21st JUNE 1961 VOL. 132 NUMBER 3419

THE ORIGINAL 'DO-IT-YOURSELF' MAGAZINE

HOBBIES weekly

FOR ALL HOME CRAFTSMEN

Full-size patterns

GARDEN FURNITURE

FOR DOLLS' HOUSES

Also in this issue:

MAKING PICTURES ON GLASS

COLLECTORS' CLUB

SAILING BOAT FOR A CHILD

A BUILT-IN FIRESCREEN

CHEMISTRY AND PHOTOGRAPHY

DIVING HINTS

A SEA FISHING HOLIDAY

ETC. ETC.

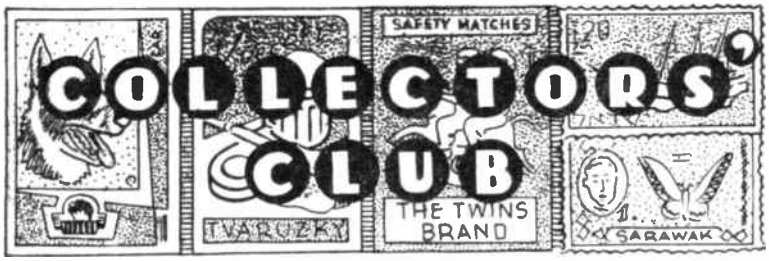
Hobbies

Up-to-the-minute ideas

Practical designs

Pleasing and profitable things to make

5D.



ON 17th April the Government of the Federation of Malaya released a special ten-cent stamp to commemorate the Installation of His Highness Tuanku Munawir ibni Almarhum Tuanku Abdul Rahman, S.M.N., S.P.M.B., Putra Sulong (eldest prince) as the Yang di-Pertuan Besar of Negri Sembilan.

A GUIDE TO NEW ISSUES

The State of Negri Sembilan is the only State in the Federation of Malaya whose Ruler has the title Yang di-Pertuan Besar. The Rulers of other States are called 'Sultans' with the other

exception of Perlis whose Ruler has the title of Raja. The term Yang di-Pertuan Besar must be distinguished from the Yang di-Pertuan Agong who is the Supreme Head of State of the Federation of Malaya (see article in 5th April issue). The Yang di-Pertuan Besar of Negri Sembilan is elected by the Undangs (Ruling Chiefs) of Sungei Ujong, Jelebu, Johol and Rambau.

* * * *

ON 15th April a set of stamps, commemorating the nineteenth anniversary of the award of the George Cross to Malta, was placed on sale in all Post Offices in Malta and Gozo for a month.

Each denomination, 1½d., 3d., and 1s. 0d., has a different colour. All include a portrait of Her Majesty on a white background on the left-hand side, and a reproduction of the George Cross on a different coloured background for each value.

Details are:

1½d. The Queen's portrait, George Cross and the word 'Malta' in two shades of grey. The value and the background to the George Cross in two shades of yellow.

3d. Similar to the 1½d. but using two shades of blue.

1s. The Queen's portrait, the George Cross, and the word 'Malta' in two shades of grey-green. The value and the background to the George Cross in two shades of violet.

* * * *

NINETEEN doves in flight will be the motif on this year's Europa stamp to be issued by many of the nineteen member countries of the Conference of European Postal and Telecommunications Administrations (CEPT).

The designs of Britain's series of CEPT stamps, 2d., 4d., and 10d., which are to be issued on 18th September, have not yet been settled, but the symbol and adaptation of the Netherlands design may be featured.

* * * *

ISSUES to commemorate the Second Caribbean Scout Jamboree were released by the Government of Trinidad and Tobago on 4th April.

The design shows four scouts against a background of a map of Trinidad and Tobago, and symbolizes the Jamboree motto: 'Unity'.

The medallion portrait of the Queen surmounts a picture of the Gold Wolf Scout Award, of which the Queen is the only holder.

* *

George Lostochkin has sent this commemorative card of the two Russian Space Dogs.

* *

Project for the home lover

Built-in Firescreen for use in Summer

By

S. H. Longbottom

WITH the arrival of warmer weather the necessity for the domestic fire diminishes, and we are then confronted with the cheerless, empty fireplace. A firescreen hides the black cavity, but here we present another practical suggestion for converting that emptiness into an attractive alcove for a vase of flowers.

It will be appreciated that while most fireplaces are made to a standard size, there may be a slight variation, so the measurements given may require some modification, and you are advised to verify before cutting. The general principles remain the same however, and it is possible that the only alteration will be in the size or shape of the aperture. If the fireplace is fitted with an 'all-night' grate which is a fixture, it may be necessary to raise the floor of the alcove a little.

A piece of hardboard measuring 16 in. by 23 in. is required, as shown in Fig. 1, and from this we make a rectangular aperture for the alcove. The material removed will be required later for the floor of the alcove, so will not be wasted.

We now require two pieces of ¾ in. shelving for the sides of the alcove and these are worked together to make a shape as shown in Fig. 3. A stretcher of ¾ in. square section is screwed to one side, and at the base of these pieces, so that it is 2¾ in. from the bottom. This portion will fit into the fireback, so you must verify that the stated depth is correct.

The two pieces of shelving form the sides of the alcove; they are paired together with the stretchers on the inside, and joined by means of a piece of stout cardboard 10½ in. wide glued and pinned along the edges.

The piece of surplus hardboard is now trimmed to fit between the sides of the alcove, and is pinned to the stretchers, as shown in Fig. 2.

The hardboard panel is glued and pinned to the alcove which is framed with thin half-round beading, mitred at the corners. The beading need only be glued on, so that there will be no nails showing in the finished project. If desired a strip of quadrant section may be glued to the cardboard and hardboard where they join at the back near the top, and similarly with the floor where it joins with the hardboard panel. You may also add some half-round beading to the sides and along the top of the panel for additional decoration.

All that now remains is the question of decoration, and we must remember that if we are to add a vase of flowers, we should avoid a clashing of colours. You will find that a neutral shade, like ivory or parchment, is ideal, since it looks both bright and clean, giving a nice background for the flowers. Emulsion paint or varnish paint will be suitable, although one or two coats may be required to produce a solid colour. Remove the firegrate, and the screen will stand in position ready for the welcome summer flowers.

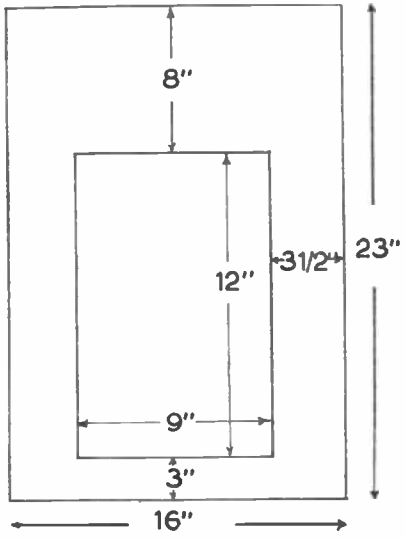


FIG 1

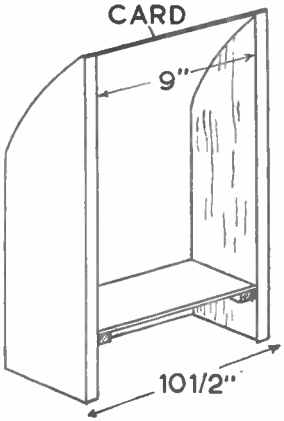
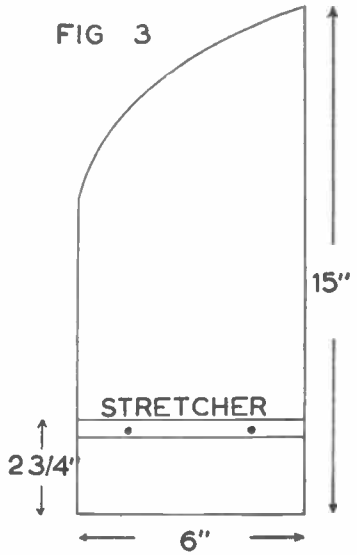


FIG 2

FIG 3



CHEMISTRY AT HOME

NEITHER vegetation nor animals could exist without phosphorus, P, for their nutrition. This is derived primarily from phosphate manures, either animal or mineral. The phosphate demand of a fertile soil is greater than animal manure can supply, and so man turns to the deposits of phosphate rock, processing these so as to make their phosphorus more readily available. Phosphate rock contains tricalcium orthophosphate, $Ca_3(PO_4)_2$, which is also the principal constituent of the mineral matter of our bones.

EXPERIMENTS WITH PHOSPHATES

The commonest phosphate in the laboratory is, of course, sodium phosphate (more precisely termed disodium hydrogen orthophosphate), $Na_2HPO_4.12H_2O$. With the aid of this cheap chemical, which is available at any pharmacist's, a lot of interesting preparations can be made.

For example, there exists a phosphate mineral known as vivianite, or blue iron-earth, which may easily be made synthetically. Vivianite is essentially ferrous orthophosphate, $Fe_3(PO_4)_2.8H_2O$, and its blue colour is due to partial oxidation.

Dissolve 13·78 grams of ferrous sulphate, $FeSO_4.7H_2O$, in 50 c.c. of warm water and stir it into a solution of 11·83 grams of sodium phosphate in 50 c.c. of hot water. A white precipitate of ferrous orthophosphate appears. Pour out the mixture into a shallow dish. It at once begins to grow discoloured, due to contact with the oxygen of the air. Stir the mixture occasionally during the next two days, when it will acquire a dirty greenish-blue colour.

The solid portion must now be freed from sodium sulphate, Na_2SO_4, and sulphuric acid, H_2SO_4, which are also formed in the reaction:

$$3FeSO_4 + 2Na_2HPO_4 + 8H_2O = Fe_3(PO_4)_2.8H_2O + 2Na_2SO_4 + H_2SO_4.$$

Transfer the whole to a filter by means of a wash bottle as shown in the diagram and wash on the filter until one wash water gives no white precipitate of strontium sulphate, $SrSO_4$, with strontium nitrate solution, $Sr(NO_3)_2$:

$$Sr(NO_3)_2 + Na_2SO_4 = SrSO_4 + 2NaNO_3 \text{ (sodium nitrate)}$$
$$Sr(NO_3)_2 + H_2SO_4 = SrSO_4 + 2HNO_3 \text{ (nitric acid).}$$

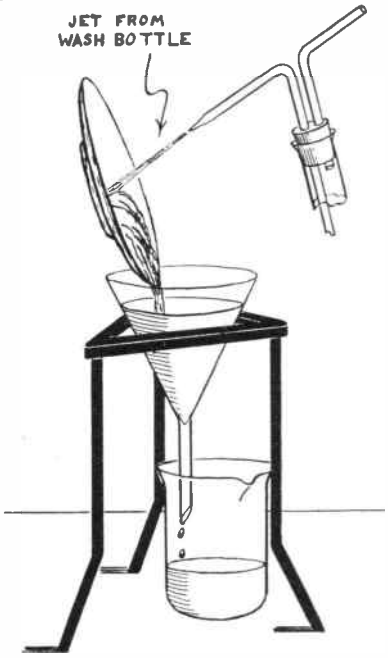
As the vivianite is now almost free from solutes, it may be dried in a warm place.

Not only do we meet with orthophosphates, but also with pyrophosphates and metaphosphates, such as sodium pyrophosphate, $Na_4P_2O_7.10H_2O$, and sodium metaphosphate, $NaPO_3$. The sodium salts of these three phosphates are all white, and all give colourless solutions in water. It is, therefore, useful to know of a test which differentiates the orthophosphate from the others.

Dissolve 1 gram of silver nitrate, $AgNO_3$, in 20 c.c. of water. Stir this into a solution of 0·71 grams of sodium orthophosphate in 20 c.c. of water. A yellow precipitate of silver orthophosphate, Ag_3PO_4, appears:

$$3AgNO_3 + Na_2HPO_4 = Ag_3PO_4 + 2NaNO_3 + HNO_3.$$

Filter off the precipitate and wash it well with water until it is shown to be free from acid by one wash water not reddening blue litmus paper. Let the precipitate dry for your stock.



Removing the vivianite to the filter

Now heat some sodium orthophosphate in a crucible, gently at first, for it melts in its water of crystallization, the latter boiling off. A white mass remains which must now be heated until it is red hot. Maintain the heat for a few minutes, and then allow the whole to cool.

Weigh out 0·44 grams of the white mass and dissolve it in 20 c.c. of water. To this solution add one of 1·13 grams of silver nitrate in 20 c.c. of water. This time a white precipitate appears. Clearly the sodium orthophosphate has been changed into something else. The action of heat has in fact converted it into sodium pyrophosphate and water, H_2O:

$$2Na_2HPO_4 = Na_4P_2O_7 + H_2O.$$

The pyrophosphate reacted with the silver nitrate to produce silver pyrophosphate, $Ag_4P_2O_7$:

$$4AgNO_3 + Na_4P_2O_7 = Ag_4P_2O_7 + 4NaNO_3.$$

As soluble metaphosphates also give a white precipitate with silver nitrate orthophosphates are readily distinguished by means of the yellow silver salt.

After filtering off and well washing, the silver pyrophosphate may be allowed to dry for your stock.

Another important test for phosphates depends on the reaction between a solution of ammonium molybdate, $(NH_4)_6Mo_7O_{24}.4H_2O$, which has been acidified with nitric acid, and a phosphate. Dissolve a little ammonium molybdate in a few c.c. of water, add enough nitric acid to make it redden strongly a blue litmus paper, and then add a few drops of sodium phosphate solution. Warm gently. A yellow coloration appears. Let the mixture stand aside. A brilliant yellow precipitate forms. This consists of an ammonium phosphomolybdate. Since there are a number of these, depending on the conditions of formation, it would not be fitting to append a precise formula, since mixtures are often formed.

To make a stock specimen whose formula approximates to $(NH_4)_3PO_4.12MoO_3$, you will need three solutions. Dissolve 10 grams of ammonium molybdate in 200 c.c. of water. Stir 30 c.c. of strong nitric acid into 40 c.c. of water (caution: corrosive; any coming in contact with the skin should be flushed off with water, and wet sodium bicarbonate applied). Dilute 0·5 c.c. of concentrated phosphoric acid, H_3PO_4, of specific gravity 1·75, with 8·25 c.c. of water.

Now add to the ammonium molybdate

● Continued on page 181

MORSE BLINKER

YOU can have great fun with this morse blinker. It's useful, for instance, when you go visiting, and most of the company want to watch television, but your friend and you do not. You can place yourselves at opposite corners of the room and carry out a 'silent' conversation with the blinker, without interfering with those who wish to watch TV.

By E. Capper

You can make a unit out of stiff cardboard, but as you may want to use this blinker on many occasions, it is better to make a more durable job out of three-ply wood.

The blinker mechanism is in two parts; a front piece, cut with a series of slots, behind which is a rear piece, that moves up and down to provide the blinking effect.

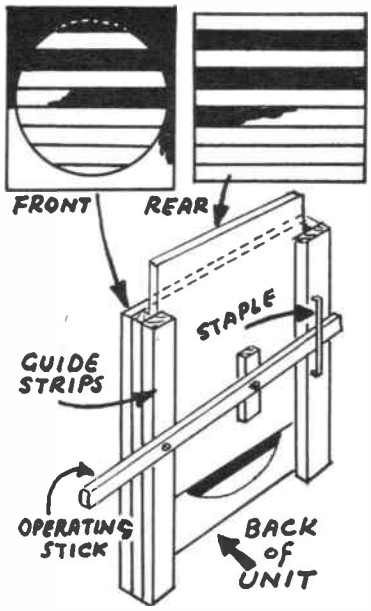
The front piece is cut 10 in. by 9 in. On it draw a circle, 8 in. in diameter, and then across it, across the 10 in. length, draw horizontal lines, spaced 1 in. apart. Make sure the lines are at perfect right-angles to the side of the wood.

With a fretsaw, cut out alternate pairs of lines to form 1 in. slots, and after glasspapering away all the rough edges, paint the front with either matt black paint or Indian ink.

The rear of the blinker mechanism is a 9 in. square of three-ply wood. Across it draw the same series of lines, 1 in. apart. Then paint in alternate pairs of lines as shown in the drawing. It is a good idea to paint the remaining spaces white, to give you a more pronounced 'blinking' effect.

Channelling must now be fitted to the back edges of the front piece to form a guide groove along which the rear piece can slide up and down. First, glue on ½ in. square strips and to them glue further strips of 1 in. by ½ in. wood, so that a channel is formed.

Next make the operating stick, which will move the rear piece up and down. This is a length of ½ in. square wood, 11 in. long. It is first screwed to the left-hand guide strip, through a clearing hole in the stick, so that it will move up and down easily. Next, a short length of ½ in. square wood is glued in position centrally, at the back of the rear piece. To this, the operating stick is again screwed so as to give free movement. Finally, the free end of the stick is housed between a rather long staple



which you will probably have to make up from stiff wire. Before making this staple, mark the extent to which the rear portion must move, and make your staple accordingly. This movement should be equal to the width of one slot.

Making a 'Seaside' on a Table

MAKING a seaside is an absorbing hobby for children confined to the house because of the weather or sickness.

A table is required, the larger the better, and one not in daily use. Fasten strips of cardboard with drawing pins round the edges, to project 2 in. over the top. This is to prevent sand from dropping on the floor.

By E. Williams

Paste sheets of white paper over half the table (the wide end). Crayon or paint these blue, marking in white sea horses, and curly edges of foam. Toy boats or boats made from cardboard are placed on the sea. Actual rocks and seaweed can be collected and placed in suitable positions.

Empty matchboxes are now glued together to make a promenade and pier, and covered with grey paper. Paving stones are marked with pencil. The wider the promenade, the more can be built on it. At the back can be placed rows of houses, made from the basic pattern of a 16 in. square (4 in. by 4 in.). From this pattern, seats, shelters, and stalls can be made and painted. These models should be made from stiff paper, and painted with bright colours. Windows and doors can be made to open, with gay figures leaning out. Toy cars and buses can run up and down along the promenade. Shelters and seats can be dotted here and there, with goods on the stalls.

On the end of the pier can be placed a lighthouse made from the core of a toilet roll. A merry-go-round and a bandstand can be made from circular cheese boxes, with coloured wax bandsmen. Ponies and donkeys made from the same material can be positioned on the sand.

The larger the table the better, for the scheme can be enlarged indefinitely. Toy soldiers can be used for a marching column, a model farm can be used in the background, and a railway can be made from painted matchsticks and boxes. The engine is made from another toilet roll core. Tunnels can be made, with a train coming out.

Visits to the seaside can be used to replenish or supply fresh material.

● Continued from page 180

PHOSPHATES

solution the diluted nitric acid, then stir in 2·9 c.c. of the diluted phosphoric acid. The mixture becomes yellow at once. In a few seconds the yellow precipitate begins to appear. Allow the whole to stand an hour. Then filter off the precipitate and wash it well on the filter. It may now be allowed to dry. You will note that it is very heavy in proportion to its bulk.

The equation is essentially:

$12(NH_4)_6Mo_7O_{24} + 51HNO_3 + 7H_3PO_4 = 7(NH_4)_3PO_4.12Mo_3 + 51NH_4NO_3 + 36H_2O$,

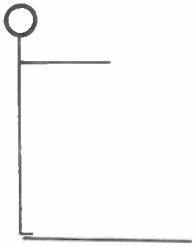
NH_4NO_3, being, of course, ammonium nitrate, which is removed during the washing of the precipitate.

Learning to dive—4

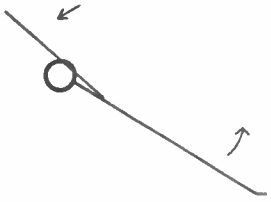
THE 'HURDLE STEP' HEADER

YOU have probably seen some people doing a running header from the board. This, when done correctly, is known as the Hurdle Step. Again it is better to practise it with the feet first entry, but it can later be adapted to the header.

First walk to the end of the board, turn round and walk five normal steps back. This gives you the starting position for the hurdle. Starting from this spot, take four paces forward (you will be able to run when you are more experienced), and make your last step a jump into the air, so that you land on the end of the board with both feet together. Your arms should be in a forward or upward position whilst you are in the air, so that they can be brought sharply downwards as you touch the board.



4



5

6

As the board is depressed, your knees bend and straighten as you fling your arms upwards again, coinciding with the recoil of the board. You will thus obtain a good fling into the air when your arms should be brought to your sides as in the ordinary feet first entry. The jump alone will give you enough to think about at first, without bothering about turning in the air for the header, but when you are ready you should have no difficulty in adapting it as you should have done when working the board.

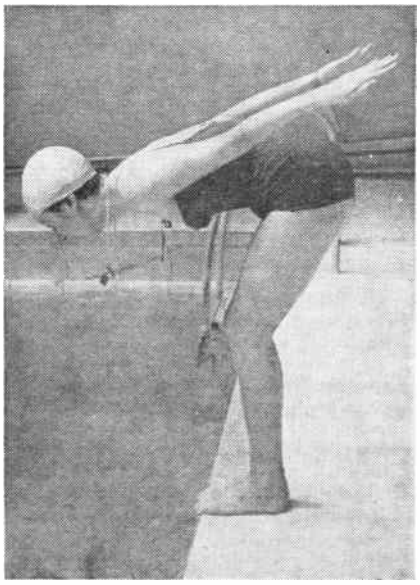
By P. R. Chapman

The backward header

This is a most impressive dive to watch, and is not too difficult to learn if you feel confident with the previous ones. You should first of all practise doing the feet first entry in reverse, that is, standing on the board with your back to the water and heels over the edge (Fig. 4). Jump just as before, but backwards this time, making sure that you clear the board (you don't want to catch your chin on it!), and enter just as for the forward jump. You can, of course, incorporate your arm movements to give you greater height. You must continue doing this dive until you can enter as straight as when doing it from the forward position.

In order to learn the backward header itself it is a good plan to get a friend to assist you by holding you at the waist whilst you bend over backwards from the bath edge, arms outstretched above your head. Bend until you topple, when your friend can help you to flick up your legs. Don't be perturbed if at first you fall flat on your back in the water; apart from a slight slap you will be none the worse from such a low height. With practice and gaining confidence you should be able to enter the water cleanly in the usual outstretched position.

The next stage is to perform much the same manoeuvre but unassisted. Stretch your arms as before, and bend back as far as you can, also bending your knees. Then by straightening them you should spring upwards and backwards, flicking your legs upwards (Fig. 5), and entering straight (Fig. 6). If your friend can kneel at your side, ready to give you a slight push up on the lower part of your legs, it will help. When you can enter thus fairly easily it is time to try from the greater height of the springboard. With practice you can work the board as before (but, of course, facing the other way) to give you a greater spring.



Preparing for the plunge

Plunging

The last dive that we are going to describe can be learnt quite independently of any of the others, and can usefully be practised as a 'fill-in' or change to relieve possible monotony of more concentrated practice. It is really quite easy to learn, and is, perhaps, the most effective method of entering the water for actual swimming as opposed to diving for the sake of diving. Indeed for racing, a modified form of the plunge is essential.

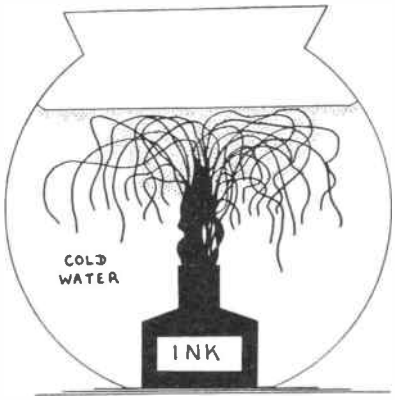
The plunge consists of a very shallow dive from the bath side, where outward distance counts, not depth. In fact the diver should only just go under the surface, and the plunge is the only exception amongst the dives we have been studying to the statement that in diving one should try to touch the bottom. For this reason it is quite possible to plunge into quite shallow water, certainly into the shallow end of a normal swimming pool.

● **Continued on page 183**

AN 'UNDERWATER VOLCANO'

A DRAMATIC underwater illusion will illustrate convection currents which help to circulate hot water around our houses and play a part in the cooling of a hot cup of tea. Supply yourself with some blue ink, an ink bottle and a goldfish bowl. Fill the goldfish bowl with cold water. Pour blue ink into the bottle, to a depth of ¼ in., then fill the bottle to the brim with hot water.

Mix the ink and hot water together by placing a finger over the top and inverting the bottle three or four times. Keep your finger in place and lower the bottle gently into the middle of the water-filled bowl. Remove your finger from the bottle top and withdraw your hand from the goldfish bowl. Soon, a lazy column of smoky blue inky water will begin to drift upwards from the bottle.



The coloured water will rise and spread out to form a pale blue cloud as it nears the surface. At the top of the bowl the stained water will cool, become heavier, and begin to sink slowly in many pretty clusters of blue streamers. The whole effect is remarkably like a miniature volcano eruption caught in slow motion.

Water expands and becomes less dense when it is heated, consequently hot water is lighter than an equal volume of colder water and will flow upwards when surrounded by water at a lower temperature. Heavier cold water will, in similar circumstances, tend to sink. The resulting cycle of upward flowing warm water and sinking cold water is called a convection current. Such currents also occur in other liquids and gases. (A.E.W.)

Drama in the Kitchen Sink

THE title is no exaggeration, for surely the merciless crushing of a strong metal container by invisible air is a truly dramatic event. In your own kitchen you can witness this strange phenomenon, and you will not fail to be fascinated as a regularly shaped can is violently and audibly crumpled as if it were made of paper.

Use a large container that will be quite airtight when you put the lid on. A tall confectionery 'tin' or a petrol can washed free of any petroleum traces will serve admirably for the experiment. You may employ a cork as a stopper if you use a petrol container.

Place water in the can to a depth of about 1 in., and heat the apparatus on a gas ring or electric cooker until the water is boiling, and a copious cloud of steam issues from the container, and

By A. E. Ward

drives all the air out. When the steam is flowing freely, turn off the heater, and fix the lid firmly on the can.

Immediately remove the can of hot water and steam to the sink. When you do this remember to protect your hands from the hot metal with a large cloth. Then turn on the cold water tap, and let the water flow all over the can. At this moment the steam inside the can will suddenly be condensed, and a partial vacuum will form.

Atmospheric pressure, which exerts a force of 14·7 pounds upon every square inch of area at sea level, will crush in the sides of the can with terrifying ferocity. The container will be curiously distorted afterwards. The reason why we ourselves are not squeezed to death by atmospheric air pressure is because air at the same pressure inside our bodies counteracts this tremendous force of Nature.

● **Continued from page 182**

LEARNING TO DIVE

However, it is better to learn this dive in at least 5 ft. of water in case you at first accidentally go deeper than you intend! Stand at the side of the bath, bend over and extend your arms behind you (see photograph). When you feel 'balanced', take a deep breath, bend your legs so that you crouch down, then straighten them with force, at the same time flinging your arms forward. This should propel you outwards over the water in the normal outstretched position, except that in this case you will be almost horizontal, entering the water at a shallow angle.

You will probably go about 1 ft. below the surface, but maintain your outstretched position, tilting your hands slightly upwards, so that you come to the surface. You can continue to glide thus until either your breath gives out or you stop moving, whichever happens first.

To begin with you may not travel very far, but this distance can be extended with practice; particular attention should be paid to getting a really good push off, and if you find that your breath gives out before you stop moving, take a few deep breaths before you jump. If you enter the water too steeply, you will, of course, go down rather than along, and this must be avoided. A good plunger should be able to travel 40 ft. or more, but don't expect too much at first!

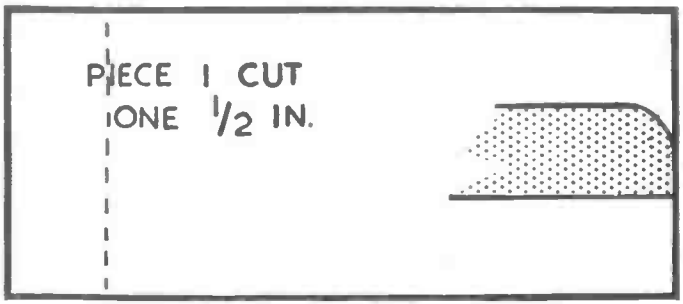
When using the plunge entry for a racing start, naturally you do not continue to a 'standstill', but as soon as you have slowed to your swimming speed, you start your stroke.

There are, of course, many other fancy dives, such as somersaults, twists, and more advanced versions of the pike and tuck, apart from really high board work. However, the degree of practice required in order to become proficient in these is beyond most of us, and the swimmer who studies carefully the ones we have described will have plenty with which to occupy himself. If he can do them all even moderately well he will be a diver well above average, and he can never have too much practice in order to become even better.

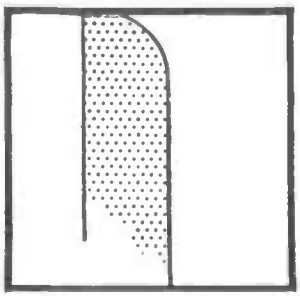
★★★★★★★★★★★★★★★★★★★★★
★ Next week's free design will be for making ★
★ a Child's Toy Horse and Cart. Make sure ★
★ of your copy. ★
★★★★★★★★★★★★★★★★★★★★★

DOLL'S HOUSE GARDEN FURNITU

SCALE APPROX 3/4" TO 1 FT.

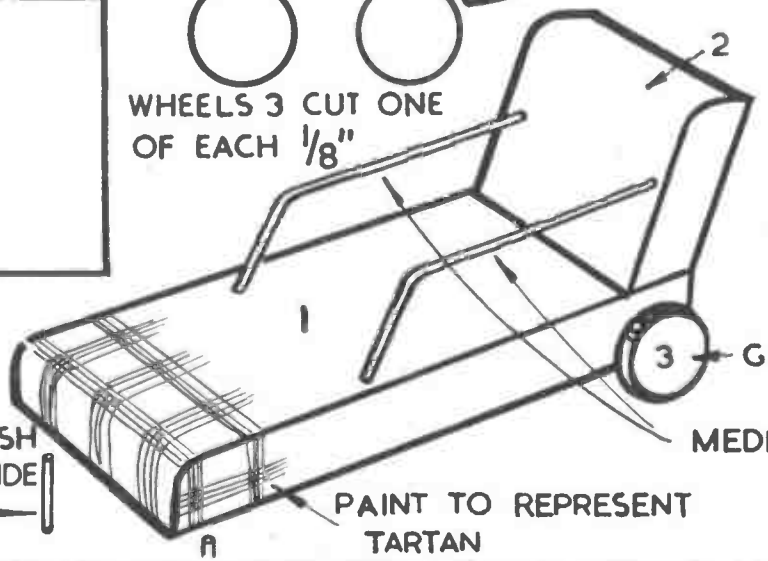


PIECE 2 CUT ONE 1/2 IN.



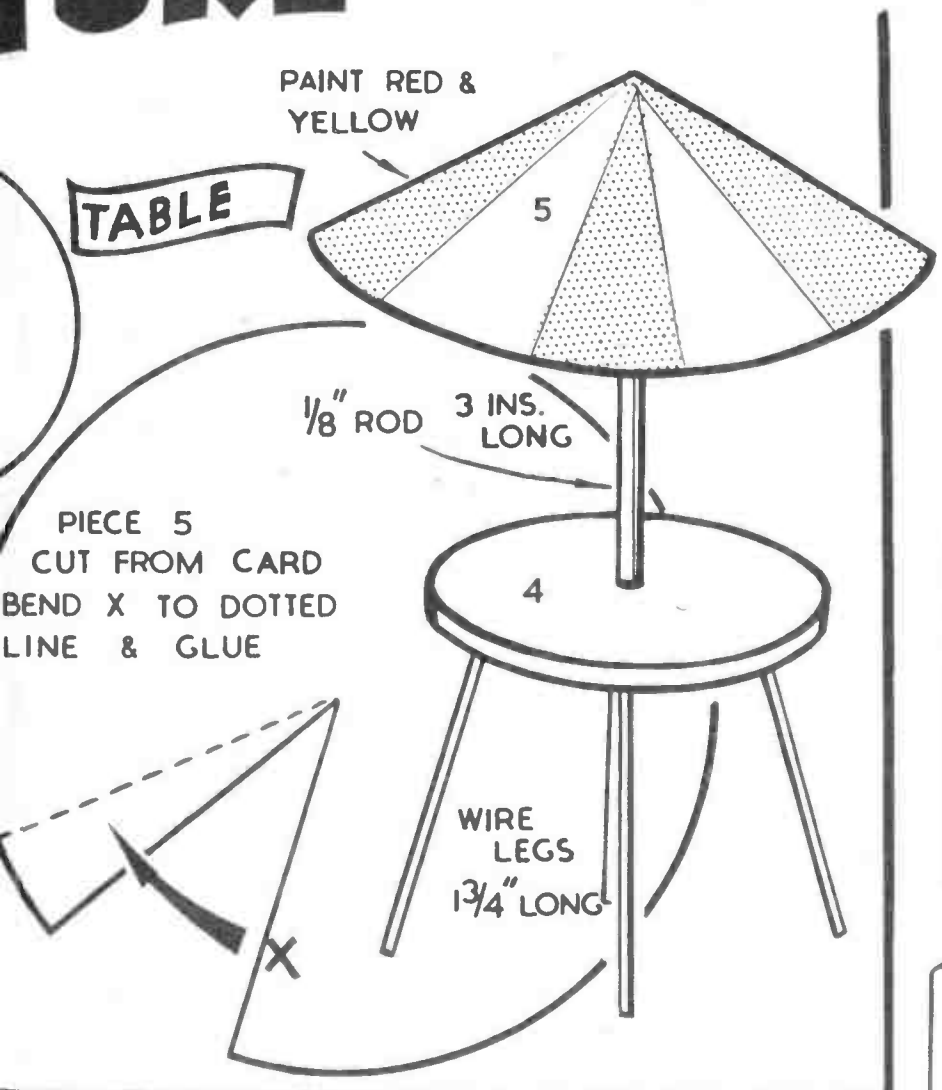
WHEELS 3 CUT ONE OF EACH 1/8"

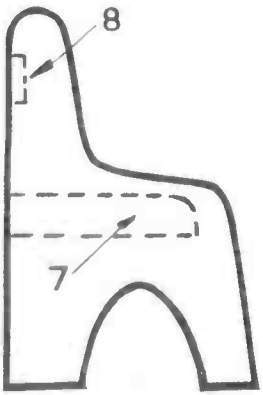
CHAISE-LONGUE

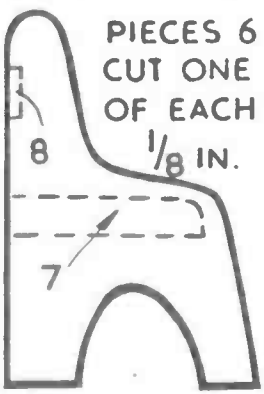


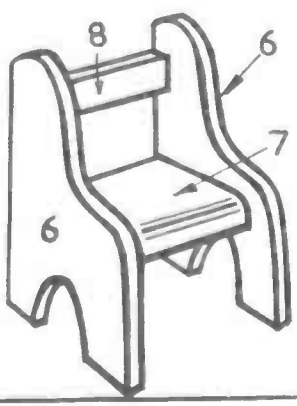
TURE

SUITABLE FOR ALL HOBBIES
—DOLL'S HOUSES—









PRINTED IN ENGLAND

GARDEN CHAIR

Photographic processing—4

RETOUCHING YOUR PRINTS

HOWEVER much care has gone into the production of your enlargements, the odd one will turn up that is marred by slight blemishes. Generally, retouching can put this right.

The two chief imperfections are light and dark spots, and these usually manage to appear on a vital section of the print. They can be eliminated by spotting or knifing, the method used depending on the type of printing paper.

For matt or rough surface prints pigment is the most suitable medium. Buy good quality water colours; inferior ones tend to some loss of colour after being exposed to light and air for a time. You will also require a No. 0 or No. 1 sable brush. Get a good one with a long, tapering point. It will make the job of retouching easier and quicker, and will produce the most satisfactory finish.

Light spots on bromide prints are best treated with Payne's grey or Indian ink, used according to whether the spots occur on the grey or black areas of the print.

For spotting chlorobromide prints some addition of burnt umber may be required. Burnt umber is also ideal for warm sepia toned prints, while the introduction of a small amount of indian ink will suitably match cold sepia tones.

After mixing the colours with a few drops of water, check their suitability by testing them on a piece of white paper or, even better, on the margin of the print. This experimental mark can be removed when the print is subsequently trimmed.

Place the print to be spotted on a firm, flat surface in good light. Dip the brush in water and wipe it almost dry on a clean, soft cloth. Then, using only the tip, pick up a minute quantity of the pigment and roll the brush to a sharp point on a sheet of paper. Apply the point lightly to the spot.

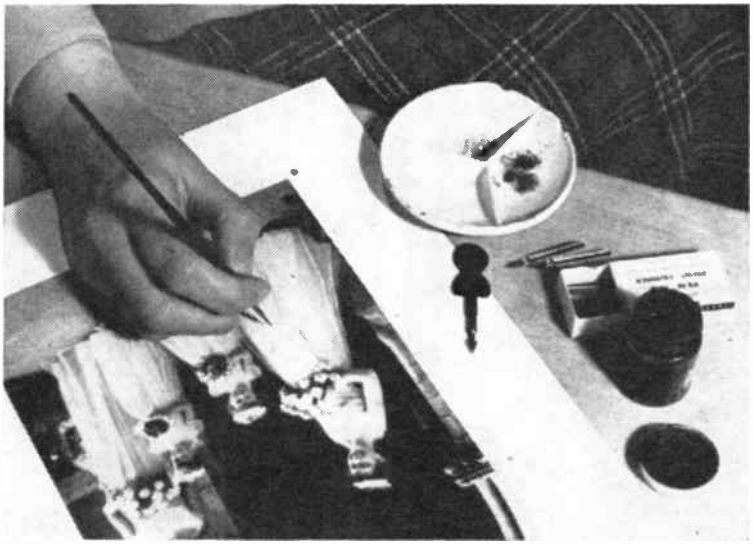
By K. Baxter

Once should be sufficient, but in any case one application at a time is the golden rule. If it is necessary to repeat the procedure allow each application to dry before applying the next.

Dark spots can best be dealt with by first changing them to light ones by careful knifing and then retouching as described above.

Razor blade will do

If great caution is exercised a thin razor blade will serve the purpose of a retouching knife. Lightly scrape the surface of the print where the spot is. Use an action that will make hardly any noticeable impression at first, for if the emulsion is penetrated the print will, more often than not, be irretrievably damaged.



Spotting with a sable brush

Matt or semi-matt prints can also be spotted by pencil retouching. It is important to select the correct grade of pencil for the purpose. For spots occurring on dark areas use a 2B or HB; for lighter sections 2H or 4H should usually be suitable. The right grade is the one that produces the required density after not more than five applications.

After pencil retouching, hold the print against the jet of steam from a boiling kettle until the gelatin becomes tacky. This has the effect of bonding the pencil-spotting which would otherwise be removed when doping was carried out.

Glossy prints are not suitable for either pencil retouching or knifing. The most satisfactory medium is dye spotting for white spots and chemical retouching for black ones.

Unlike pigments, dyes penetrate the surface of the emulsion so their presence cannot be detected. This makes them particularly suitable for glossy prints, as the slightest build-up on the surface will at once mar their appearance.

Dye retouching, in addition to taking out light spots, is useful for eliminating lines and scratches. Black dyes, as supplied by photographic dealers, will match the colour of a normal bromide print. Chlorobromide prints will require the addition to the black dye of a small amount of brown.

Applying the dyes

Mix the dye with water in a saucer until the exact shade needed is obtained. Test on the margin of the print. Stir the dye at frequent intervals during use, otherwise the colours will tend to dry unevenly.

The brush should be used almost dry, but if too much dye is applied it can be removed by soaking the print in cold water.

To begin, soak the glossy print in water for a minute or two. Remove and place it on a suitable surface in adequate light. Then apply the dye to the darkest areas of the print with brisk, even strokes. Progressively dilute the dye for the lighter areas. When the print is quite dry it can be resoaked and then glazed in the normal way.

Chemical retouching is a method of removing black spots by bleaching. First soak the print in water, then dip the tip of the spotting brush in a very weak solution of Farmer's reducer. Start at the outside edge of the spot and, using a stippling action, work carefully into the centre.

● **Continued on page 190**

YOU'LL CLICK WITH ONE OF THESE ILFORD CAMERAS

Sporti 4

For black-and-white and glowing colour prints too. The Sporti 4 can be set for sunny or cloudy days, has snappy modern styling, eye-level viewfinder, press-button release. Takes 12 pictures on 127 size roll film.

SELOCHROME PAN

Famous Ilford film, the best for black-and-white work all year round.

ILFACOLOR

Fabulous new film for colour enprints. Fits all popular camera sizes.

Sporti

Takes black-and-white *and* colour prints. Accurate focus with a quick guide to settings for Close-ups, Groups and Views when you're shooting in a hurry. Plus Sunny/Cloudy aperture settings. Eye-level viewfinder, press-button release. Takes 12 pictures on 120 size roll film.

ILFORD famous in black-and-white * fabulous in colour

Your models come to life with HUMBROL

Here's the paint that gives your models the most realistic finish ever. Available in a range of 34 attractive colours. They dry smoothly, quickly and without brushmarks, giving a genuine, true-to-life look. Complete your layout with Humbrol Scenic Enamels.

But Humbrol Railway Enamel is only one member of the most advanced range of finishes ever, a first class family with a product for every job the handyman tackles inside and out. See the full range of Humbrol finishes at your local model, hobby or handicraft shop.

Recommended by

ROSEBUD Kitmaster

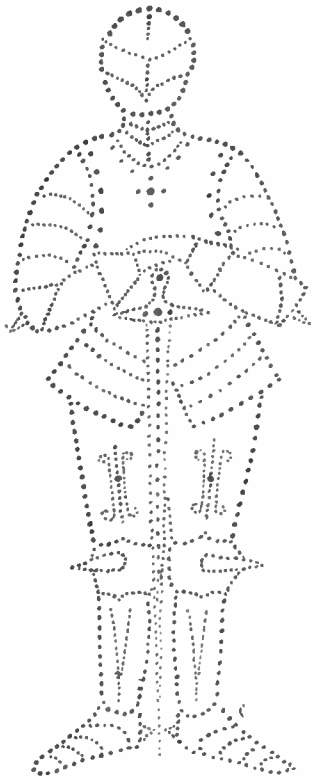
The colours for your SADDLETANK are Humbrol — Red 121, Silver 129, Copper 131.
A colour chart in every kit.

THE HUMBER OIL COMPANY LTD, (Paints Division) MARFLEET, HULL

An attractive decoration

PICTURES ON GLASS

By A. Liston



HERE is an easy and attractive way to decorate a glass surface such as a table-top, firescreen or even a dull-looking hall window.

The design is executed in small spots of paint, resulting in a delicate tracery of lines which looks well on both sides of the glass.

The choice of subject is important; one large object is preferable to a group of smaller ones, and it should have a clear outline. The knight in armour shown here is an example which can be used successfully in most situations, but the range of subjects is very wide — a guardsman, toreador, or a famous building are other suggestions.

The glass must be dry, clean, and free from oil or grease. The outline of the chosen shape is first drawn on the glass, using a small water-colour brush dipped in window-cleaning fluid which dries out in a white line.

If the shape is complicated, instead of drawing it on the glass freehand, a paper pattern can be cut out and held in place with adhesive tape. The outline is drawn round it as before, and the paper removed.

When the outline has been satisfactorily completed, the spots of paint are applied. They should be just inside the guide lines, and not on top of them. White or light coloured enamel paint should be used, poured a little at a time into a shallow lid, and applied with the end of a matchstick. With a little preliminary practice on a piece of cardboard, the spots can be made quite uniform in size and spacing. Any mistakes can easily be rectified by removing the spots with a rag moistened with petrol, letting the glass dry, then repainting.

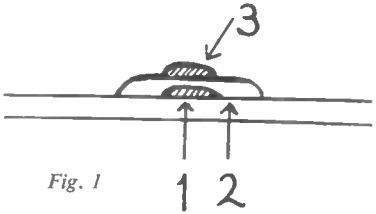
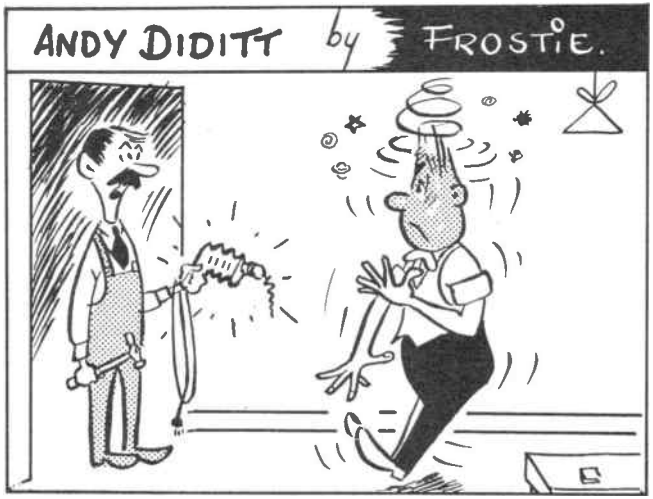


Fig. 1

The details inside the outline can now be painted in the same way. These spots can be made smaller, and the distance between them can be increased or decreased to vary the effect. Large empty areas inside the outline should be avoided, but should be broken up, as on the knight's breastplate, by a simple pattern. This can include larger spots of a bright colour, repeated at other points in the figure.

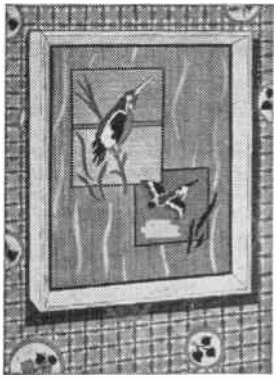
A jewel-like effect for these spots is produced, as shown in Fig. 1, by first applying a small spot of bright colour, letting it dry, then covering with a slightly larger spot of white enamel. When this is dry, a small spot of the original bright colour is applied on top of the white. Thus the finished effect is the same on both sides of the glass.

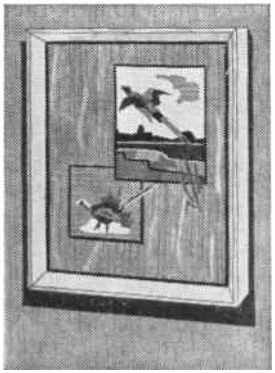
When the whole design has been completed, it is left to dry thoroughly before the guide lines are carefully wiped off.



"THEN SUDDENLY THIS THING STOPPED AND I HAD TO KNOCK THE DRILL IN WITH A HAMMER!"

MARQUETRY IN FULL COLOUR





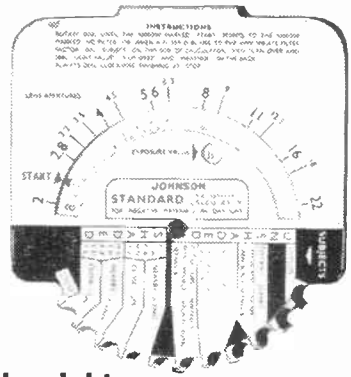
HH/5 Kingfishers **12/6** each HH/6 Pheasants

(post 1/6)

Each kit contains baseboard size 10 in. by 8 in., selected oak veneer (printed) for the background, brilliant coloured veneers, carbon paper, guide print, cement, glasspaper, moulding, instructions. They make a perfect pair.

HOBBIES LTD (DEPT. 99) **DEREHAM, NORFOLK**

PHOTOGRAPHERS!



Get the right exposure every time!

Do your pictures ever come out over-exposed or under-exposed? You need a Johnson Standard Daylight Exposure Calculator! It's only 4/6d. With this calculator, you just 'dial' for the correct exposure. It's easy! You 'dial' the sort of subject you are photographing, the light conditions, the weather, and the speed of the film you are using—then read off the exposure details. Other calculators for colour cine, artificial light, and flash are also available. Ask your local photographic shop about Johnson calculators.

JOHNSONS
OF HENDON LTD

"GLOBE-KING"

WORLD-FAMOUS KITS AND RECEIVERS

for the Radio Amateur and S.W. Listener. Catalogue Free, enclose stamp for postage. Kits from 79/6 obtainable at your dealers or direct from the sole manufacturers

JOHNSONS (Radio)
ST. MARTINS GATE — WORCESTER

Completely new 54 page Edition

WHERE'S THAT CAR FROM?

Price 1/- (Postage 4d.)

Of all Booksellers

or

RALEIGH PRESS, Exmouth, Devon

EARN EXTRA MONEY with your sewing machine by making cushion covers. Regular work guaranteed. Apply Dept. 28, Arnold Company, 10 Shelley Road, Worthing, Sussex.

---

50 MIXED stamps 5/-. Try our 6d. in 3/- discount approvals. — E. C. F. Townsend, 92 Tenby Road, Edgware, Middx.

---

100 DIFFERENT stamps free! Request ½d. upwards discount approvals. — Bush, 53 Newlyn Way, Parkstone, Dorset.

GET YOUR FREE COPY of 'Write for Profit', the most interesting little book you've ever read. For beginner or experienced. — WRITERS' RING (HW), 5 Edmund Street, Birmingham, 3.

BUILD your own electric guitar in one hour. Screwdriver only required. Thin line cutaway full-size body. Reinforced neck, built-in Vox pick-up and controls, 9 gns., plus 5/- carriage or 20/- and eight payments of 23/-. — Musicland, 88 Broadway, Bexleyheath, Kent.

PROFITABLE LEISURE. Learn to draw/paint flowers, birds, doodles, etc. Waiting markets. Profitable. Fascinating. Exciting. Booklet, specimens, free. — Popular Art Services (HW), Clun, Shropshire.

LEARN RADIO & ELECTRONICS the NEW Practical Way! Very latest system of experimenting with and building radio apparatus — 'as you learn'. FREE Brochure from: Dept. H.W.10, Radiostructor, 40 Russell Street, Reading, Berks.

AGENTS WANTED

Large private Christmas Card Company has vacancies for agents (spare time). Tremendous scope and excellent profits to be made by keen agents; wide range of best selling designs, reasonable prices. Write for further details without obligation to: GARRICK CARD CO., DEPT. 8, GLOBE WORKS, PRESTON, Lancs.

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, READING, BERKS, 21/6/61

NYLON · P.T.F.E

ROD, BAR, SHEET, TUBE, STRIP, WIRE

No Quantity too Small. List on Application.

BRASS · COPPER · BRONZE

ALUMINIUM · LIGHT ALLOYS

H. ROLLET & Co. Ltd.

6 Chesham Place, S.W.1 BELgravia 4300

ALSO AT LIVERPOOL, BIRMINGHAM

MANCHESTER, LEEDS

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.

FOR MODEL MAKERS

THE 'MIGHTY MIDGET' electric motor, only 1¾ in. high. Runs at 10,000 R.P.M. from a 4½ V. torch battery. Minute current consumption. Complete with pulley, price 10/6, postage 6d. MODEL BOAT PROPELLER. 3 blades, shaft, pulley, and 5⅜ in. long stern tube, to run off above 'Mighty Midget'. Price 7/3, plus 6d. postage. HOBBIES LTD. (Dept. 99), DEREHAM, NORFOLK.

A SEA FISHING HOLIDAY

THE holiday months of June, July, August and September are good for sea fishing. During warm conditions many fish come close inshore, and the holiday-maker can catch them by fishing either from a pier, from a boat, or the shore where suitable.

Let us consider pier fishing first. One drawback is that they are often crowded with sun-worshippers taking their ease. Half your time is spent watching out that you do not foul the happy pleasure-seekers when casting the line, and in hoping that no one will fall over your precious can of bait. It is well to remember that early morning and sunset are likelier times for fishing with prospect of success, and the pier, generally, is less crowded at such periods.

Advantages of pier fishing are its inexpensiveness and comparative ease. A rough sea does not upset folk liable to sea-sickness, as it may do if fishing from a boat. Indeed, you can do a spot of fishing from a pier with comfort — if you desire; even to slumping in a deck chair with a little bell fixed to the rod to recall you to your task when a fish 'bites'. But the deck chair, the bell, and the small dabs make no sort of satisfactory pleasure, though they may be all right for lazy folk.

On the south coast at Deal and neighbouring resorts nice sport is enjoyed with codling, etc. In really warm weather you may find sport with such fish as bass, whiting, pout, pollack, codling, dabs, and flat-fish. Where there is a sandy bottom you may expect flat-fish; but for pout, rock-fish and wrasse you need to have access to a rocky shore.

Tackle on the pier

The most satisfactory method of pier fishing is with rod, line and float; or you can use paternoster tackle, consisting of a length of fine wire or strong gut or gut-substitute, with two or three hooks fastened at right-angles to this trace at varying distances. You need a lead at the end, the lower hook being about 9 in. above the lead. About 1 ft. higher up is the second hook and same distance above that can be a third. It is better, however, to have only two hooks. The more you use the more you are liable to foul the weeds when 'playing' a fish. Paternosters can be bought all ready for use, and this saves the trouble of making your own. A tug at the rod top is the signal for a bite. Wait a second or so and then 'strike', driving the hook home.

When paternostering you should be able to cast the baited hook 20 to 30 yd. from the pier-head. Practice is needed, but you will soon get the knack of it. One method is to draw off a length of line with your left hand, with the lead and tackle about 10 ft. from the rod-top. Swing the lead out, and immediately the tackle touches the surface of the water let out more line so that the tackle is not dragged back and the advantage of distance lost.

A sea-rod should be some 8 ft. to 10 ft. long; the line about 80 yds. long, and the hooks rather larger than those used for fresh-water fishing. Hooks with sneck bend and long shanks are advocated, sizes No. 8 to No. 10. For big fish, larger sizes are needed. A 5 in. reel is a suitable size to carry the long line.

Baits

Baits for pier fishing include the usual standbys — ragworms, lugworms, sand eels, mussels, shrimps, strips of fish, and soft crab for ground-feeders like flounders. If you cannot procure anything else, try lobworms from the back garden for pollack.

To keep 'lugs' and 'rags' in good condition for baiting the hook, get a piece of clean sacking and wash it well in sea water. Cut into sizes to fit the bait-can. Wring out the sacking in sea water, place a piece at the bottom of the tin with six or eight worms or so, then another strip of sacking with more worms on top until the tin is full. Keep in a cool place until required. Ragworms can be kept for a week or longer by this method, but any sickly or dead ones should be picked out periodically. Ragworms, lugs, etc, can usually be obtained from the bait-sellers at the various resorts.

Good sport is to be enjoyed from a boat. The usual idea is to join a party and hire a boat. Hand-lines are provided by the boatmen as a rule. Remember, the hand-line should always be held in the hand and not attached to the boat seat or elsewhere. On feeling a 'bite' the hook is jerked home, and the fish hauled in, hand over hand. In this kind of fishing the visitor leaves it to the boatman to take the party to a likely spot where fish are plentiful and you take 'pot luck' on the catch. The bait is usually provided by the boatman for a small charge.

Other forms of boat fishing are whiffing and drift-fishing with a drift line out astern, often a method adopted when fishing an estuary where a strongish tide is flowing, so that the baited hooks stream out with the current.

Ample sport is to be enjoyed fishing from rocks or the beach, and is not so expensive as hiring a boat. The likeliest time is when the tide is flowing, for then the fish work inshore questing for food. Fishing where there is a clean sandy bottom or shingly beach is often a good method, but it is necessary to be able to cast out a fair distance.

Scrambling on the rocks

Rock fishing is often diverting, if you are active and prepared to do a lot of scrambling about on the rocks. Pollack, conger, codling, wrasse and the sporting bass are frequently among the fish caught from rocky places on shore. From the famous Brigg at Filey, Yorks., billet, gurnet, mackerel, cod, and flat-fish are obtainable.

Some places on shore are always worth a trial. Remember, practical local anglers can give you the best advice on them. Generally speaking, where there is a cove, with a sweep of sand and rocky boundaries on each side, sport may be had by casting the bait as near to the rocks as one dare without risk of a hang-up. To these rocky spots come the fish, seeking edible titbits.

As conditions vary much in different localities, obtain all the information you can. At many popular resorts there are angling clubs, particulars of which may be found in local guide books. (E.)

● Continued from page 186

RETOUCHING PRINTS

In order to have maximum control over the amount of reduction it is a good plan to hold in your free hand a small pad of cotton wool that has been soaked in a strong solution of hypo. Speedy application of this will stop any further action when the appropriate stage in reduction has been reached.

When all the black spots have been dealt with the print should be thoroughly washed and allowed to dry in the usual way. After this the further work necessary can be carried out.

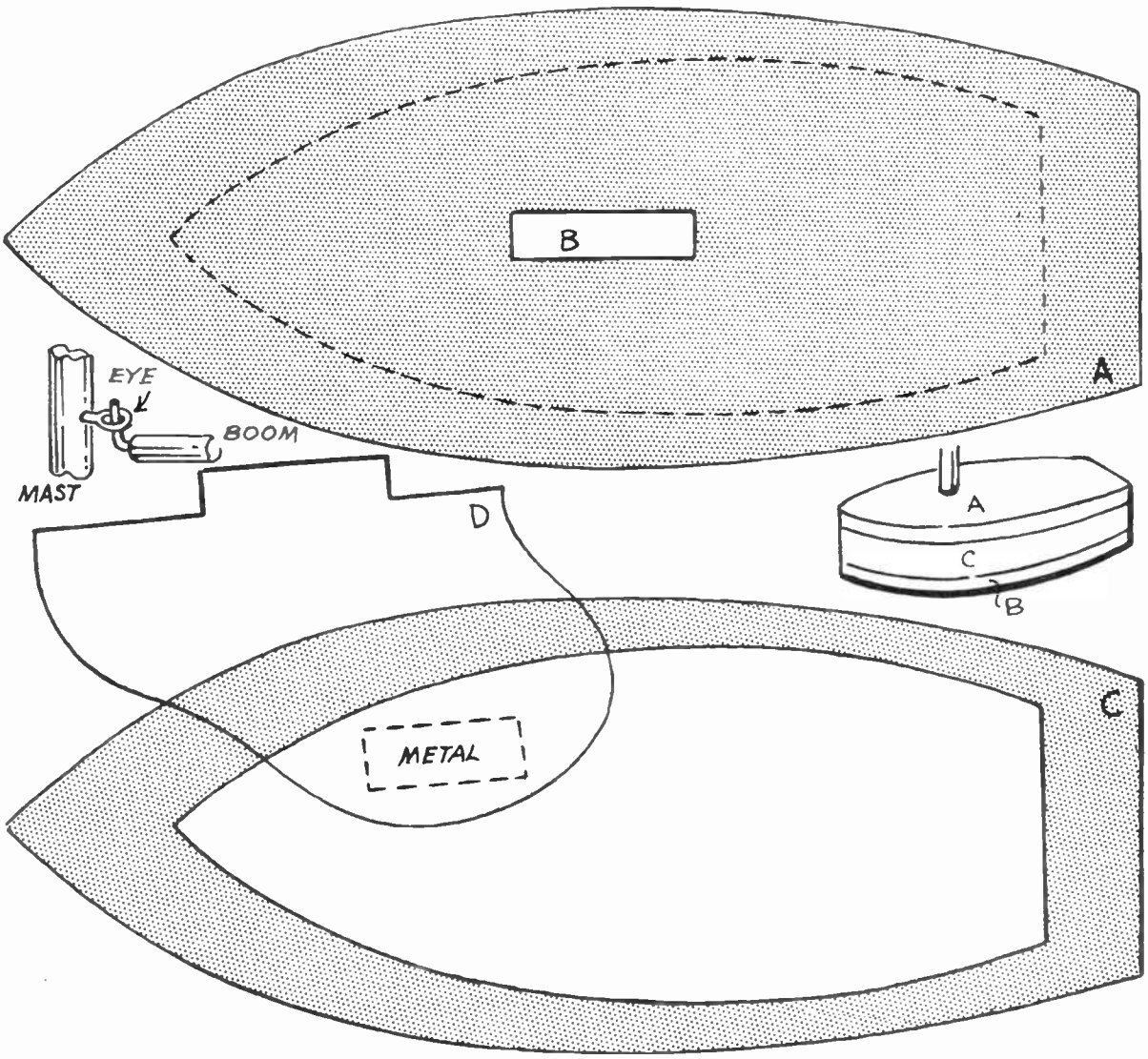
All black spots on the white areas of the print will have vanished; on the dark areas they will show up as white spots. They should be spotted with a suitable dye, using the procedure as previously described.

CHILD'S TOY SAILING BOAT

MAKE one or two of these little yachts for your children to take on holiday. They are easy to make and need only oddments of wood and cloth. Cut two of A (to outline) from $\frac{1}{4}$ in. wood and in the centre of one piece cut the slot B. Cut one piece of C from $\frac{1}{2}$ in. wood. Glue the three pieces together using waterproof glue.

The keel D is glued into the slot B and a piece of metal screwed on to provide ballast. Drill A to take a mast of $\frac{1}{4}$ in. diameter round rod and fix a boom of $\frac{3}{16}$ in. diameter round rod as shown in the sketch. The sail will of course be a simple triangle of cloth hemmed all round and tied to the boom and mast.

(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.

KIT No. 3308

Hobbies

KITS FOR MODERN FURNITURE

Finest quality materials from which the handyman can make attractive contemporary furniture for the home, and save pounds!

Obtainable from all Hobbies Branches or Stockists, or by post from Dereham, Norfolk.

29/-
(post 2/9)

Contemporary Plant Stand

Although simple in construction, this **Contemporary Plant Stand** makes an elegant showpiece in the modern home. Trough measures 30 in. by 7 in. Supported on 15 in. contemporary style legs, giving an overall height of 21 in. Kit contains design and instructions, panels of wood, and four 'screw-in' legs.

U.K. orders 30/- and over post free

Small Cabinet
Kit No. 3144

Ideal as a bedside cabinet. Size 27 in. high, 18 in. wide. Kit of selected planed wood, dowel rod, hinges, handle, design and instructions, etc.

72/-
(post free)

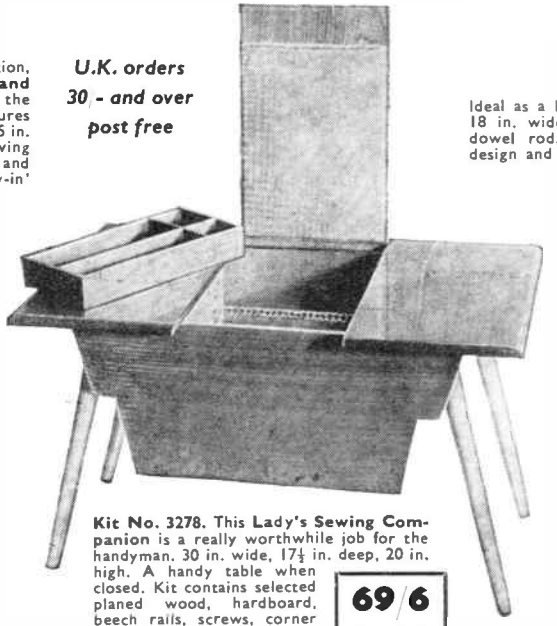
THESE KITS

Record Cabinet/Bookcase

Planned so that anyone who can handle simple woodwork tools can make a really good job of this **Record Cabinet and Bookcase.** A handsome cabinet 34 in. high, 20 in. wide and 13 in. deep to accommodate over 200 records and a quantity of books.

69/-
(post free)

Kit contains planed wood, plywood, four contemporary style 'screw-in' legs, hinges, beading, ball catches, cabinet stays, handles, etc.



Kit No. 3278. This **Lady's Sewing Companion** is a really worthwhile job for the handyman. 30 in. wide, 17½ in. deep, 20 in. high. A handy table when closed. Kit contains selected planed wood, hardboard, beech rails, screws, corner plates, and four 'screw-in' contemporary legs.

69/6
(post free)

SAVE POUNDS

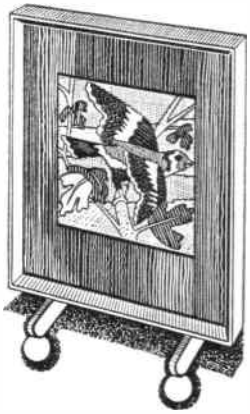
Kit No. 3262

Marquetry Firescreen

This **Marquetry Firescreen** depicts a colourful bird with outstretched wings against a background of foliage. Overall size of the screen is 28 in. high by 18½ in. wide. Kit contains hardboard, planed wood, moulding, wood balls for feet, round rod, and selected veneers for marquetry picture.

15/9
(post 2/-)

Kit No. 3266



To HOBBIES Ltd. (Dept. 99)
Dereham, Norfolk

Please send me free booklet showing other kits available and

Kit No.....

Name .....

Address .....

.....

P.O. or Cheque for.....enclosed.