

HOBBIES

weekly

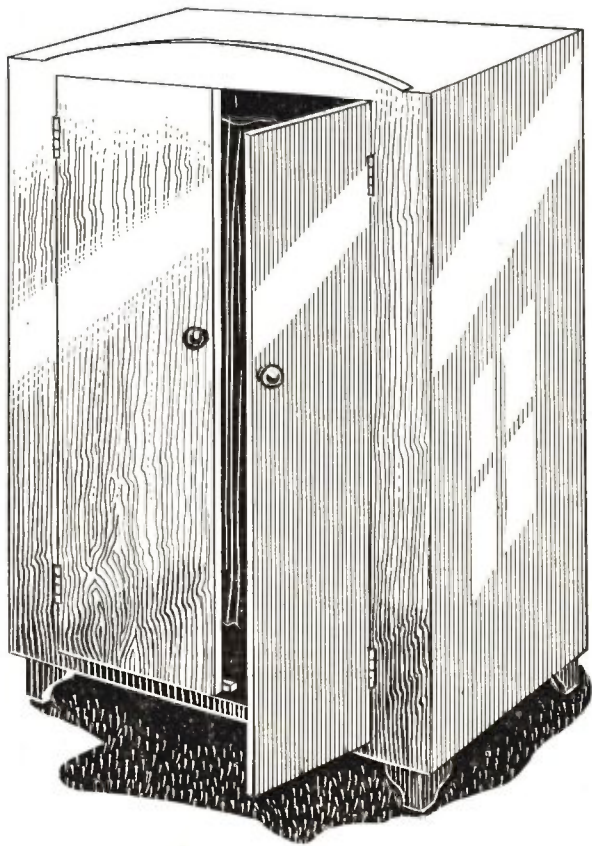
4th AUGUST 1965

VOL. 140

NUMBER 3634

*FREE design
inside*

**DOLL'S
WARD-
ROBE**



FOR CRAFTSMEN OF ALL AGES

6^p



**OLD
CURIOS**

*By
Maxwell
Walker*



A freak two-headed lamb.

It cannot be said too often that what nobody wants today, many folk will be after in the not too distant 'tomorrow'. For that reason antique dealers often keep some of their stock out of sight for years, waiting for a turn round in public taste, or even a revival of interest in something for sheer scarcity reasons.

We often cannot say *why* we collect some things, but feel a sense of loss if the things are taken from us or we have to get rid of them. As a case in point I can remember an ostrich egg, brought to this country by an old sailor, which became the proud possession of a 16-year-old collector. It did not survive an air raid later on, and its loss meant more to the owner than more expensive damage. Perhaps it is because the *exclusiveness* of the thing appeals to the owner. So I say, look around, nose about, and don't bother to explain why you want to give house room to some oddity. You will know what you like.

For the collector on a budget it is a good idea to remember that he may find curios cheaper in an area where there is a good supply of them, compared to parts where the opposite is the case. For instance, I know of one seaside town which is a popular place of retirement for families who have been in government service or business overseas, and the result is that the local shops get a lot of bric-a-brac which sells for perhaps a third of the price of the same things in, say, an inland tourist centre where there is plenty of demand from visitors but little local supply.

A beginner with more enthusiasm than cash might find a candle snuffer, with its conical clowns-hat appearance, for a shilling or so if the handle is missing; an old fashioned match holder in copper with enamel, perhaps broken but still of interest, for little more; foreign brassware, in the nature of incomplete candlestick sets, bells, little trays (maybe not in good condition) fetch similar prices.

As he visits the little shops in the lesser known streets, the new collector will begin to look for locally made glassware or pottery of bygone generations. Blue Bristol glass sets with 'go canny wi the sugar' mottoes, tiny ornaments of Lowestoft pottery and old terra-cotta ware will be seen. And although the best are not cheap, incomplete or slightly

damaged items should cost little. Even so they can be pretty as ornaments, for a pot originally made to have a lid looks just as nice without one — and a few posies to enhance it. Don't forget, too, that present day adhesives can do wonders with cracked things.

We all remember times, such as Coronations, when articles were specially made to commemorate the event. Old mugs in gaudy colours can be found; brassware too. I have a little brass ash tray showing Lord Nelson's bust surmounting a ship in full sail, surrounded by a ring of oak leaves and acorns (evidently in salute) and the inscription 'Admiral Lord Nelson'. How old it is I cannot say, but it interests most noticing visitors. I got it from a little seaport town for 2s. quite recently. It lacked a backing weight, which I shall provide when I have time. At the same time I got a telescope eyepiece made into a magnifying glass by the addition of tripod legs. It is no 'antique', but it is quite an old curio.

Another branch of this sort of collecting is stuffed animals and birds. The important thing about this is that many of the creatures stuffed with such skill by the taxidermists of over 100 years ago have either become very rare or have died out in this country. The red squirrel almost succumbed to the imported grey some years back, yet that is the animal often seen in a case, clutching a realistic tree and eyeing you with a knowing look.

Stuffed birds tend to be expensive, but the stoat or weasel may be had for perhaps 30s. in a decent case. Wild animal heads from abroad are rather dear and never appealed to me, but one has to be careful about yielding to temptation over a stuffed item that is curious but perhaps unpleasant. I once got a two headed calf head — a freak, beautifully mounted,

but as soon as I brought it home I felt uneasy and I turned its 'heads' to the wall for a long time before someone else begged for it. It was certainly a rarity. The only other thing like it I ever saw was in a hostelry at Stalisfield, Kent. That was a two headed lamb, another freak.

The condition of stuffed exhibits is hard to judge if they are in a sealed case. It is no good looking at the brightness of the eye, as a doctor would! The coat or feathers can show fade if the case has not been kept out of strong light and might have 'got the moth', look for eaten away patches to tell this. Fish are usually lacquered. If not bright and showing flaking, don't pay much for it. If it was the biggest ever, however, somebody will pay high whatever it is like!

Old photographs and even older Daguerreotypes (an early kind of photograph) can be found sometimes, and the hunt for worthwhile ones is a specialized field, but you may get one or two in an unsorted auction sale 'mix up' of oddments. Your museum curator will tell you how old your find may be, whether ornament or curio. And just see how your own knowledge will grow!

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A DOLL'S WARDROBE

EVERY little girl would agree that her doll's clothes are as important as her own and it is unthinkable that they should be thrown loosely on a chair or in a box to be creased and crumpled. It is an untidy habit anyway and a wardrobe — just like the real thing — will teach tidiness and care of clothes.

Designed for easy assembly and with a minimum of cutting, this modern wardrobe stands 14½ in. high overall and is 10½ in. wide. With a depth of 5½ in. it can store quite a number of dresses. Small coat hangers can be fashioned from wire and hung on the rail provided. Cost of such a model in the shops would be from 45s. upwards.

On the design sheet some parts are shown full size, whilst others are shown to scale with measurements. All parts will be traced and transferred to the wood by means of carbon paper, or will be drawn out full size direct on to the wood. Fit the parts in carefully so that wood is used economically.

If you are using a Hobbies kit, start off by putting one piece each of 2, 4 and 10 on to a 15 in. by 10½ in. panel. Put the remaining pieces 2, 4 and 10 on the second panel and two pieces 1 on the third panel. The back 3 will take the fourth panel and the remaining pieces are fitted in where possible.

Make sure that all pieces are accounted for before cutting them out with a fretsaw. Make sure to keep the saw perfectly upright. Clean up with glasspaper, smoothing down any rough edges, and glue the pieces together as shown in Fig. 1.

The top and bottom 1 go between the sides 2, and back 3 and the front pieces 4. Note that the front pieces 4 fit in the recesses of pieces 1. By bringing pieces 1 forward in this way the doors can either be hinged or pivoted by means of pins down through the top and up through the bottom.

Add the feet 6 and 7, in each corner, the washer 8 and the rail 9. The rail 9 will of course be glued into the washer 8 and will also go through into the back 3.

The double doors consists of the two pieces 10, strengthened by the battens 11 which are glued at the back of the doors 1½ in. from the top and bottom. These battens serve to prevent the doors from warping. The doors may be hinged in place with ¾ in. light brass butt hinges which should be

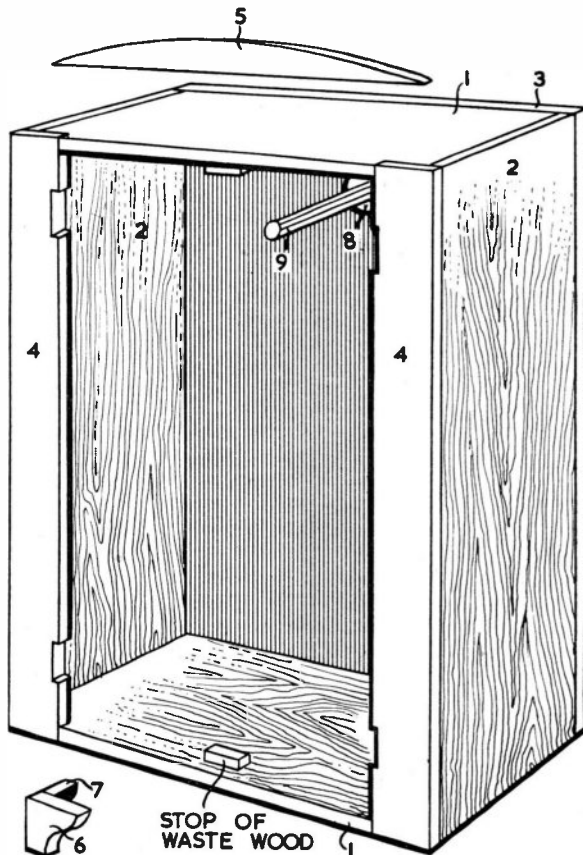


Fig. 1

recessed in doors and front to ensure a perfect fit. The recesses may be cut with a modelling knife, taking care not to take out too much.

Alternatively each door may be pivoted by means of a pin, top and bottom, through pieces 1. Note that if doors are pivoted this should be done before the addition of piece 5 at the top. It will not be necessary to provide a catch, but small knobs such as Hobbies No. 80, should be inserted as indicated in the finished picture. Stops cut from waste wood are glued top and bottom.

The wardrobe may be finished by staining and varnishing, but the most attractive finish is by painting. Fill the grain with woodfiller first and then rub down with glasspaper before giving a flat undercoat. A final coat of high gloss will give an attractive and professional finish. (M.h.)

A KIT FOR 22/6

Hobbies Kit No. 3634 for making the Doll's Wardrobe contains necessary panels of wood, round rod, hinges, knobs, etc. Kits price 22/6 from branches, etc, or by post from Hobbies Ltd, Dereham, Norfolk (post 3/6 extra).

Try this photo technique

Good Results Against the Light

WE are always told that it is inadvisable to take photographs with the camera directed against the sunlight. While this is perfectly true for the majority of photographs there are occasions when we may break the rule to better effect to produce what are termed contre-jour or against the light pictures.

It will be obvious that the sun must play a large part in such pictures but it may be more exact to say that we are seeking the effect created by the shadows. These create depth, introducing a recipe for making pictures of simple scenes which look all the different when modified by the angle of the shadows.

When the light comes from behind, a large proportion of the subject is in the shadow and this is illuminated by soft, reflected light alone. Quite often a lot of undesirable detail is suppressed to better advantage, thus emphasising the other parts. In some instances we can achieve halo effects round the shadow areas and these are helpful effects to produce striking studies. Briefly, we reduce the picture to simple masses, the shadows fall towards the camera and the tones are frequently outlined with rim lights to make pictures from commonplace material.

These effects are not difficult to achieve providing you take the necessary precautions and use some common sense. The first thing to do is to take steps to shade the lens from



Shafts of light and shadows give a tree-lined road an entirely new character

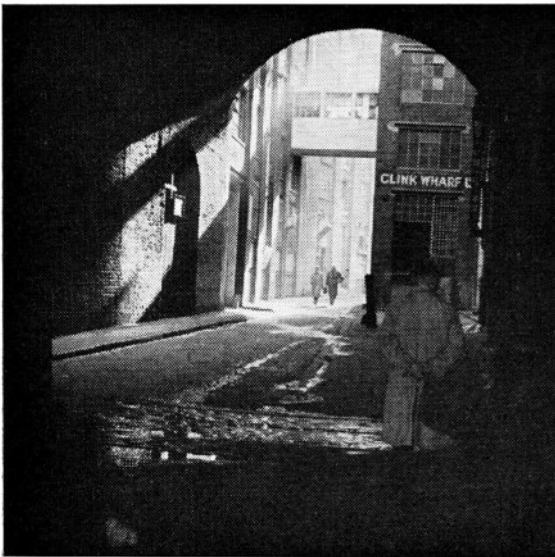
the sun, otherwise you will just be photographing glares. This can be avoided by fitting a lenshood to your camera or more simply by standing in the shade.

Lenshoods are not too expensive to buy but you can always make a simple accessory from a tube of black paper. Find a bottle or tube equal in diameter to the lens barrel of your camera, roll a length of black paper around and glue the ends firmly together. The tube should not be too long or it will cut the corners off the picture, so I would say that it should not be more than $\frac{3}{4}$ in. or 1 in. in depth at the most. Or you may make a little box-like hood with an aperture for the lens but once again we have to guard against cutting off the corners of the picture.

You will find, however, that it is also possible to stand in the shade of a tree, archway, doorway or building so that no sunlight whatever falls on the lens. Another way when in the open is to ask a friend to stand in such a position that you can operate from behind his shadow but avoid getting so near that he is in the way. This question of shading the lens is of paramount importance with all shots against the light and it is essential to make the necessary provision one way or another.

Exposure

The next factor we must consider is the question of exposure. Although you may have a good exposure meter it will give a false reading for this purpose if pointed towards the light. And the same applies to the 'automatic' type of camera with a built-in meter. As with normal photography, our aim is the achievement of sparkling lights with luminous shadows of good detail. We must avoid under-exposure or we shall only get black shadows without detail. With a meter available you may direct it towards the shadow areas or turn your back on the scene while you take a reading from the opposite direction.



The sun bravely struggling through dark buildings

Various meters have different instructions for these subjects and some provide for the addition of a small screen which compensates the difference to give a truer reading. Moreover, for landscapes I would suggest the use of a pale yellow filter. This will partially filter out the blue and violet rays to balance the shadows which are deficient in these tones since they rely on reflected light.

It should be mentioned that the same care should be taken with your film processing. Over-development will always produce high contrast, but when handling subjects taken against the light excessive development would produce highlights which become almost opaque. If they do print out on the softest grade of paper it will probably mean that the shadow areas are much too dark.

In practice we find it advisable to use a normal developer but cut down on the period of development by half a minute, or a minute, so that the highlights do not become too dense. Admitted, you may also dilute the developer a little and develop for the normal time, but this may involve some guesswork.

The right time

The time of the day when you seek these effects is another factor. When the sun is at its highest the shadows are the shortest so there is little object in taking 'against the light' shots around mid-day. Early morning or in the evening the shadows have lengthened, and this is the best time. Everything appears to be rimmed with light, textures become emphasised, light glistens on the water, while the shadows cast decorative shapes in your path.

As stated earlier, the most commonplace subjects are transformed when seen against the light. Our illustrations, all taken on Ilford film, show how the old, cobbled back street gains a lively texture and is framed by the darker buildings. Even iron railings can be made into an attractive study by using their shadows, while the tree lined road has an entirely new character. There are lots and lots of similar subjects wherever you may be.

Most street scenes, like the one shown, where the buildings are dark, need ample exposure. A village street may not be quite so difficult if the houses are lower and built of light grey stone.

Trees always look well and it is possible to take beautiful shots of sunlit leaves from the shadow side of the trees. Lines of trees cast their shadows across your path in a fine pattern. Yet rows of lamp-posts or chimneys might look equally attractive. Incidentally, smoking chimneys of an industrial area, or house chimneys, have made many good shots against the sunlight.

Glistening water

Water glistens most effectively with the lowering sun and we can often take exciting sunsets over lakes and seas. If you would like a picture of a fountain glistening with back-light don't under-expose. The falling motion will be better rendered in lines rather than drops, so compensate accordingly.

As with other types of pictures, the best viewpoint must be considered. Move around the subject, see whether you can make a better arrangement and watch the changes in the angles of the shadows. It is not necessary to work against the sun exactly at 90° for the cast shadows will still come to-



Railings and leaves

wards you if on the diagonal. Height must be observed and it will be obvious that it is often better to select a high viewpoint to record the long shadows to advantage.

Finally, remember that the sun not only shines out of doors and that we sometimes see it pouring through our windows. Still-life studies of flowers, glassware and the like look just as good against the sun and there is a chance of making striking portraits. These indoor effects will always be enhanced if there is another window opposite to provide supplementary lighting on the shadow side; if not, arrange a reflector of some kind.

So long as you remember to protect your lens against glare, give adequate exposure and do not over-develop you will be able to produce some really first-class studies.

(S.H.L.)

Illustrations photographed on Ilford film

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CHEMISTRY AT HOME

OUR sources of phosphoric acid, H_3PO_4 , are bones and mineral phosphates. The mineral matter of bone contains about 85 per cent of calcium phosphate, $Ca_3(PO_4)_2$. As bone, like the other structures of our bodies, is constantly wearing away and being restored, it is evident that our food must contain enough phosphorus, P, and calcium, Ca, to ensure this. We each require about one pound of both annually. Soil fertility, too, demands adequate supplies of them. The free acid is used medicinally, as are its salts. Phosphoric acid is sold as a syrupy, colourless, odourless liquid containing about 90 per cent weight in weight of real acid.

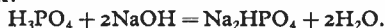
Phosphoric Acid Experiments

By L. A. Fantozzi

Strictly speaking it should be called orthophosphoric acid, for there are other phosphoric acids and of which we shall hear more later. The three atoms of hydrogen, H, in its formula show that it is a tribasic acid and so can form three types of salts — primary, secondary and tertiary. Those with sodium, Na, illustrate this. Thus we have sodium dihydrogen orthophosphate, $NaH_2PO_4 \cdot H_2O$, (primary); disodium hydrogen orthophosphate (ordinary sodium phosphate), $Na_2HPO_4 \cdot 12H_2O$, (secondary); trisodium orthophosphate, $Na_3PO_4 \cdot 2H_2O$, (tertiary).

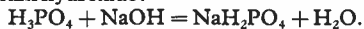
To prepare these three salts first make up a stock solution of 15 grams of orthophosphoric acid in 80 ml. of water and dilute to 100 ml., also a stock solution of sodium hydroxide, NaOH, by dissolving 10 grams in 80 ml. of water and finally diluting to 100 ml. As sodium hydroxide is corrosive to the skin flush off any on the fingers with water and dab on vinegar.

To make the secondary or disodium hydrogen orthophosphate put 20 ml. of the orthophosphoric acid solution into a beaker and add sodium hydroxide solution until the liquid just turns red litmus paper blue. The result is a solution of the desired salt:



Boil down the solution until a drop taken up on a cold glass rod crystallizes at once. Then let the solution cool and stand overnight. Remove the white crystals and let them dry on a clean porous brick.

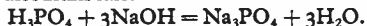
It is evident from this experiment that to prepare the primary or sodium dihydrogen orthophosphate we need only half the sodium hydroxide:



Therefore to prepare it again add sodium hydroxide solution to 20 ml. of orthophosphoric acid solution until the blue

coloration with litmus paper is obtained. Then stir in a further 20 ml. of orthophosphoric acid solution. Boil down the solution until a drop crystallizes on a glass rod and leave to cool and stand overnight. White crystals of sodium dihydrogen orthophosphate separate and should be dried on a porous brick.

Tertiary or trisodium orthophosphate obviously requires one and a half times the amount of sodium hydroxide needed to form the disodium salt:



Fill a burette (Fig. 1) to the zero mark with sodium hydroxide solution. Add it slowly to 20 ml. of orthophosphoric acid solution until red litmus paper is just turned blue by the mixture. Note the amount of sodium hydroxide used by reading off the burette scale and then run in a further half of this amount. The resultant solution of trisodium orthophosphate may then be boiled down to the crystallization point as before and left overnight. Dry the white crystals on a porous brick.

Heat changes two of these sodium salts into sodium salts of the other phosphoric acids mentioned earlier. In a crucible gently heat some disodium hydrogen orthophosphate. It first melts and gives off all its water of crystallisation. When the mass is dry raise the heat to redness for some minutes and then it cool. Water is again given off and sodium pyrophosphate, $Na_4P_2O_7$, is formed:

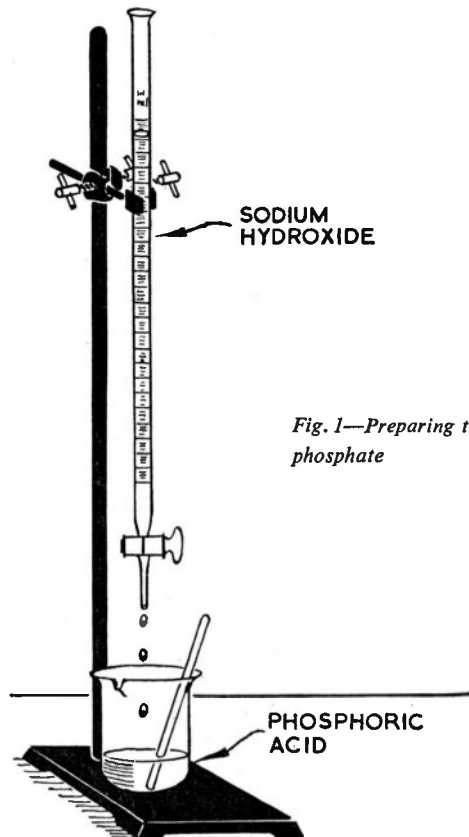


Fig. 1—Preparing trisodium phosphate

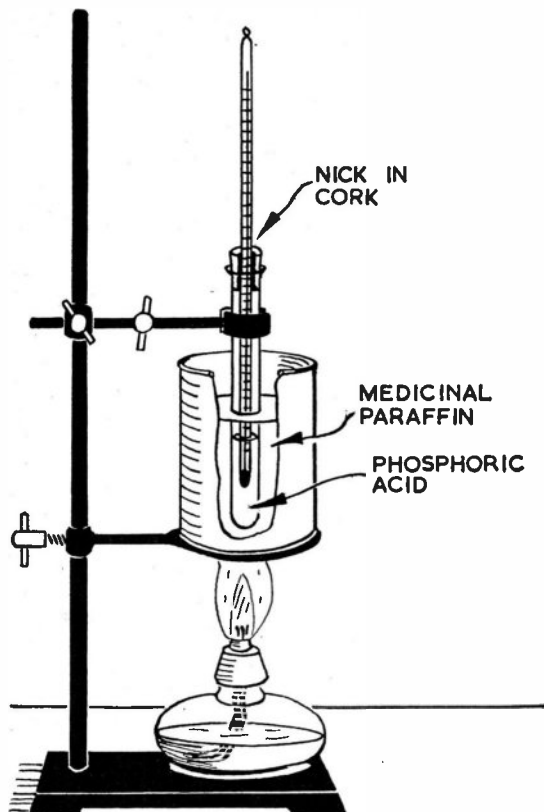
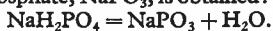


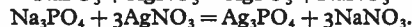
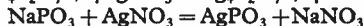
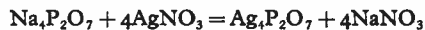
Fig. 2—Preparing pyrophosphoric acid

Similarly heat some sodium dihydrogen orthophosphate. Sodium metaphosphate, NaPO_3 , is obtained:



These are white solids, too. How may one differentiate these from the other sodium phosphates? Their reactions with solutions of silver nitrate, AgNO_3 , and albumen distinguish them. In separate test tubes put solutions of sodium pyrophosphate, sodium metaphosphate and trisodium ortho-

phosphate. Add a few drops of silver nitrate solution to each. The pyrophosphate and metaphosphate give white precipitates of silver pyrophosphate, $\text{Ag}_4\text{P}_2\text{O}_7$, and silver metaphosphate, AgPO_3 , respectively, whereas trisodium orthophosphate gives a yellow precipitate of silver orthophosphate, Ag_3PO_4 , sodium nitrate, NaNO_3 , being left in solution in all three:



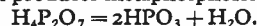
Now whip lightly some egg white with six times its volume of water and strain from the membrane. Put some of the so-obtained albumen solution in each of three test tubes. To one test tube add some sodium pyrophosphate solution, to the second metaphosphate solution and to the third a solution of trisodium orthophosphate. Sodium metaphosphate coagulates the albumen. The other two cause no visible change.

Silver nitrate, then, shows which is an orthophosphate, and albumen which is the pyro- or metaphosphate.

Orthophosphoric acid also is affected by heat. A low heat converts it into pyrophosphoric acid, $\text{H}_4\text{P}_2\text{O}_7$:



while strong heat produces metaphosphoric acid, HPO_3 :

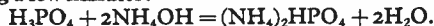


To prepare pyrophosphoric acid partially immerse a test tube containing orthophosphoric acid in medicinal liquid paraffin contained in a clean tin. Support a thermometer in the acid (Fig. 2). Heat to 215 to 220°C . until a small sample withdrawn, diluted with water and neutralized with sodium hydroxide solution (red litmus paper is turned purple) gives a white precipitate with silver nitrate solution. The residue in the test tube is then pyrophosphoric acid.

To convert orthophosphoric acid into metaphosphoric acid a very high heat is needed. It is made more easily by an alternative method. This is to heat diammonium hydrogen orthophosphate, $(\text{NH}_4)_2\text{HPO}_4$, when ammonia, NH_3 , and water are given off leaving metaphosphoric acid:



To make the diammonium salt add ammonium hydroxide, NH_4OH , to the remainder of the dilute orthophosphoric acid until it has a persistent slight smell of free ammonia after standing a few minutes:



Boil down to very low bulk, pour it into a crucible and continue heating until the mass is at a low red heat. Then let it cool. The metaphosphoric acid is left as a glassy mass.

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CILLA BLACK



I DON'T believe it! It's fab! So gasped Cilla Black when it was revealed to her that after only six months in show business, her second record, *Anyone Who Had a Heart* had reached No. 1 in the British Charts, putting a girl back on top for the first time in over two years.

With a youthful, unspoilt personality, straight talking and an abundance of talent, red-haired Cilla has made a tremendous impression on the British public, and seems well assured of a star-studded career.

Sitting in the front row of The Iron Door — one of Liverpool's best-known 'rock' clubs — four years ago, young Priscilla White was clapping her hands in time to the beat and singing along with the music. The group's bass player noticed the enthusiastic youngster, took a hand mike over to her and asked her to 'give us a song'.

'I got very embarrassed', says Cilla. 'I thought he was trying to make me look silly, and at first I refused to go up on the stage. But friends who were with me kept egging me on and eventually I went up and sang *Fever*.'

And the audience liked what they heard. So much so that the group asked her if she would sing with them for the rest of the evening. Since then she hasn't looked back.

Born in Liverpool on May 27th, 1943, Cilla left school at 15 and took a job as a clerk/typist with a local firm. 'I had always dreamed of becoming a singer,' she says, 'but who doesn't. However, after the episode at The Iron Door I realized that that was what I really wanted to do.'

As a result of her rather unexpected public debut, Cilla was asked to join another well-known local group as their vocalist. She took on the name of 'Swinging Cilla' and sang with them at dances

and clubs in the Liverpool area until about two years ago. Then, suddenly, she gave it all up.

'All the time I was singing I carried the secret hope that I might be discovered, but nothing happened. Added to that it was very disheartening to see so much talent in Liverpool which nobody wanted to know about.'

At first, while she was singing, Cilla kept on at her office job. Then, just over a year ago she decided to take up singing again and joined another beat group. But this association ended a few months later when the combo went over to Germany. Again Cilla gave up singing.

A little later she was sitting in the Blue Angel Club in Liverpool, when one of the band recognized her and asked her to sing. She did — and impressed everyone in the audience including Brian Epstein, manager of The Beatles, Gerry and The Pacemakers and Billy J. Kramer. They got talking afterwards and Brian asked her if she would like to turn professional. Cilla signed with Brian, gave up her job and embarked on the hectic schedule of one-night stands, tours and television.

And why the name Cilla Black when her real surname is White? Says Cilla: 'To be quite honest I don't quite know how it happened. It was just given to me.'

Cilla made her disc debut in September, 1963, with *Love of The Loved* (Parlophone R5065) composed by John Lennon and Paul McCartney of the Beatles.

Her second record *Anyone Who Had a Heart* (Parlophone R5101) brought her instant success. Within days it had passed the 250,000 sales mark, earning her a silver disc, and in under three weeks it had sold well over half a million copies, gaining No. 1 position in the hit parade and endearing her to fans all over Britain.

Subsequent singles were *You're my World*, R5133, *It's for You*, R5162. She's had two EP's *Anyone Who Had a Heart*, GEP8901, and *It's for You*, GEP8916.

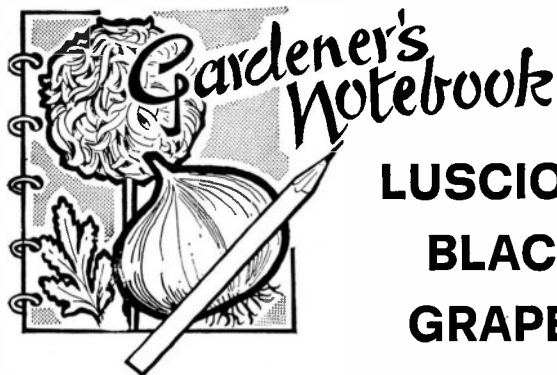
TRANSISTOR SUPERHETS

By R. H. Warring

SUPERHET receivers offer many advantages in the way of performance over other types, and modern developments with transistor circuitry make amateur construction an attractive proposition. Good electronic design, allied to printed circuit assembly can result in a compact, highly efficient superhet. Cost is a fraction of that of a ready-made domestic receiver, and alignment problems can be eliminated or minimized by suitable selection of components.

After describing the principles of superhet operation in simple language this book deals with the construction of typical, proven designs. No previous knowledge of radio is assumed, and even such basic working requirements as soldering are fully described. Separate chapters are devoted to the making of printed circuit boards, and the testing and alignment of superhets using elementary equipment.

The text is based on the latest available data, including the use of transistors in place of the conventional transformers. Published by Museum Press Ltd. Price 17s. 6d.



LUSCIOUS BLACK GRAPES

It is hard to imagine anything more delicious than juicy black grapes taken direct from your own vine, with nature's bloom still on them. They are by no means difficult to grow and are not exacting in their demands. It is possible to grow them on a south-facing wall, but better results will come from a small greenhouse about 12 ft. by 8 ft.

The time for planting is October, so now is the time to start looking for a source of supply of two or three year old vines. These are usually advertised in the gardening periodicals and will cost up to £2 each. The vine, incidentally, will go to 20 ft. and will provide several good laterals if kept to 12 ft.

The normal procedure is to plant the vine *OUTSIDE* the greenhouse and allow the rods to fruit *INSIDE* as suggested in the diagram.

Ensure good drainage

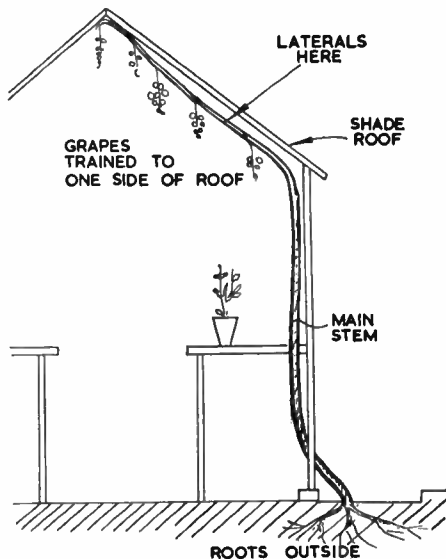
Prepare the ground well in the first instance, digging down about 3 ft., and if drainage is at all doubtful put a 6 in. layer of brick rubble at the bottom, covering with a mixture of soil and well rotted manure. To the top 1 ft. of soil add to each square yard $\frac{1}{2}$ lb. bone meal and two or three handfuls of mortar rubble.

The recommended variety to grow is Black Hamburg and this is the one you will no doubt see advertised. It should be trained to grow the length of the greenhouse and should be restricted to two main branches, with vigorous laterals allowed to grow at regular intervals. Since the grapes will form new shoots from short fruiting spurs it will be appreciated that all branches (sub-laterals) be cut back to one or two eyes of the old wood after the leaves have fallen.

During the winter the main stem and laterals are cleaned up, removing the old rough bark and painting with methylated spirits to kill insects. Take care not to injure the dormant buds.

In early spring, lower as many of the laterals as possible to induce growth nearer the main stem, otherwise the most vigorous growth tends to come away at the ends of the laterals. As soon as growth commences, rub out one bud, to leave one on each fruiting spur. As growth proceeds and flower bunches develop, nip out the growing points two or three leaves beyond the bunches. If flowers fail to appear, nip out the point after seven leaves.

As the fruit begins to swell — and it does this quickly — make sure that the vine is plentifully supplied with water giving a really good soaking once a week. Follow with a

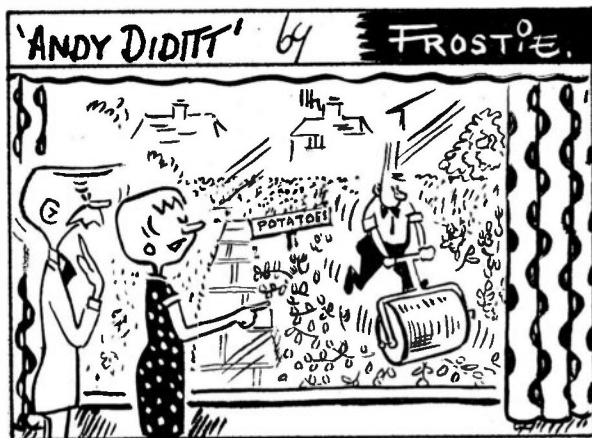


balanced feed — say four gallons — of liquid manure the next day.

It is important, too, to thin out the grapes as early as possible, at least before 'pea' size. Using thinning scissors and cut out every other one on the larger branches. Pay particular attention to those on the inside of the bunch where they may become squashed as the fruits swell. Shape the bunch to an attractive outline by trimming with the scissors, but on no account touch the grapes with the hands.

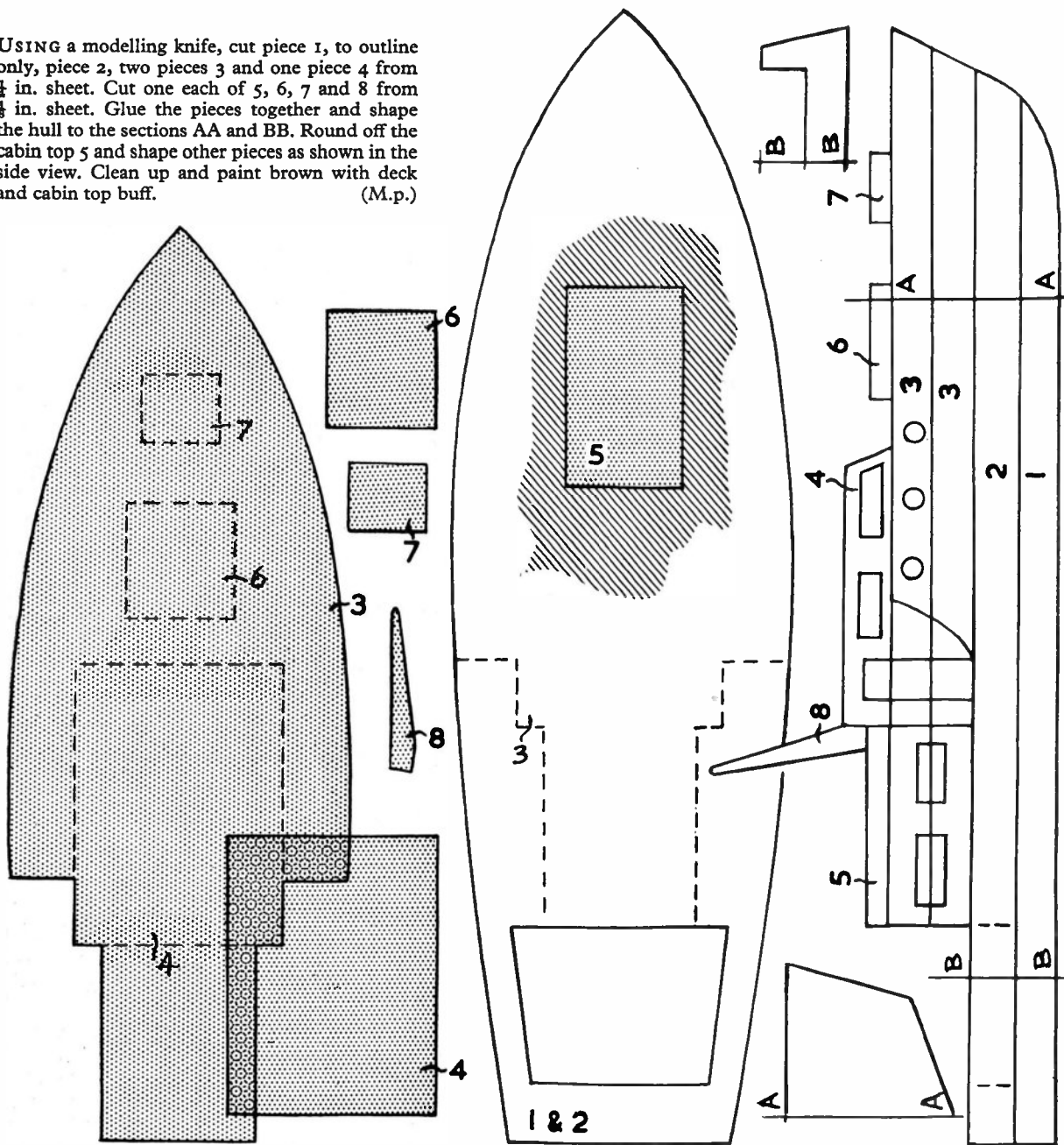
The 'blacks' ripen in the shade, so the glass should be shaded lightly at all times and full sun should not be allowed to fall on the fruit.

M.h.



Balsa Model Coastal Cruiser

USING a modelling knife, cut piece 1, to outline only, piece 2, two pieces 3 and one piece 4 from $\frac{1}{4}$ in. sheet. Cut one each of 5, 6, 7 and 8 from $\frac{1}{8}$ in. sheet. Glue the pieces together and shape the hull to the sections AA and BB. Round off the cabin top and shape other pieces as shown in the side view. Clean up and paint brown with deck and cabin top buff. (M.p.)



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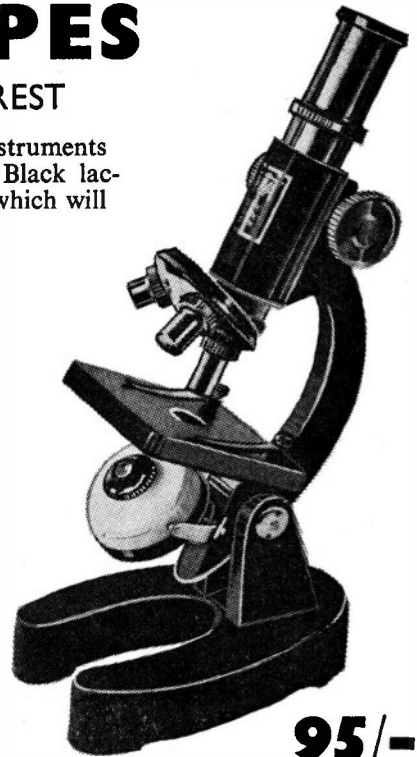
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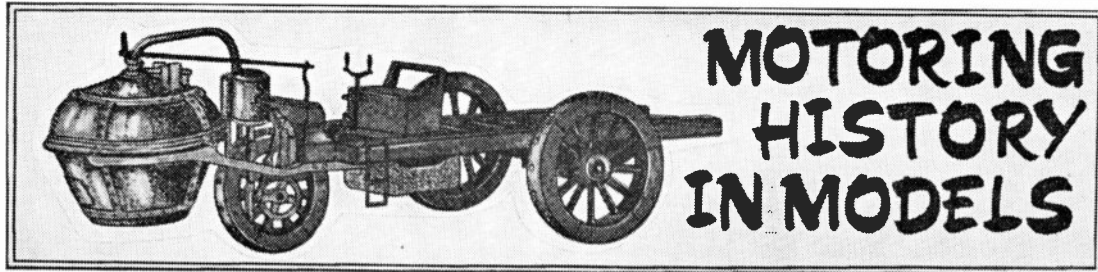
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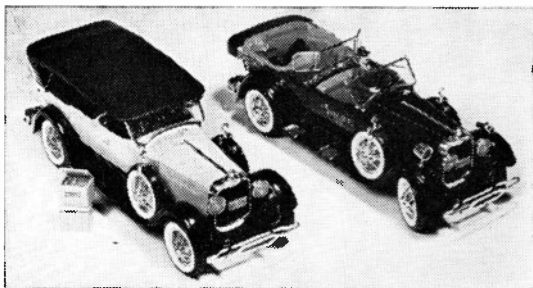
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BLOCK Letters please



So far, writes 'Carmod', we have considered the 'chopping' side of the model car hobby; making replicas of specific vehicles from mass-produced miniatures. Not all model car enthusiasts have the time to do this sort of thing, yet collecting miniatures and models made from kits in the form the manufacturers intended can be most exciting. The collection can be as small or expensive as the pocket and available space will allow, but I strongly advise you to work to a plan — either class of vehicle, scale, or by make of car.

In this article I shall suggest subjects for collectors based upon the history of motoring. We are fortunate in that the model car manufacturers have given considerable attention to antiques and there must be about 300 or so models from which to select examples. Why not think of a collection of models which will tell the story of motoring from the start?



This remarkably good Airfix 1928 Lincoln which can be built in three forms: standard, as a gangster's car, or a police pursuit vehicle.

It is even possible to go back before motoring began by starting the collection with a 1769 Fardier de Cugnot — as shown in our heading — a steam road locomotive which Gugnot built for the French Army and which was intended to be a tractor to tow artillery. There is a very fine plastic kit of this remarkable machine, made by the French company, Precisia. The Fardier, far ahead of its time, had no success and crashed badly on its first trial — hardly surprising with its crude controls, which must have been rather panic making for its poor driver. Anyway, the 3rd scale kit makes an excellent and charming starting point for a collection of antiques.

Between 1769 and 1885 we have a huge gap which unfortunately cannot be filled with any production models. It must not be thought, however, that mechanical transport was not being produced and used. There were the great steam locomotives and carriages which chugged their way

over considerable distances to the utter terror and amazement of horses and country folk alike.

Petrol driven vehicles came along in time, when engineers like Daimler and Benz were able to build compact motors and install them in either shaftless horse-drawn vehicles or in carriages specially built for the engine. The model example we can find for this period is the 1885 Benz made by Wiking of Berlin. This is a 1/24th scale model in plastic (not a kit) but using the material in the best way I have yet seen — certainly not a toy.

From 1892, when the internal combustion engine was really gaining popularity in France at least, we can find examples of kits and miniatures from almost every year right up to the mid-thirties. There are gaps, but doubtless these will be filled as time goes on and more model manufacturers come into the field. In this list I have tried to give a choice of miniatures of around 1/32nd and a larger scale kit as I know there is a considerable division of interest among enthusiasts.

- 1892 A miniature of a Peugeot in 1/43rd scale by the French firm o Safrir.
- 1893 A 1/32nd scale kit by Revell (U.S.A.) of a Duryea. This was one of the first American petrol cars to be built. By this date Oldsmobile Ford, Haynes and Duryea were making successful cars in the States.
- 1894 Rochet Schneider vis-a-vis (face-to-face) by Rami of France in 1/43rd scale. The first car built by this French steel manufacturer.
- 1896 A Peugeot which took part in the Paris to Marseilles race. These giant city-to-city races were the first form of motor sport. The model 1/43rd is by Safrir.
- 1898 The choice is between two scales of the same car: the Peugeot Coupe. Precisia make a 1/32nd scale kit and Rami make a die-cast miniature. A charming looking car with beautiful coachwork.
- 1899 There are several representative models for this year but I would choose the 3.5 h.p. F.I.A.T. made by A.P.S. of Italy in 1/43rd scale or the 1/30th scale kit of the same car by Aviomodelli, also of Italy.
- 1900 De Dion Bouton cabriolet by Rami or the De Dion Bouton vis-a-vis by Vieux-Tacots of France in 1/25th scale.
- 1901 Mercedes Simplex by Ziss (Germany) in 1/43rd or the Packard by Revell (U.S.A. and G.B.) in 1/32nd.
- 1902 The Paris-Vienna race Renault by Safrir or the Strombecker kit (U.S.A.) of the Rambler.
- 1903 A bad year for miniatures: there was a French firm called Beuzen et Sordet who made 1/43rd Ford models including the Paris-Bordeaux race car but these are now out of production and difficult to find. Revell make a Cadillac kit in 1/32nd scale.
- 1904 The A.P.S. miniature of a Lancia Mod. 51, or the Airfix Grand Prix Mercedes are good representatives of this year.
- 1905 Airfix Rolls Royce.
- 1906 An ITALIA Targa Florio race car by Rio of Italy in the 1/43rd scale, or a Franklin by Revell (U.S.A.).
- 1907 Many to choose from for this and most subsequent years. I suggest a Lesney Model of Yesteryear Rolls Royce Silver Ghost or an Airfix Lanchester.
- 1908 Opel-Stadt-Coupe by Ziss or a Peugeot Bebe by Vieux-Tacots (1/25th scale).
- 1909 Isotta Fraschini Mod. AN 20/30 by A.P.S. or a Hupmobile by Strombecker.
- 1910 Daimler by Corgi in 1/43rd scale or a Clement-Bayard by Vieux-Tacots.
- 1911 Alfa 60 c.v. Targa Floria by A.P.S. or a Rolls Royce by Airfix.
- 1912 Fiat Mod. O by Rio or Packard by Revell.
- 1913 Mercer Raceabout either by Models of Yesteryear or Revell.

- 1914 Difficult for small scales but there are many kits. There is a 1/50th scale Stutz Bearcat by the American firm of Tootsietoy but it is hard to find. The Dinky Bullnose Morris is also appropriate for this year although it is a 1913 car. For a kit I suggest a Stutz Bearcat by Revell.
- 1915-1918 A bad period as no one seems to have bothered themselves with some of the interesting war-time beasts. I suggest perhaps a Mk V tank built by the firm of Denzil Skinner or a B Type bus made by Airfix. These buses were used as troop carriers in Flanders.
- 1919 Fiat 501 S by Rio in 1/43rd scale.
- 1922 A Citroen 5 c.v. by Rami or by Vieux-Tacots.
- 1923 Morris Cowley by Airfix.
- 1924 The beautiful Isotta Fraschini Topo 8A by Rio.
- 1925 Lancia Lambda 5 by Dugu of Italy in 1/43rd scale or in 1/30th scale by Aviomodelli.
- 1926 Morris Bullnose by Spot-On.
- 1927 The 3-litre Bentley by Corgi.
- 1928 The Mercedes 36/220 by Lesney Models of Yesteryear or a Lincoln by Airfix.
- 1929 Bentley 4½-litre by Models of Yesteryear, Spot-On or Airfix
- 1930 Packard Sport Phaeton by Hubley of U.S.A. in 1/24th scale.
- 1932 Alfa Romeo P3 by Rio, or one of the Ford Kits in 1/24th scale by A.M.T. or Monogram (U.S.A.).
- 1933 Fiat Baillia by Rio.
- 1934 Bugatti Type 41 Royale by Solido of France in 1/43rd scale.

From 1934 the annual sequences get broken and we shall have to wait until the manufacturers start to really bother with the period. However, quite a considerable museum type collection can be built up from available models.

I realise I have mentioned models from all over the world and some will be difficult to obtain — but this is part of the attraction of this kind of collecting. If difficulties are experienced I shall be glad to let readers have lists of suppliers abroad who specialize in mail order.

HUMBROL have recently introduced ½ oz. tinlets of paint in the International Racing Car colours. There are 12 shades and the full range is B.R.M. Green, Mustang Yellow, Mercedes White, French Racing Blue, Porsche Silver, Metallic Green, Racing Black, Metallic Red, Ferrari Red, Metallic Blue, Daytona Orange, Metallic Bronze, Colours are intermixable, non-poisonous and also suitable for polystyrene. Tinlets cost 1s. od. each from model shops.



11—TRANSISTOR RECEIVERS

TRANSISTORS only need a low voltage battery, and are very cheap indeed to run. The battery is generally 1½ to 9 volts, according to the circuit used. Current drawn from the battery is very small, so that large cells are not needed. With miniature receivers, tiny layer batteries are often fitted.

When making a transistor receiver or amplifier, take great care that the battery is connected with the proper polarity. That is, battery negative to negative lead, and battery positive to the positive lead. Reversing the battery polarity by mistake may damage some transistors.

It is also best to use the voltage recommended, as in some cases a higher voltage will cause damage. To guard against errors, most receivers have plugs or clips which will only fit a suitable battery, and which cannot be reversed.

Transistor receiver

A 1-transistor receiver is very easily made, and can give really loud headphone reception. Or it may give enough phone volume in circumstances where a crystal set is useless.

A simple transistor receiver can be made as in Fig. 33. You will need a 500µF tuning capacitor, with knob. Also a

piece of wood about 3 in. by 5 in. for the baseboard, and a strip of Paxolin or other insulating material of similar size, to carry the tuning capacitor and four terminals. Here, 6BA or 4BA terminals, or bolts with extra nuts or terminal heads, will be satisfactory. The diode is the usual kind, intended for detection. The extremely cheap surplus type of diode is not recommended, as new diodes giving good results are inexpensive. The transistor is an audio amplifier type, such as the OC71.

Everything can be easily wired up from Fig. 33, the coil being omitted for the moment. The battery is a single small dry cell, and it goes between two small brackets or clips. Note carefully that the zinc case is negative.

No soldering is needed, because a small screw will join diode negative and transistor base B. If you are not familiar with transistor connections, these are shown in Fig. 36. Another screw is used at point D.

Coil

A ready-made coil will be satisfactory. These are easily obtained, for medium waves, long waves, or both medium and long waves.

A home-wound coil can be wound on an insulated card-board or Paxolin tube, or on a piece of ferrite rod. A coil on a card tube is shown in Fig. 34. The tube is about 1¼ in. in

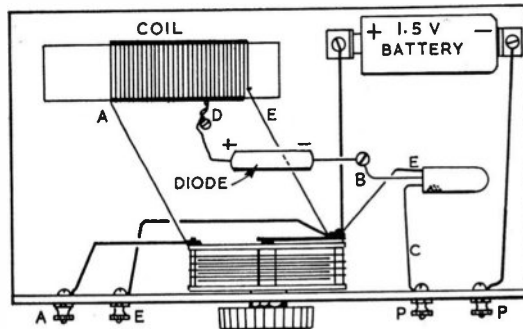


Fig. 33—Easily made diode transistor receiver

diameter, and the whole coil is 80 turns of 30 s.w.g. enamelled wire. A small loop (to go to diode positive) is made 15 turns from the earth end of the coil, during winding. Two screws and wooden blocks hold the coil to the baseboard.

A ferrite rod coil is smaller, and a little more efficient. A piece of ferrite rod about $\frac{3}{8}$ in. in diameter and 2 in. long will be satisfactory. It can be wound with 28 s.w.g. enamelled wire. First place a layer of paper over the rod. Beginning at A, Fig. 33, wind 40 turns side by side, and make the loop for the diode D. Then wind 12 more turns finishing at the earthed end E. The coil ends are held with cotton or adhesive.

The receiver is switched on by connecting the phones, and is switched off by disconnecting one phone lead. The aerial and earth can be as described for the crystal diode tuner in No. 9 of this series. A particularly efficient aerial is not necessary.

Transistor amplifier

A transistor amplifier can be added to a crystal set, or to the crystal diode tuner, Fig. 26. A single transistor amplifier can be made on a small piece of varnished wood, without soldering, if round-headed screws are used for connecting joints. A few small washers will also be useful here.

Fig. 35 shows how the parts can be arranged, an OC71 or similar transistor again being fitted. The 47k resistor will be yellow-purple-orange-silver. The 10k resistor is brown-black-orange-silver, and the 470 ohm resistor is yellow-purple-brown-silver. Capacitors usually have their values marked on them. The $0.5\mu\text{F}$ capacitor can be a small 150V. one, while the $50\mu\text{F}$ capacitor will be 6V., 9V. or 12V.

A switch is made by pivoting a strip of metal on a screw, and driving a further screw into the baseboard, for the battery positive lead. Turning the strip so that it bears on this screw switches on the amplifier.

If a crystal set is to be used to feed a signal to the amplifier, connect earth on the set to Y, Fig. 35. Take the other crystal set phone terminal (that from the diode detector) to X. The headphones are now connected to the two 'output' screws.

There is little point in using a battery of more than 3V or $4\frac{1}{2}$ V. Even a $1\frac{1}{2}$ V battery will do in some cases. Be sure to follow the polarity shown. With torch and flashlamp

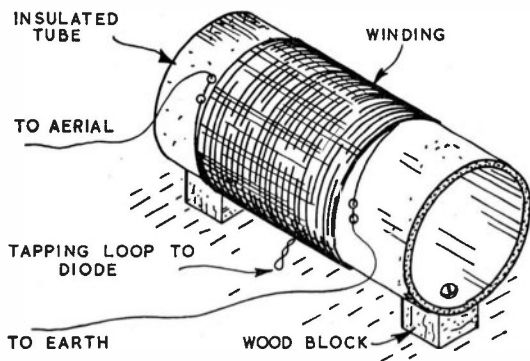


Fig. 34—Tuning coil

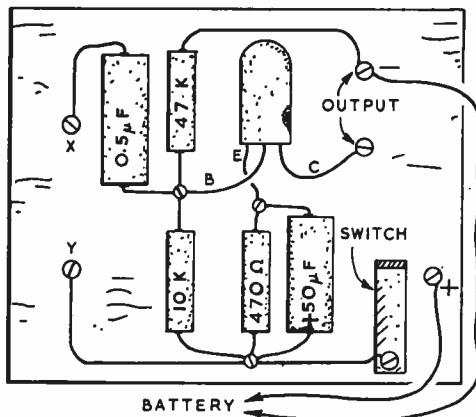


Fig. 35—A transistor amplifier for crystal set, etc.

batteries, the zinc case is negative, as mentioned.

The amplifier can be used to increase the strength of signals from other sources, such as from a microphone or pick-up, or for a simple home telephone which does not give enough volume.

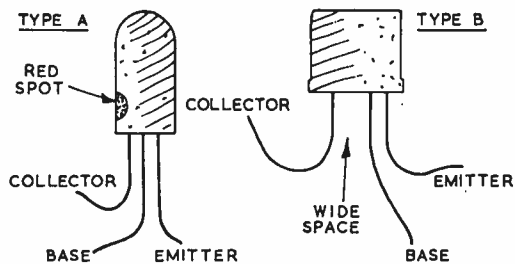


Fig. 36—Transistor connections

Transistors

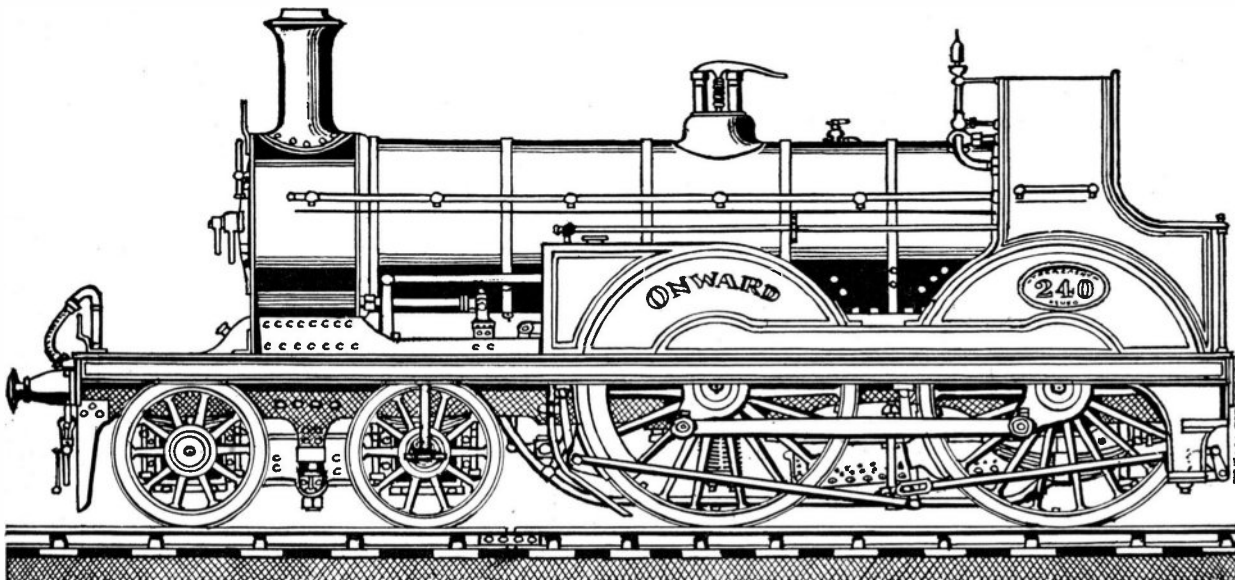
Fig. 36 shows the connections to the most popular types of transistors. In Figs. 33 and 35, C shows Collector, B is base, and E is Emitter.

Popular Mullard transistors are like Type A, and have a red spot to show the collector lead. For small amplifiers of this kind, the OC71 transistor is satisfactory.

Numerous other transistors are like Type B, and there is extra spacing between collector and base wires. Most small transistors will work satisfactorily in the circuits shown. If a transistor is to be purchased, it can be an OC71, or a small audio transistor. Should some surplus transistors be to hand, they can easily be tried in either circuit.

When fitting the transistors, do not bend the wires near the transistor body, or they may break. No soldering is needed, but if joints are soldered for any reason, this must be done rapidly, as lengthy heating can damage the transistor.

South Eastern Railway 'Onward'



South Eastern Railway. James Stirling's 'F' class bogie express passenger locomotive. No. 240, 'Onward', shown at Paris 1889

THE coupled bogie express passenger engine No. 240, *Onward* shown in the drawing was one of a class of 88 engines designed by James Stirling the Locomotive Superintendent for the South Eastern Railway. As a new engine she was sent to France where she was displayed at the Paris exhibition in 1889, afterwards running several exhibition trial trips over the French lines together with the L.B. & S.C.R. front coupled engine No. 189 *Edward Blount* (appropriately named after the chairman of the Western Railway of France) which had also been displayed at the exhibition. The S.E. engine No. 240 was handsomely finished in black livery, the name *Onward* being the motto on the company's coat of arms.

The first engine of the class was No. 205 erected at the company's Ashford shops late in 1883, where all the succeeding engines were built up to 1898. They were officially known as 'Engine class F' but were known among the enginemen as *Jumbo's* a popular name of that time as also applied to Mr Webb's

L. & N.W.R. *Precedent's* and the L.B. & S.C.R. *Stroudley '421'* class 0-6-0 goods.

The leading dimensions of the 'F' class were: cylinders 19 in. diameter and 26 in. stroke. Wheel diameters: bogie 3 ft. 9 in., coupled 7 ft. 0 in. The boiler was 4 ft. 4 in. diameter and 10 ft. 4½ in. in length with a 5 ft. 9 in. long firebox, the working pressure being 150 lb. per sq. in. The centre line was 7 ft. 5 in. from rails, and height to top of chimney 13 ft. 4 in. The steam chests were placed between the cylinders with vertical slide valves actuated by Stephenson Link Motion, the cylinder centres being 2 ft. 4½ in. apart. The first four engines had 18 in. diameter cylinders later bored out to 19 in.

The engines were later provided with larger boilers having the diameter increased to 4 ft. 8½ in. and the total heating surface increased from 1,020 to 1,100 sq. ft., the pressure being raised to 160 lb. per sq. in.

The bogie was of a special type with two pins and a triangular link and a

somewhat short wheelbase of 5 ft. 4 in. The front pin received the push from the bogie frame and the main centre pin which had ¾ in. lateral movement on each side was connected by a link to the front pin.

Mr Stirling's steam reversing gear was provided, but the steam and cataract cylinders, instead of being placed inside the cab and thence actuating a long reversing rod, were placed vertically in front of the driving wheel splasher, and the piston-rod was directly connected by a short link to the reversing shaft. The boiler was of the domeless type and in the later engines was of Siemens-Martin steel.

Mr Stirling based the design of these engines on the success of a similar 4-4-0 type which he had previously designed for the Glasgow & South Western Railway in Scotland, and when taken over by the Southern Railway in 1923 they were often retained in main line service being kept thoroughly up-to-date, and well abreast of then modern requirements.

(A.J.R.)

