these are soldered securely to the sides of the lid. By bending them in towards the sides of the tin they will act as springs and help to keep the lid in position at any angle. A coat of paint will act as a preservative and enhance the appearance of the screen.



For smaller spirit lamps, suitably sized tins can be utilised in the same way.

'Hobby Cruiser' Sports Model

By Gordon Allen

THERE are many model aircraft enthusiasts who claim that by far the most interesting type of model is the rubber powered semi-scale. Not for them the competition field and the out-and-out contest models—'paper bags full of elastic' they would promptly call them!

A 'semi-scale' model is one which, though not a true and detailed scale model of any particular aeroplane, does retain certain details and general features which can be associated with the real thing — though not necessarily with any specific aircraft.

Of immediate concern is the construction and flying of the 'Hobby Cruiser', (Fig. 1) plans of which appear on the centre pages; a low-wing, sporty-looking semi-scale which will provide many hours of fun for the modeller.

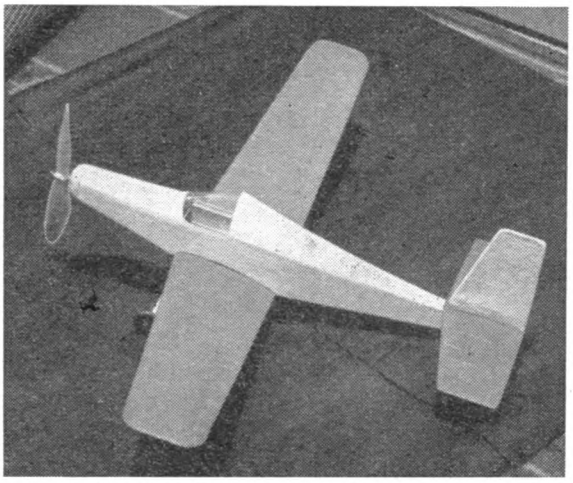


Fig. 1—The 'Hobby Cruiser' ready for flying.

The fuselage of the Cruiser is built up on the foolproof 'sheet-sides-and-former, principle (Fig. 2). Those of you who have already built the Clipper and the Sprite will find it particularly easy to make' although it is a fairly simple proposition for any 'average' hobbyist.

Draw the shape of the balsa sides on to cartridge paper or thin cardboard, using the scale and the squared portion of the drawing as a guide. Cut this out, paste it temporarily on to a sheet of $\frac{1}{16}$ in. medium hard sheet balsa and use it as a template to cut the balsa to shape. Remove the template and then cut a second side using the first balsa side as a pattern, by holding it temporarily to the balsa with paste. On both side-panels mark (on the outside faces) the positions of all the $\frac{1}{16}$ in. square upright members and the key frames.

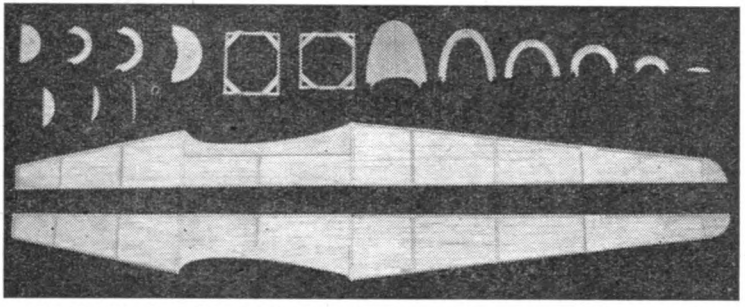


Fig. 2—Fuselage frame sides, key frames and formers ready for assembly.

Place each side on a flat board and then drive panel pins into the board at about $1\frac{1}{2}$ in. intervals so that they *just touch* the edges of the side pieces. Make sure that the side pieces are 'handed', i.e. one left hand, one right hand. The pins do not, of course, need to be placed round the curved part of the pieces on the bottom edges where the wing apertures are located.

Now cement strips of $\frac{1}{16}$ in. square hard balsa along the straight edges of the side pieces. Do not use an excess of balsa cement and hold the strips against the edges of the panel pins until they are firmly fixed; then cut $\frac{1}{16}$ in. wide gaps in the top strip on each fuselage side-piece at the locations of the fuselage frames. Also cut $\frac{1}{2}$ in. wide slots in both top and bottom strips for the motor-peg plates. Fuselage key frames 'A' and 'B' are built up, as indicated on the drawing, from hard $\frac{1}{16}$ in. square balsa and are reinforced across their corners, on one side only, with diagonal strips of $\frac{1}{8}$ in. by $\frac{1}{16}$ in. balsa. The important thing here is to build them absolutely square and to the exact dimensions given; therefore it is best to draw the outline of the frames (i.e. two rectangles), using rule and set-square, and to build up the frames directly on top of the drawings using the outlines as guides.

Next, cut the uprights to length to fit neatly between the $\frac{1}{16}$ in. square 'beading' (or longerons) and cement them in place over the marks you have already drawn on the fuselage sides. Draw out the shapes of the wing-mount reinforcing pieces and cut them from hard $\frac{1}{16}$ in. sheet balsa. Do likewise with the tail-end pieces and the motor-peg plates and then cement them in places as shown.

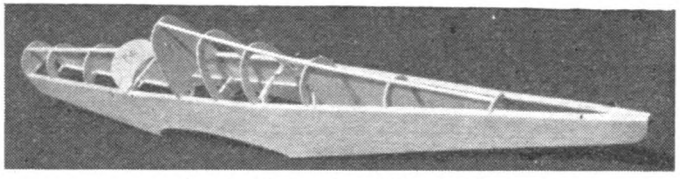


Fig. 3—Fitting the middle stringer.

Remove the panel pins and then cement key frames 'A' and 'B' in place on one fuselage side only. Make sure that the frames are kept perfectly upright by frequent checking with a setsquare. When

thoroughly set, place the long straight edge of the side on a flat surface and cement the second side in position. Then taper the inside faces of the rear-end pieces until they join in a neat V and cement them together. Follow this by cutting the fuselage spacers which fit

PLANS ARE ON NEXT TWO PAGES

along the bottom of the fuselage aft of the wing aperture, and cementing them in place. One spacer on the top at the F10 position is also added at this stage.

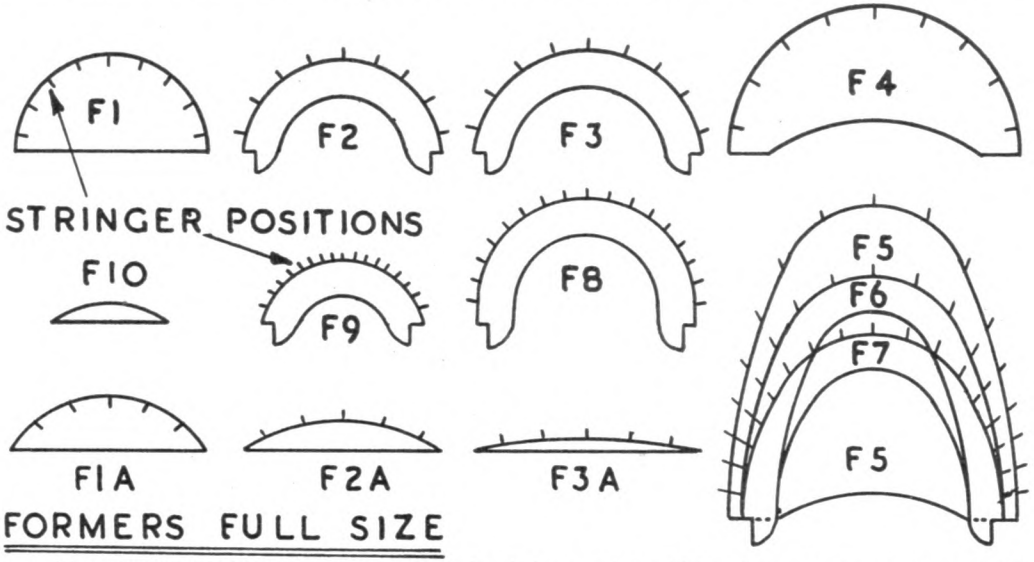
Now cut the spacers for the nose and the four small wing-retaining hooks (bent from pins) to the fuselage frames, then cut and fix the thin plywood tail-skid.

The next step is the addition of the 'top decking' and the fairing of the nose on the underside of the fuselage. Trace the shapes of formers F1 to F10 and formers F1A to F3A and transfer them to *hard* $\frac{1}{16}$ in. balsa, making sure that the grain runs vertically in relation to the formers and that the stringer positions are indicated in pencil. Cut them out and cement them one at a time in their respective positions as indicated on the drawing. Make quite sure that all but F4 are kept vertical while they set. To ensure that F4 is sloped correctly it will be necessary to

YOU WILL NEED

1 piece $\frac{1}{16}$ in. sheet medium hard balsa 36 in. long 3 in. wide.
6 lengths $\frac{1}{16}$ in. square hard balsa 36 in. long.
1 length $\frac{3}{8}$ in. square hard balsa 36 in. long.
1 length $\frac{3}{16}$ in. square hard balsa 12 in. long.
1 length $\frac{1}{16}$ in. square hard balsa 12 in. long.
1 length $\frac{1}{2}$ in. by $\frac{1}{8}$ in. trailing edge section 36 in. long.

Miscellaneous: Small piece $\frac{1}{8}$ in. hard sheet balsa approx. 6 in. by 2 in. Similar sheet of $\frac{1}{32}$ in. hard sheet balsa. Length of 20 s.w.g. piano wire, 7 in. dia. plastic propeller, piece of celluloid, 20 s.w.g. brass brush, dowel $\frac{1}{8}$ in. dia., dope, tissue, tissue paste, cardboard, rubber, two 1 in. dia. balloon wheels, cup washers. Scrap of $\frac{1}{32}$ in. sheet balsa.



for the two positions on the underside of the fuselage forward of the wing aperture. Cement these in place working towards the nose. A small rubber band clipped round the fuselage will aid you in keeping the spacers in position while they are setting. To complete the basic structure of the fuselage-frame cement the $\frac{1}{2}$ in. wide $\frac{1}{8}$ in. sheet wing-saddle cross-member in place, bind and cement cut a cardboard or balsa template which includes the correct angle of slope (taken directly from the drawing) and to use this as a guide while the former is setting.

Fit the $\frac{1}{16}$ in. square hard balsa stringers to the top-decking aft of the cockpit first and start with the middle one (Fig. 3). The front end of this will have to be angled slightly so that it will fit neatly against the aft face of F5, and flush with its rim. The opposite end of the stringer butts against the forward face of F10. Do not use too much cement on the rims of the intervening formers — just sufficient to hold the stringer in place. Now fix the stringers at each side of this (Fig. 4) in a similar manner until no more can be accommodated on the face of F10. Subsequent stringers will have to be tapered, sharply in some cases, at their rear ends so that they will fit neatly against each other and on the rims of the smaller formers at the back of the fuselage.

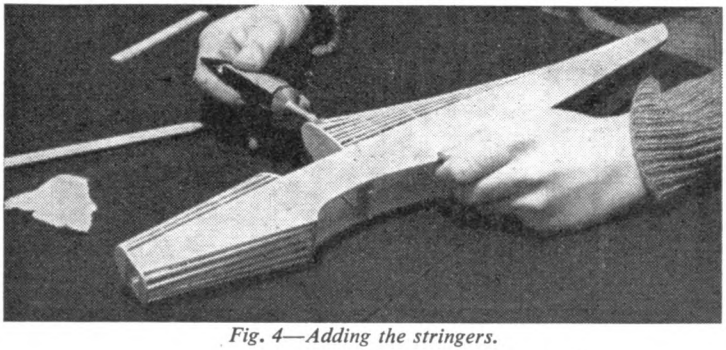
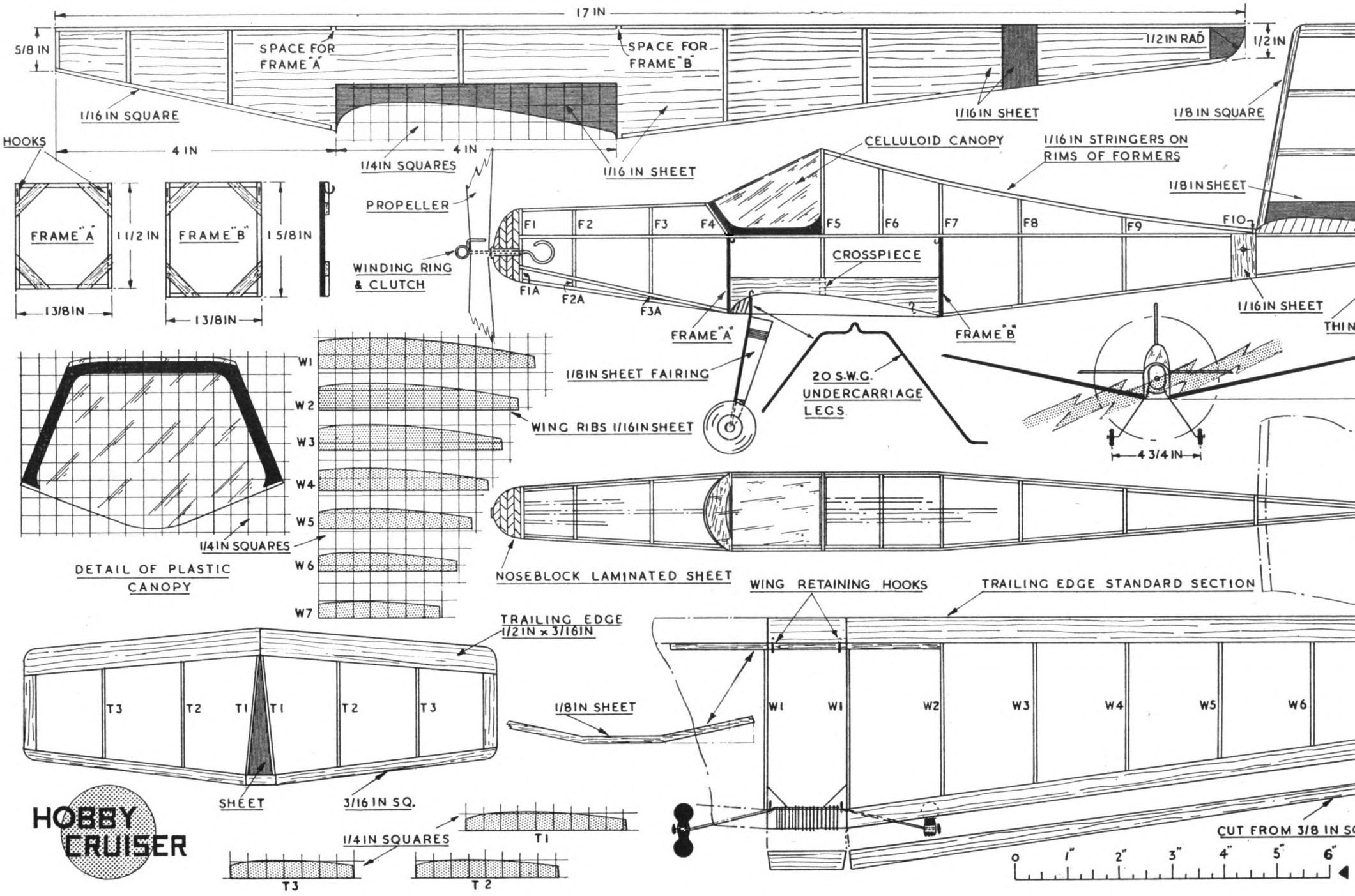


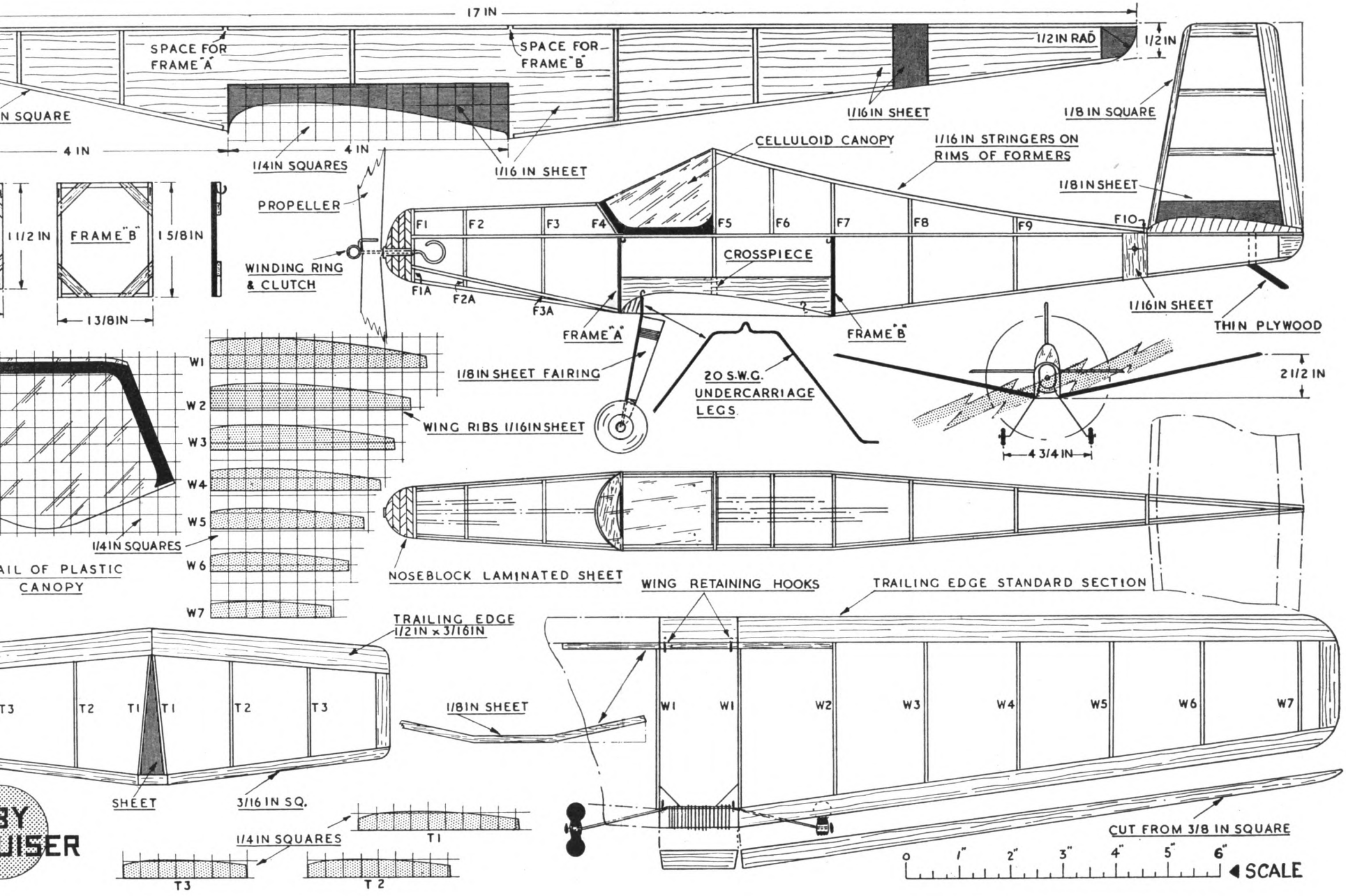
Fig. 4—Adding the stringers.

Fit the stringers on formers F1 to F4 next, starting again with the middle one. This time, however, fix the stringers (angled at one end of each) to the face of F4 first and cut them off so that they clip neatly behind F1. In a similar way, fit the stringers to formers F1A to F3A. Their rear ends butt neatly along the edge of the bottom member of fuselage key frame 'A'.

In the next article we shall be completing the structure of the 'Hobby Cruiser'.



HOBBY CRUISER


17 IN
SPACE FOR FRAME "A"
SPACE FOR FRAME "B"
1/2 IN RAD
1/2 IN
1/16 IN SHEET
1/8 IN SQUARE
4 IN
4 IN
1/4 IN SQUARES
1/16 IN SHEET
CELLULOID CANOPY
1/16 IN STRINGERS ON RIMS OF FORMERS
1/8 IN SHEET
PROPELLER
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
1 1/2 IN
FRAME "B"
1 5/8 IN
1 3/8 IN
WINDING RING & CLUTCH
CROSSPIECE
F1A
F2A
F3A
1/16 IN SHEET
THIN PLYWOOD
FRAME "A"
FRAME "B"
1/8 IN SHEET FAIRING
20 S.W.G. UNDERCARRIAGE LEGS
2 1/2 IN
W1
W2
W3
W4
W5
W6
W7
WING RIBS 1/16 IN SHEET
4 3/4 IN
1/4 IN SQUARES
AIL OF PLASTIC CANOPY
NOSEBLOCK LAMINATED SHEET
WING RETAINING HOOKS
TRAILING EDGE STANDARD SECTION
TRAILING EDGE 1/2 IN x 3/16 IN
T3
T2
T1
T1
T2
T3
1/8 IN SHEET
W1
W1
W2
W3
W4
W5
W6
W7
SHEET
3/16 IN SQ.
1/4 IN SQUARES
T1
T3
T2
CUT FROM 3/8 IN SQUARE
0
1"
2"
3"
4"
5"
6"
SCALE

CHEMISTRY AT HOME

THE name of the metal cobalt is derived from the German 'Kobold'. Reference to a German-English dictionary will show that this means hobgoblin, gnome, or sprite. Strange that hard-headed modern science should have the skeleton of superstition in its cupboard!

Yet the mystery becomes clearer when we know that miners of the Middle Ages believed that anything untoward which occurred in the mines was the work of mischievous hobgoblins. The German miners often found an ore which they thought appeared to be the one sought, but on processing it proved to be useless. Any such useless ore was associated with their old friend Kobold.

This 'useless' ore was used to mend the roads. It now furnishes the indispensable cobalt for machine tools and special magnetic alloys, as well as brilliantly-coloured compounds serving as pigments. Tungsten carbide tipped tools, for instance, contain about ten per cent of cobalt as a bonding agent.

To produce the metal in ingot form in the laboratory calls for special equipment, but in powder form it is easy to make. For this we use cobalt oxalate as the raw material. As it is insoluble in water it may be prepared by double decomposition.

Dissolve 7·5 grams of cobalt chloride in 100 c.c. of water, and 5·3 grams of ammonium oxalate in 50 c.c. of hot water, then adding 50 c.c. of cold water.

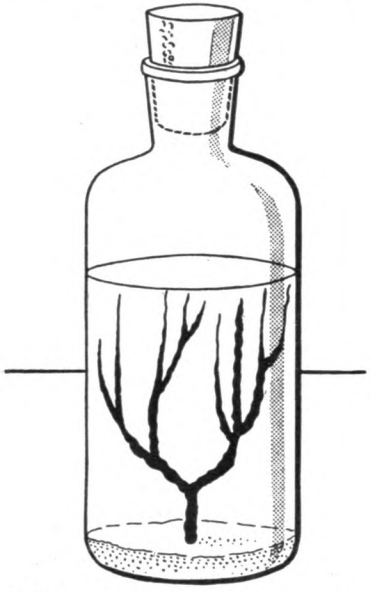


Fig 1—A chemical 'coral' ornament

EXPERIMENTS WITH COBALT SALTS

Mix the two solutions. A deep flesh-coloured precipitate of cobalt oxalate appears, heavy and crystalline. Let it settle, pour off the clear upper liquid, and filter off the precipitate, using a wash bottle to transfer it all to the filter. Wash well on the filter with several changes of water so as to free it from soluble ammonium chloride also formed in the reaction. When a few c.c. of one wash water no longer give a white precipitate with a few drops of silver nitrate solution, the ammonium chloride will have all been removed.

Open out the filter on to a porous tile and let it dry. It will now be pink.

After bottlng half for your stock, heat the rest in a lidded crucible until the whole is red hot. Allow it to cool *with the lid on.* If the lid is removed from the hot metal, it will burn to an oxide owing to its finely divided state.

When it is quite cold,open the crucible. A black powder of cobalt will be found therein. It contains a trace of carbon, but this is of no consequence. Bring a magnet close to the metal. It leaps to the magnet just like iron. It is one of the few magnetic metals.

Cobalt pigments are many and varied —pink, lavender, blue, yellow, and green. The famous willow pattern crockery is coloured with a cobalt compound. Blue glass bottles are so coloured because of the presence of cobalt in the glass. Finely ground, it furnishes the pigment Smalt. A lavender one may be made from cobalt silicate. Dissolve some water-glass (which is a mixture of sodium silicates) in hot water, and add cobalt chloride or nitrate solution. A gelatinous blue precipitate appears. Let it stand a few hours. Wash it by decantation in a large bottle fitted with a syphon. It turns lavender coloured during the washing. Filter it off and dry it. On grinding this with a little thin mucilage a good water-colour paint results.

An interesting experiment is to watch its gradual formation as a coral-like 'plant'. Take a small, clear glass bottle and one quarter fill it with water-glass. Pour in water until the bottle is three-quarters full, shake until the two liquids have formed an even mixture and add enough sand to form a thin layer on the bottom. Now drop in a crystal of cobalt chloride and leave the bottle undisturbed. Very soon deep blue filaments of cobalt silicate begin to grow from the crystal, putting forth branches just like a living coral (Fig. 1), and afford a novel experience. If corked, the growth can be kept as an ornament for a considerable time.

Aureolin, or Cobalt Yellow, is another useful pigment made from a cobalt compound. It consists of potassium cobaltinitrite. To prepare it, dissolve together in 15 c.c. of water 5 grams of sodium nitrite and 2·4 grams of cobalt chloride, finally adding 1 c.c. of glacial acetic acid. To this solution add one of 2·9 grams of potassium acetate in 20 c.c. of water. A yellow precipitate of potassium cobaltinitrite forms at once. Filter this off and wash it well on the filter with several lots of water. Then open out the filter paper on to a porous tile and let the precipitate dry. Rub up a little of it with weak gum water on a glass sheet using a whippy knife until a smooth cream results. Try out the water-colour so produced and you will find it a good paint.

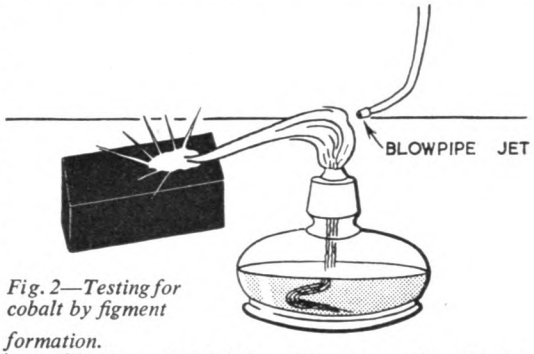


Fig. 2—Testing for cobalt by figment formation.

This reaction can be used for testing for potassium—often a difficult metal to detect satisfactorily. A stock reagent can be made up for the purpose. In 15 c.c. of water dissolve 5 grams of sodium nitrite and 3 grams of cobalt nitrate. Add 1 c.c. of glacial acetic acid and keep it in a well-closed bottle. On adding a little to a

●Continued on page 65

Novelty to make

A VASE OF TANTALUS

THE story of Tantalus is a strange one. An old legend says that he was a Lydian King who displeased the ancient gods, and so was condemned to eternal torment in Hades. His punishment was to suffer an intolerable thirst, whilst plunged, up to his chin, in a lake of water. Whenever Tantalus bowed his head to drink, the clear sparkling water receded from his parched lips.

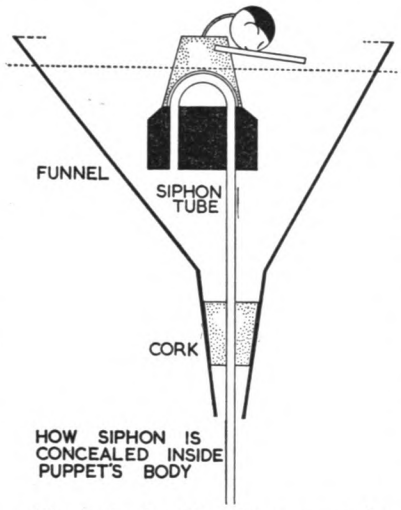
By A. E. Ward

A hundred years ago this sad tale inspired the invention of a curious little toy. Inside a decorative glass vase a miniature wooden puppet was mounted, in a stooping posture. If water was poured slowly into the vase, the surface level would rise no higher than the chest of the quaintly carved 'Tantalus'. The secret was in the nature of a small siphon, which was concealed within the puppet's body, and the water drained through a hidden hole in the table, upon which the trick vase was placed.

Without any difficulty you can soon make a 'Vase of Tantalus' for yourself. You will need some corks, an 8 in. length of thin glass tubing, and a plastic funnel, which can be bought cheaply at a hardware store. Heat the glass tubing about 2 in. from one end, by means of the top part of a hot Bunsen flame. Gently roll the glass between the fingers of both hands while the tubing is being heated. Then when the glass is glowing and soft, remove the tube from the flame, and carefully bend it around to form a neat 'walking stick' shape.

Make the puppet as follows: Bore two holes in a 1 in. diameter cork about 1 in. high, into which the two straight 'arms' of the bent tube can be neatly inserted. Mount the tubing in the cork, as illustrated. Note that the end of the shorter 'arm' of the tube is flush with the base of the cork. Select a slightly slimmer, though somewhat taller cork, and hollow out its base, using a sharp penknife, in such a manner that it may be fixed with balsa cement upon the top of the broader cork, thus concealing the arch of the glass tube. The bend in the tube should be at the intended chest level of the figure.

Sharpen two used matches to make arms and press these into place. A bead or a carved cork ball made smooth with fine grade glasspaper will serve as a head. The head is mounted upon the body by means of a bent neck fashioned with stout wire. Use glasspaper to improve the resemblance of the figure to a man inclining his head to drink, then make the little puppet look attractive by painting the body, limbs, and features in bright waterproof colours.



HOW SIPHON IS CONCEALED INSIDE PUPPET'S BODY

Find a cork that will fit easily into the neck of the funnel, and bore a hole right through it, to take the long arm of the glass tube. Assemble the toy as shown in the diagram, whilst remembering to place the figure well down inside the funnel, where the concealed arch of the glass tube will be below the funnel's rim. Your 'Vase of Tantalus' will now be complete.

Operate the toy by pouring water slowly into the funnel. As the liquid rises to the chest level of the puppet, the bent glass tube will commence to function as a siphon, so the water will not reach the painted mouth of the pathetic little figure. The toy will arouse considerable interest, and explanation of its action will not always be apparent.

A 'Vase of Tantalus' will demonstrate the principle of automatic flushing tanks and intermittent springs, and the next time you 'tantalize' the cat with a piece of knotted string, you will appreciate the origin of this expressive word.

● **Continued from page 64**

Experiments with Cobalt Salts

strong solution of the substance under test, a yellow precipitate of potassium cobaltinitrite appears. Ammonium, but not sodium salts, gives a similar reaction. Therefore the substance should first be shown to contain no ammonium by adding sodium hydroxide and heating, when ammonia can be smelt if an ammonium salt be present.

The well-known pigment Cobalt Blue can be prepared by mixing cobalt nitrate or chloride solution with one of alum and adding sodium carbonate solution. Filter off the precipitate, wash well with water, dry it in the oven and then heat it to redness in a crucible. On cooling, you will find a blue mass of Cobalt Blue, which can be used by rubbing up with weak gum water as before. Except for artists' colours, Cobalt Blue has largely been replaced by the cheaper Ultramarine.

Rinmann's Green is made in a similar manner, but in this case replace the alum solution by one of zinc sulphate.

Both of these compounds may be used as a means of detection of cobalt. Put a little aluminium oxide on a charcoal block, moisten with a drop of the solution under test and then heat with a mouth blowpipe (Fig. 2), when the aluminium oxide will turn blue if cobalt is present. Confirmation is obtained by the appearance of a green colour when zinc oxide is used instead of aluminium oxide.

Now try heating a little cobalt chloride in a dry test tube. It turns from red to blue. This is due to loss of water of crystallisation, condensed water being visible farther up the tube.

This loss also takes place in dry air and is the principle of the so-called 'sympathetic inks'. A piece of unsized paper such as filter paper dipped in a solution of 1 gram of cobalt chloride in 4 c.c. of water is almost unchanged in colour when dry. Yet on warming before the fire it instantly changes to blue. Thus it may be used for a secret ink, especially if used on pale pink paper.

If artificial flowers, or a pond and sky contained in a drawing, be painted with this solution, they will change colour according to the dryness of the air. In moist weather they are barely coloured, but in dry air they turn blue. Such novelties add interest to a room.

Next week's free design will be for making a novel 'Jumbo' savings bank with secret opening. Make sure of your copy.

USING SECRET CIPHERS

By 'Mystifier'

CIPHERS have been employed for conveying secret messages since the early days of civilization, and they are widely used during the time of war for all important Government messages. To be precise, we should, perhaps use the proper title of cryptography, which is the science of secret communication, the object being to arrange words in systematic jumbles, which can be quickly set right by the receiver of the secret message.

Various methods of sending secret messages have been used, and it is recorded that one ancient Greek living in Persia wished to send an instruction to his son-in-law in Greece. It was most important that the message remained secret, and to ensure this the head of a trusted slave was shaved, tattooed with the message, and time allowed for the hair to grow. The slave, who did not know what had been written on his head, was sent to Greece in due course, with the instruction that he should say 'Shave my head and look thereon'. After shaving the slave's head, the son-in-law, Aristogoras, read the news that he should start a revolution!

Such a method would be considered too slow in these days of telephones, cables, and television, but the need for secrecy remains. We will describe several methods of devising your own codes based on accepted principles.

It will be apparent from the start that we must devise a system which disguises the real letters of a word by substituting others. We may use B for A, or Z for A, working the cipher alphabet backwards, and first we will describe how to make a slide table, as shown in Fig. 1. Upon a piece of white card, write out the plain text letters of the alphabet in their correct order, and at an even distance apart. The latter is important if we are not to be confused when comparing with the cipher letters. Now make a slot underneath the letters A and Z ¾ in. deep, so as to insert a strip of card the same width. Prepare such a strip long enough to hold the equivalent of 52 letters, so that the alphabet may be written twice, starting at the right with letter A, and working backwards.

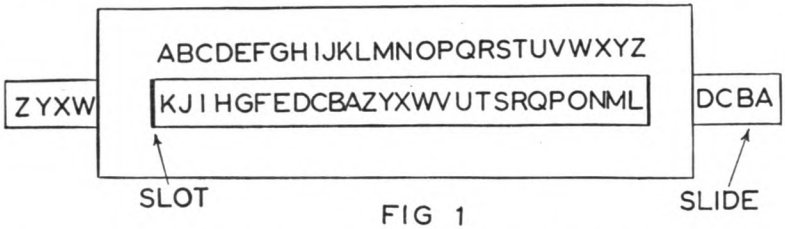


FIG 1

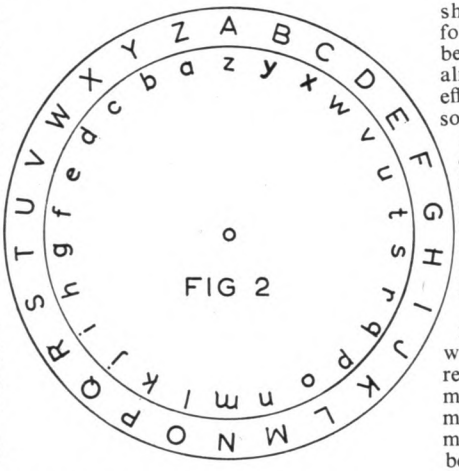


FIG 2

ABCDEFGHIJKLMNOPQRSTUVWXYZ
SECURITYABDFGHJKLMNOPQVWXZ

FIG 3

Ordinary	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Cipher	S	A	L	X	E	B	M	Z	C	D	N	U	F	O	R	G	P	I	H	Q	T	J	V	Y	K	W

Fig. 4

Start again with letter A when Z has been reached. The upper lettering now provides the plain text letters, and remains constant, while the lower strip represents the cipher letters, and will slide in both directions when threaded in the slots, thus giving different key letters.

To use the slide select any cipher letter to represent A, and the cipher equivalents to be used will be found directly underneath the text letters. In this instance K represents A, and so on. Without revealing the actual key letter used, a message may be sent with the date, e.g. Monday, 29th February, and by arrangements with confederates M would be the key letter.

Fig. 2 shows a modification of the slide. It is made from two cardboard discs, the larger bearing the plain text alphabet in normal order, and the smaller one the ciphers in reverse order. By joining the two discs together with a brass paper fastener the inner disc can be revolved to produce 25 different ciphers.

The only weakness with such systems is that the sequence of the letters remains unchanged, and it is better to jumble them as much as possible. An alternative is shown in Fig. 3, where the first eight letters of the cipher alphabet are shown as the word SECURITY, followed by the remainder of the alphabet in sequence, but omitting the letters already used by this word. This has the effect of mixing our cipher alphabet to some extent. If desired we may use other words as a lead; for example, your own Christian name, or a town, so there is ample opportunity for you to arrange an original cipher alphabet. Here is a message written by using the cipher shown in Fig. 3, can you solve it? MRSU YJEEARN VRRDFX IJM HRV AURSN.

A mixed alphabet of this type gives reasonable security, but a skilled analyst would be able to break the cipher, recognise the key word, and fit the remainder of the cipher alphabet. Admitted, this is no easy task with short messages, but the keyword would soon become apparent in longer messages; so here are other methods of jumbling you may like to try, as follows:

S E C U R I T Y
A B D F G H J K
L M N O P Q V W
X Z

The first line gives the keyword as before and is followed by the remainder of the unused letters of the alphabet, but arranged both horizontally and vertically. If we now take these and arrange them from the vertical pattern we produce a cipher alphabet as in Fig. 4.

● **Continued on page 68**

BUYING OR SELLING?

Classified advertisements on this page are accepted at a cost of 6d. per word prepaid. Use of a Box No. is 1/- extra. Send P.O. with advertisement to *Hobbies Weekly*, Advert. Dept., Dereham, Norfolk. Rates for display advertising on application.

100 STAMPS FREE! — request ¼d., ½d 1d., etc. discount approvals. — Croft, Pigdown, Hever, Edenbridge, Kent.

50 LARGE PICTORIALS 1/- catalogued over 10/-. Bargain offer as introduction to approvals.—P. E. Bentham, 40 Little Glen Road, Parva, Leicester.

100 DIFFERENT stamps free! Request ¼d. upwards discount approvals. — Bush, 53 Newlyn Way, Parkstone, Dorset.

PEN PROFIT. If you like writing send for 'Writers' Guide' (free). Thousands of words to interest beginner or experienced. Typewriter unnecessary under our system. — Writers' Ring (H.W.), 5 Edmund Street, Birmingham 3.

Completely new 54 page Edition

WHERE'S THAT CAR FROM?

Price 1/- (Postage 4d.)

Of all Booksellers

or

RALEIGH PRESS, EXMOUTH, DEVON

LONDON

DO YOU KNOW?

HOBBIES LTD. have branches at

78a NEW OXFORD STREET, W.C.1

87 OLD BROAD STREET, E.C.2

81 STREATHAM HILL, S.W.2

151 HIGH ST., WALTHAMSTOW, E.17

LONDON AIRPORT, HOUNSLOW

where the managers and staff are always willing to give you the benefit of their experience with any of your handicraft problems. Why not pay a visit?

WORKERS with sewing machines required for making cushion covers. Regular work guaranteed. Apply enclosing S.A.E., Dept. 28, Arnold Trading, 10 Shelley Road, Worthing, Sussex.

★ LEARN ★
RADIO & T/V SERVICING
for your OWN BUSINESS/HOBBY

● by a new exciting no-maths. system, using practical equipment, recently introduced to this country.

FREE Brochure from :—

RADIOSTRUCTOR

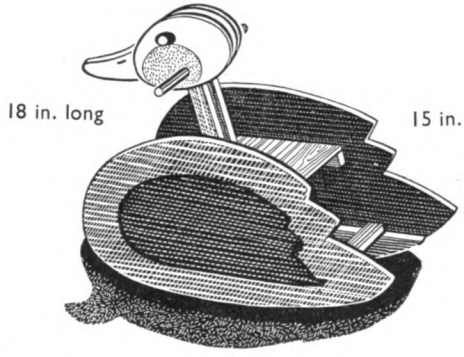
DEPT. G81, 46, MARKET PLACE, READING, BERKS. 27/4

CAN YOU DRAW OR PAINT?—even if only a beginner. Send for 'Make Art Pay' (free). Tells of remarkable new rapid system of developing your talent and selling your work. Clun Valley Features (H.W.), Clun, Shropshire.

IF you have taken a lot of care in making a musical box, be sure to make it worthy by including the best Swiss movement — a REUGE. Prices from 13/9. Wide range includes a charming Dancing Ballerina. Many tunes to choose from. Send for details in free booklet 'Profitable Leisure'. HOBBIES LTD, DEREHAM, NORFOLK

Ideal for a youngster

ROCKING DUCK



Kit of selected planed wood, plywood, design sheet and instructions, etc., costs only 16/6 (postage 2/- extra).

This Kit No. 3150, and the use of a few simple tools, can make YOUR child's dream come true.

HOBBIES LTD. (Dept. 99), DEREHAM, NORFOLK

NEW DO-IT-YOURSELF PRINTING OUTFIT

£1 · 17 · 6

COMPLETE

Everything you need to print your own snaps. Combined safe light and exposing light. Three ½ plate dishes (orange, white and grey). Printing frame with masks. Two graduated measures. Two forceps. Thermometer with case. Con-Sol developer. Acid Fixing powder and full instructions.

JOHNSONS OF HENDON LTD

FOR CONFIDENCE IN PHOTOGRAPHY

Mainly for Modellers

AT the end of the eighteenth and beginning of the nineteenth centuries the heavy warships were on the way out. Such vessels as were being built for the navy were of the frigate type. The Americans had concentrated on fast privateers, and were using their experience gained in war to develop fast merchant ships to compete for the world trade.

WOODEN SHIP BUILDING — 8

By 'Whipstaff'

The discovery of the goldfields in California in the middle of the nineteenth century brought about the building of faster sailing ships to provide transport for the rush of gold prospectors.

The repeal of the Navigation Laws in 1849 allowed foreign ships to compete with our own in British waters. We could not compete satisfactorily with them at this time, our own ships being slow in comparison with the fast American ships.

The Bluff bows which had prevailed over the last two centuries were retained only in certain types, mainly coastal and fishing vessels. The coming type gave us fine tapering bows, forming a wedge to cleave through the waters, so much so, that after the introduction of steam, the sailing ships could still for many years hold their own. Some could easily pass the early steam ships, much to the amusement of their crews.

The beginning of the period under review saw the advent of the American-type schooner, the first of which were of naval design in the hull lines. From these developed the faster fore and aft schooners. The rate at which the schooner type developed on the other side of the Atlantic is obviously due to the large coastline of the American continent. The schooner was the ideal type for coastal trade, fore and aft rig being more practical for such work, and more weatherly than square; that is, more able to work to windward.

In our sketches we see the development of the schooner bow, the same lines being adopted in Europe.

The early type of British schooner bow that comes to mind is the 'Aberdeen bow', introduced by Alexander Hall of Aberdeen in building his clipper-schooner 'Scottish Maid' in 1839.

It is an interesting fact that wooden ships had a longer life than the early iron and composition built ships. One is on record as giving 128 years' service and was then only broken up because of the cost of repairs to the upper works.

It is not possible in one article to illustrate the scores of different types in this period, but the sketches give a representative selection and will enable our readers to recognize the type and decade of the various main features of design.

In Fig. 1 we have the bow of an early nineteenth century merchant ship of about 350 tons.

Fig. 2. This is the bow of an American frigate of the period of the war of 1812.

Fig. 3. Bow of American ship sloop 1813.

Fig. 4. American schooner, built 1812–13, commissioned as a privateer.

Fig. 5. Gloucester fishing schooner bow. In this type we see the beginnings of the racing yacht design.

Fig. 6. Three-masted coasting schooner. Multiple masts were a feature of American schooners, culminating in a schooner with seven masts.

Fig. 7. British fishing smack 1836.

Fig. 8. Bow of one of the famous Blackwall frigates (mid-nineteenth century) the most advanced type of wood passenger-carrying ship.

Fig. 9. Bow of wood three-masted barque.

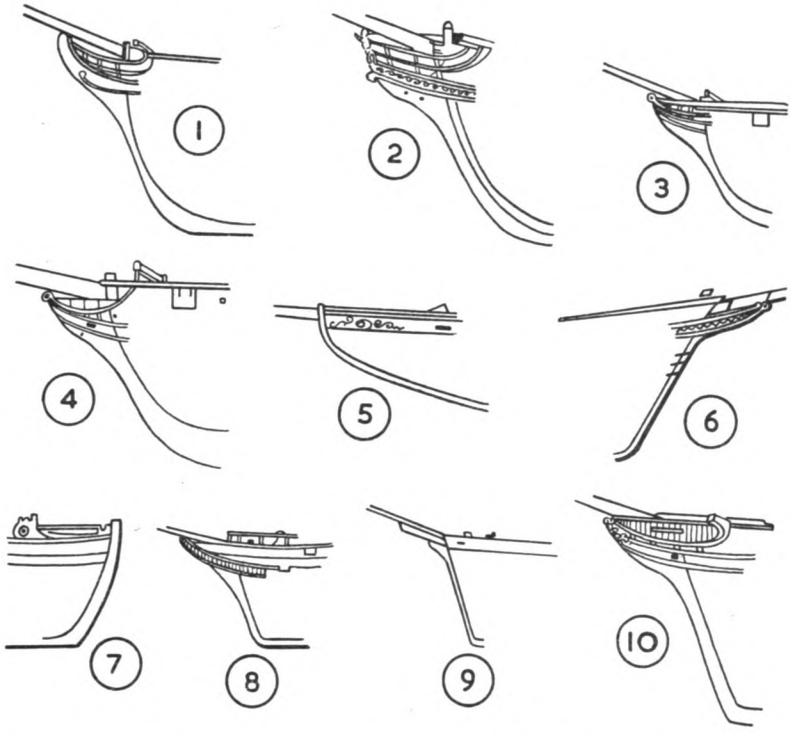


Fig. 10. Clipper bow, taken from plans of one of the last of the wood clipper ships. The later wind jammers were either composite, that is built from iron and wood, or else the later square riggers built mainly of steel.

● Continued from page 66

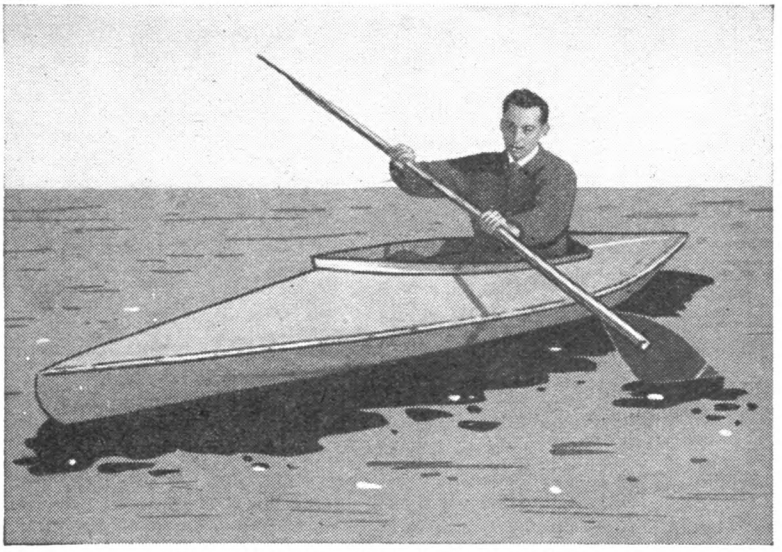
Secret Ciphers

The latter method produces a thorough, but systematic, jumble of the cipher alphabet, and sufficient has been said to allow you to produce a secret cipher of your own. You may use the ones shown, or select your own keyword, proceeding accordingly with the jumbling, ultimately making either a slide or disc.

Single seat and two seat

CANOES

COMPLETE AND READY FOR THE WATER — OR IN KIT FORM TO MAKE YOURSELF



THE PBK 10 SINGLE SEATER

These popular craft are designed by that well-known authority, P. W. Blandford. With canvas skins, they are propelled by double-bladed paddles and are thoroughly at home on lake, river or canal—or even on the sea in experienced hands. They are offered as complete canoes, or as specially prepared kits, which include full building instructions.

PBK 10

Single seat—11ft. long
28in. beam—load 300lb.

COMPLETE CANOE (without paddles) **£24.5.0**
(Part p. & p. £2 extra)

COMPLETE KIT (except paint and varnish and without paddles) **£15.10.0**
(Part p. & p. 15/- extra)

PBK 20

Two seater—15ft. long
32in. beam—load 700lb.

COMPLETE CANOE (without paddles) **£32.10.0**
(Part p. & p. £2.10.0 extra)

COMPLETE KIT (except paint and varnish and without paddles) **£22.5.0**
(Part p. & p. 20/- extra)

DOUBLE-BLADED PADDLES, 47/6 Complete (Part p. & p. 2/6 extra)

DEREHAM Hobbies NORFOLK

USING MAPS ON YOUR TOUR

MAPS are indispensable to hikers and cyclists on a touring holiday. A good map of the particular region you intend to explore is the one thing you must not leave at home. A reliable map is a guide that will never let you go astray — if you read it aright. Directions given by folk you meet on the road are sometimes rather confusing. Distances, too, are ill-judged by many rural dwellers. Cross-country miles, not infrequently, are extremely long ones. But the map never varies.

Excellent aids

The best maps for those who tour on foot or on bicycle are those issued by the Ordnance Survey Dept., available from stationers and booksellers. The O.S. map with a scale of 1 in. to 1 mile serves the rambler and the cyclist very well. The ½ in. scale map is also very handy, more particularly for the cyclist. For walkers, the 1 in. maps are essential, as it is impossible to show on the smaller-scale maps the footpaths, byways, and many topographical details which are — or should be — of great interest to explorers of the countryside on foot.

The ½ in. maps are excellent cycling aids; the features of the country shown are substantially the same as those on the 1 in., and the details are delineated with the utmost accuracy. Relief is shown on the ½ in. sheets by means of layers; the different altitudes are indicated by flat tints of varying shades, low ground being shown by means of green tints, and higher ground shown in buffs and browns. Contours are shown at 50 ft. and intervals of 100 ft.

It is, of course, essential to obtain two or even three of these O.S. sheets where areas overlap on the route you wish to travel. The sheets are issued in popular form and size, mounted on linen and folded between covers.

Understanding the map

It is not difficult to understand a map if you study it carefully and memorize the particulars given at the bottom of each sheet. It is easy enough to learn off by heart the conventional signs found there — these signs and symbols denote roads, footpaths, railways, woods, rivers and lakes, post offices, youth hostels, churches, villages, etc.

Contours are shown by thin red lines, enabling you to distinguish hill and valley, slopes and levels. Some practice is required in reading these various symbols on the map before you can read it at a glance.

An important thing to note is the scale, which helps you to gauge the distance from place to place. In the margin at the bottom of the sheet the scale is drawn: five miles of it, so that you can fix it firmly in your mind, and can roughly estimate by scanning the map the approximate distance between any two points.

When reading your O.S. map remember that the sheet runs — or rather the sides of it — in a north and south direction, i.e., the top of the sheet is the north, the bottom the south. Thus, by comparing the direction of any road or path with the side margins, you can obtain the direction of any path marked on the map which you desire to follow.

Always hold the map when you are reading it in the open country in the correct position, with the top pointing to the north. To 'set' a map correctly a compass is needed; but even without such an instrument — and not every hiker and cyclist carries one — it is easy to spread out the map flat on the ground, so that the north lines on the sheet point to north on the ground. Once you have north on map and ground corresponding, and presuming your position on the map is known, you may look for some conspicuous object on the ground which is marked on the map. A straight line is then ruled from your position to the sign or symbol of the feature, and the map turned round until the line, if prolonged, would reach from your standing-point.

An inexpensive holiday

The map, of course, is intended to be a help and guide, but the tourist should also try and develop a 'sense of direction', using his eyes and his knowledge of the area he is exploring, and only relying on his map as a check on his movements. 'Make a friend of the map, but do not become a slave to it', says an expert on moorland tramping.

Ramblers are finding Y.H.A. hostels in different parts of the country an inestimable boon for exploring hitherto unknown regions. They enable open-air lovers to spend a great holiday in an inexpensive way. The privileges are many, if you are a member of the Association.

If you desire to see England and Wales by foot, cycle, or even canoe, if you are a member of the Y.H.A. you are sure of a night's accommodation and good meals. (Ed.).

Fun with Short Waves

SHORT wave radio is a fascinating hobby for the young amateur with limited means, having in its favour the fact that it can be indulged in at reasonable cost. This new publication is essentially for the young beginner, and avoids all mathematics.

The author, Gilbert Davey, starts with battery-operated one—valve receivers, and goes on to two- and three-valvers. He then explains how to operate from the mains, and how to build a three-valve amplifier. The closing chapter gives advice on where and how to buy kits and components.

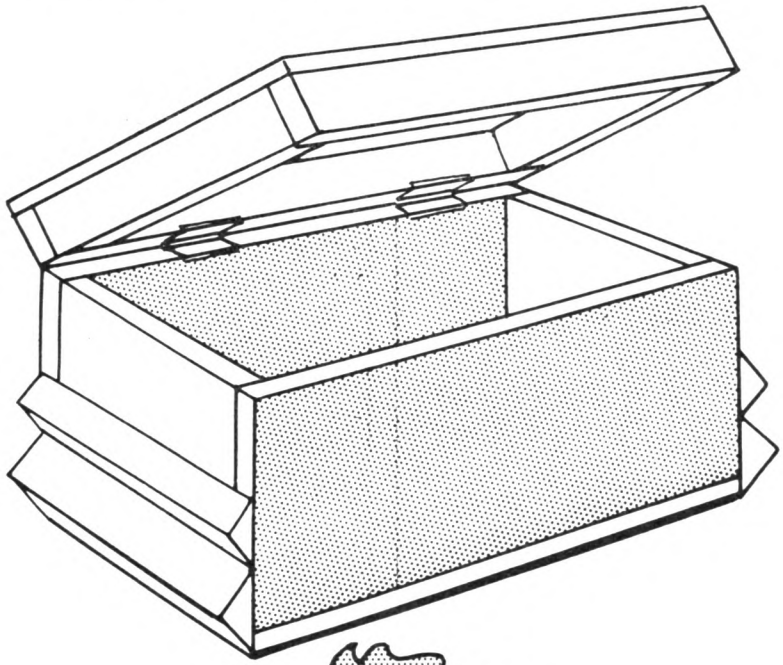
Published by Edmund Ward, 194–200 *Bishopsgate, London, E.C.2—Price* 11/6.

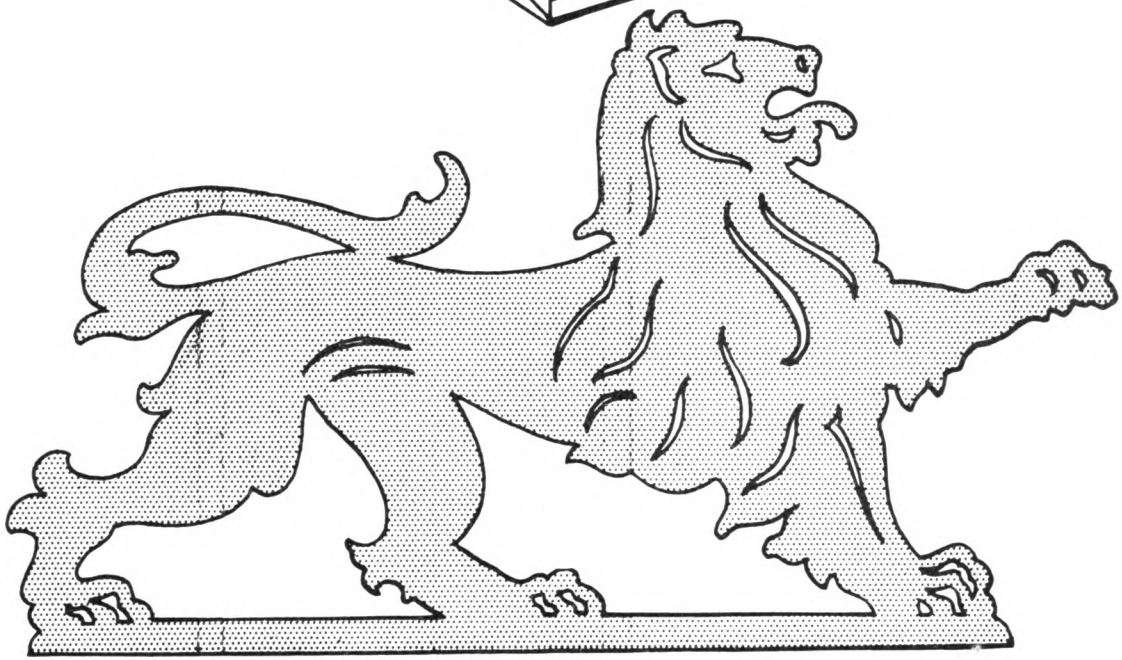
Design for fretwork

THE 'LION' OVERLAY

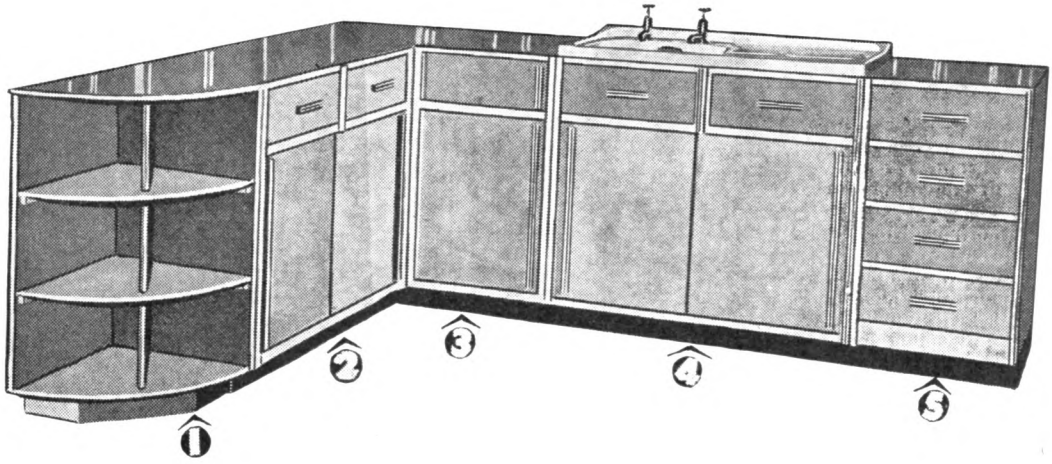
THE overlay may be cut from thin wood, Perspex, metal, or any kind of plastic material obtainable. Trace the pattern, and transfer it to the material by means of carbon paper, and cut out with a Hobbies fretsaw. Drill and cut the interior frets first, and then cut round the outline. If cutting metal, a metal cutting saw should be used, and the work lubricated with oil along the cutting line. Perspex should be similarly lubricated, while cutting, to prevent the cut closing up from heat.

The overlay may be used on all kinds of boxes, and a suitable design is shown in the sketch on the right. Use a $\frac{1}{4}$ in. wood, with triangular fillet to form the decoration on the ends. Paint with high gloss enamel, and add hinges, clasp and knob as desired. The overlay is secured in place by glue after scraping away a little paint, to provide a key. (M.p.)





Printed by BALDING & MANSELL, LTD., London and Wisbech, and Published for the Proprietors, HOBBIES LTD., by HORACE MARSHALL & SON, LTD., Temple House, Tallis Street, E.C.4. Sole Agents for Australia and New Zealand: Gordon & Gotch (A'sia) Ltd. For South Africa: Central News Agency Ltd. Registered for transmission by Canadian Magazine Post.



Winsome
THE KEY TO KITCHEN HARMONY

'DREAM KITCHEN' UNITS

AVAILABLE READY-MADE OR AS KITS

'Winsome' kitchen units are designed and produced by Hobbies Ltd., Dereham, Norfolk, and are available by post direct from Head Office or from all branches. Each unit can be used singly or in conjunction with others, according to size and shape of kitchen.

Designed to give maximum cupboard, drawer, and shelf space, they stand at a comfortable working height of 2 ft. 9 in. on recessed plinths. Sliding doors and durable plastic worktops are other compelling features.

Each unit is available completely finished (with choice of colour) or as a specially prepared kit in its natural state, ready to put together with a screwdriver and glue and finish to your own choice — a simple job.

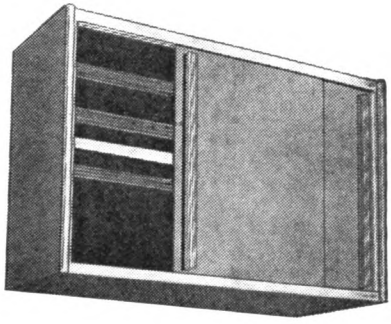
1 END UNIT — No. 57
Complete **£5 17s. 6d.** (part p & p 7/6 extra)
Kit **£4 12s. 6d.** (part p & p 5/- extra)

2 CABINET UNIT — No. 51
Complete **£8 15s. 0d.** (part p & p 10/6 extra)
Kit **£6 19s. 6d.** (part p & p 7/- extra)

3 CORNER UNIT — No. 54
Complete **£8 13s. 6d.** (part p & p 10/6 extra)
Kit **£6 18s. 0d.** (part p & p 7/- extra)

4 SINK UNIT — No. 55 (without sink and taps)
Complete **£6 15s. 0d.** (part p & p 10/6 extra)
Kit **£5 10s. 0d.** (part p & p 7/- extra)

5 DRAWER UNIT — No. 52
Complete **£8 14s. 6d.** (part p & p 10/6 extra)
Kit **£6 19s. 0d.** (part p & p 7/- extra



WALL UNIT (to match)
No. 53 (36″ × 23″ × 12″)
Complete **£4 10s. 0d.** Kit **£3 5s. 0d.**
No. 56 (36″ × 17″ × 8″)
Complete **£3 12s. 6d.** Kit **£2 12s. 6d.**
(part p & p unit 7/6, kit 5/-)

HOBBIES LTD

DEREHAM
NORFOLK