

## The finishing touches

# In and out of the paint shop

Ross Pochin shows you how to complete your models

Photos by Brian Monaghan

AT almost any club meeting or exhibition can be heard the question: "Can an in-differently constructed model be improved by a good paint job?" Some say, "Yes", and some say, "No". But there is full agreement and plenty of evidence to show that far too many excellent models are ruined by sloppy painting.

There are two main reasons for this sad state of affairs. Firstly, it must be accepted that painting is a craft that is basically different from the modeller's normal experience of cutting, filing, fitting and turning. Secondly, the rewarding sight of the gleaming metal and fine detail of an otherwise finished model locomotive seems to set up a psychological barrier. This makes the modeller approach the painting operation with trepidation instead of confidence.

There is only one way to acquire proficiency and confidence in the paintshop, and that is by practice—practice on scrap metal or other materials of construction; or practice on your current loco body when it reaches completion. If you make a mess of it, the paint can always be washed off and a fresh start made with added experience.

Having reached, over many years of modelling, a stage of some confidence in my ability to paint, it may be helpful to record some hints and tips which could be useful to fellow "model-bashers". But please understand these are certainly not golden rules. Some of the experts, amateur and professional, use other methods such as spray-gun techniques even for lining. My tools are brushes and pens.

### Begin at the beginning

To coin a maxim for paintshop practice: "The finishing of a model begins at the beginning." And anyone who has tried to paint the underside of a 4mm. loco boiler with a brush poked between splashers will appreciate the sense of the statement. Even more difficult is lining boiler bands round the ungetatable underbelly of a low-boilered veteran.

It was problems like these that led me to build locos in parts that could be assembled after painting and lining. This method of working also gives a substantial bonus in ease and accuracy of construction.

Now, when I model a 4mm. loco, and before putting scriber to metal, I study the drawings and decide what are to be the separate component parts so as to avoid painting problems, and how the parts are to be assembled, after painting. In general, the breakdown is into the following units:

All wheels, on axles, and with axle boxes fitted.

Mainframe, bogie and pony truck assemblies (these have slotted horn guides to receive axle boxes).

Footplate with splashers, cab, buffer beams and sometimes firebox too (for tank locos add side-tanks and bunker).

Boiler barrel, with or without dome. Smokebox and chimney.

The boiler barrel is spigoted onto the firebox and recessed into the smokebox. Bright brass fittings, like safety-valve casings, clack valves, copper piping, are polished and fitted to the body after it has been painted.

For tenders, a two-unit construction is usually adequate; the underframe and footplate, with buffer beam, and the tank body. It is, however, advisable to paint the wheels (on axles) before assembly into the underframe.

The advantages of unit construction at the painting stage are obvious. You can paint the smokebox and chimney black without the extra care necessary to keep the brush away from the boiler. You can mount the boiler barrel between centres to paint its whole surface uniformly, and to line the boiler bands. You can obviate the finicky business of trying to keep paint off the polished brasswork.

Goods stock is usually made in two units—body and underframe—which are united after painting. With coaches, however, underframe and bodies should always be painted as separate units. Moreover, coaches should have provision made for slipping in the "glazing" after the bodies have been painted.

Signals, too, are much easier to finish neatly if the ready-painted arms, ladders and fittings are assembled onto painted posts.

### "Aye, there's the rub"

One of the problems in model rolling stock is how to make the paint stay on footplate edges, footsteps, chimney caps and other parts that are vulnerable to handling. The only effective solution is not to handle them! However, the adherence of paint can be improved, if not assured, in various ways. By making footplates and other sharp-edged parts not in brass or nickel silver, but in the old-fashioned and shamefully neglected tinplate. If you do this, it is well worth while to "tin" the cut edges to keep out rust.

Chimneys are usually turned from brass bar which sheds paint at the slightest provocation. These can usually be plated dull nickel to give an improved key to paint, or, better still, they can be chemically blackened. This has the double virtue of holding the paint better and also of making its loss much less obvious if it does rub off.

There are a number of chemical blackeners available, some of which are solutions of antimony and arsenic chlorides—highly poisonous and unpleasant to handle. The most suitable mixture in my experience is

liquid Gun Blackener which can be obtained in small bottles from gunsmiths, many watch-and-clock material suppliers and some ironmongers.

But follow the instructions carefully! If overdone the treatment produces a black scale which rubs off leaving a pitted surface beneath. Incidentally, chemical blackening is a much more effective finish than paint for small metal parts, like brake gear, couplings and signalling hardware.

### Cleaning

Any professional painter will tell you that a clean surface is the basis of every good paint job. The small scale of railway models makes it even more important to get rid of all traces of flux and dust before they go into the paint shop.

Metal parts and assembly units are immersed in a dish of Thawpit and scrubbed thoroughly with an old toothbrush to dislodge filings, flux, grease and grime from every crevice. Whilst doing this do *not* smoke, because the fumes passed through a cigarette can be converted into phosgene, a most unpleasant poison gas.

The parts are then transferred by clean tongs or tweezers into a dish of near boiling water laced with the prevailing domestic favourite "whiter-than-white" detergent. Scrub with another old toothbrush and rinse over and over again in repeated changes of hot water or under the hot tap to remove every trace of foam.

Place in a cool oven or on your cooker plate rack to dry out thoroughly. At no time, during the cleaning or the succeeding painting stages, handle the model assemblies with fingers. Use well-washed, fluffless old handkerchiefs, clothes pegs or strips of wood, chopstick fashion.

The Thawpit in the dish can be returned to its bottle if filtered to remove the dirt.

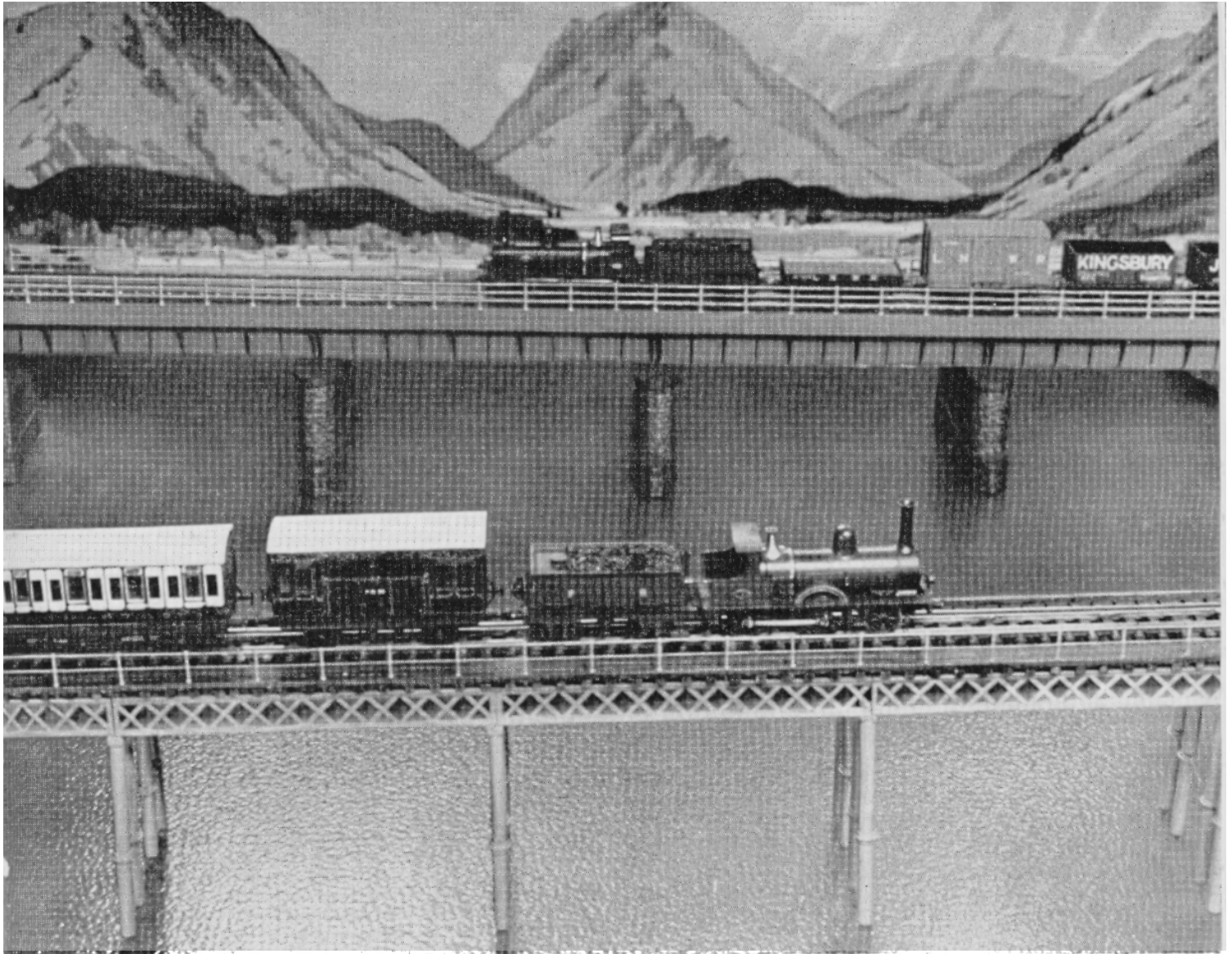
If the model has enclosed spaces like bunkers or side-tanks, these should be "ventilated" with a couple of hidden holes through the footplate to ensure that they can dry out after washing.

Coach and wagon bodies in wood or card should be lightly sanded with the finest abrasive paper and then wiped over with a rag moistened in pure turpentine to remove dust and fingerprints.

### Priming

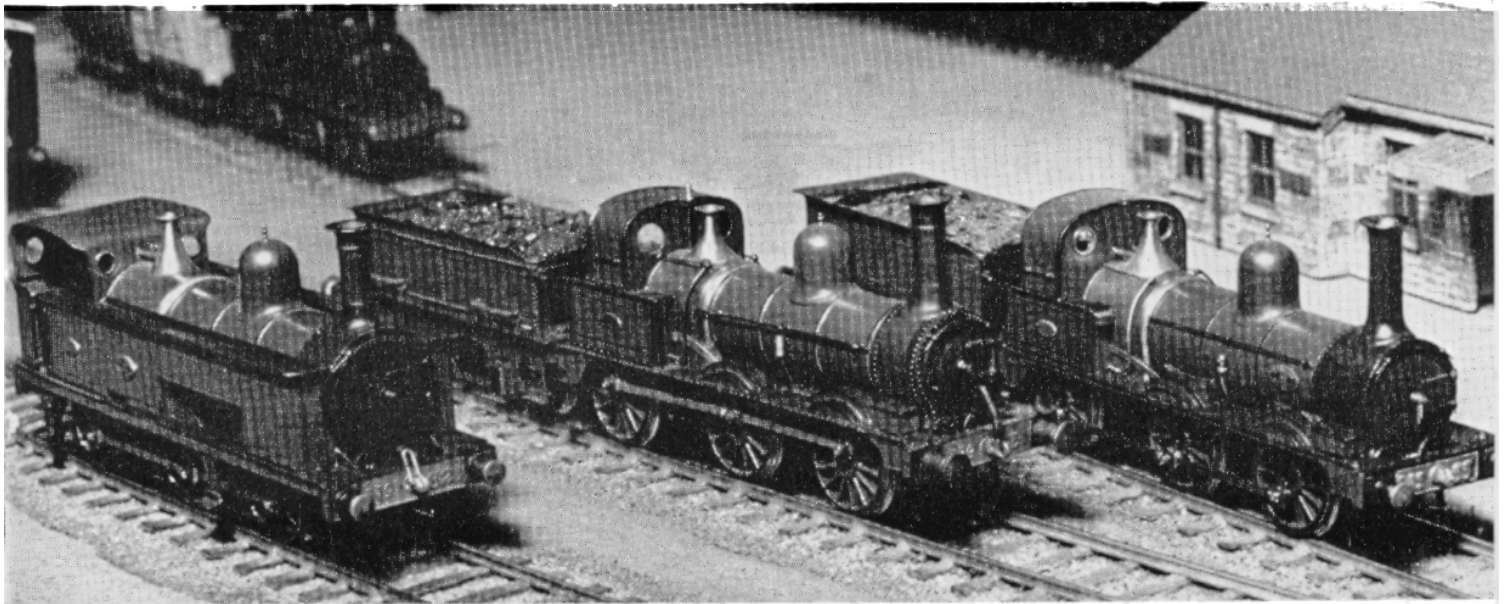
Now we come to the painting proper. Trying to paint against the clock is fatal. So choose an afternoon or evening when you can be sure of peace, quiet, warmth and comfort.

Arrange all your paints, brushes and materials within easy reach. Have your favourite vice—cigars, cigarettes, sweets,



*ABOVE: These two viaducts, models of Furness prototypes, are on Ross Pochin's delightful, as yet incomplete, 4mm scale 18mm gauge layout.*

*BELOW: Three of Ross' superb model locomotives, standing on the station tracks. The station building is on the right, platforms and many other details have still to be added.*



strong liquor or tranquilizers—ready to hand. And a gentle stream of background music is conducive to concentration—Bach, Bartok or Beatles to taste—from radio, but *not*, repeat *not*, from television.

All set? Then, on with the priming. For metal I use a blend of Bassett-Lowke, Bonds Flat White or Dulux White Undercoat and Roscoe Cylinder Black (from motor accessory shops). These are mixed in a clean tin-lid to a medium grey and thinned with pure turpentine. I have also used Humbrol Zinc Chromate Primer. This is equally satisfactory but has no discernible advantages. The priming paint should be thin enough to flow onto the surface, guided by the brush, and without having to be worked to spread it.

Let the priming coat dry under a meat-safe or an inverted box to protect from dust and leave it to harden for at least three days. The meat-safe or box should be supported on packing to allow ventilation from below.

Models made of card will normally have had two coats of shellac varnish before assembly, and will therefore be ready for the undercoat.

Stock made from wood should, before the priming coat, have the grain filled with either a paste filler bought from any do-it-yourself shop or with two coats of shellac well rubbed down with fine sandpaper. Be sure to clean out scored planking, doors, etc. with scribe and soft brush before applying the priming coat.

#### Now for the livery

Before applying the next coat, examine the dry and hard priming coat carefully, and rub down any "ribs" carefully and gently with a slip of wet, not damp, chamois leather wrapped around your finger-tip and dabbed lightly in pumice powder. Avoid rubbing the priming off riveting and the edges of platework. If there are uneven patches on the larger areas, smooth down carefully with the finest "wet-and-dry" abrasive paper, used wet.

Professional coach painters say that rubbing down after each coat is the secret of a first-class finish—that their aim is to apply twelve coats of paint and rub off all but two or three.

With most 4mm. scale models and under, this is virtually impossible, but with flush-bodied coaches in 4mm. scale and over, it is quite practicable to give at least one priming coat and three preliminary colour coats, rubbing down after each; then a final colour

coat, a coat of matt varnish rubbed down to take the lining and a final coat of varnish to complete.

I have treated O-gauge panelled coaches in the same way, but in this case the pre-painted panelling is affixed with Croid or Casco glue after the final colour coat stage.

However, to get back on the track, the rubbed-down priming coat is swabbed with a piece of damp chamois leather, allowed to dry and then dusted off with a soft, clean brush.

Now apply the first colour coat. This should be matt drying, not enamel, and should be thinned with pure turpentine so that it flows from the brush. Do not worry if it does not completely obliterate the grey priming. Two or even three thin coats are smoother and tougher than one thick coat. But be sure to let each coat dry and harden thoroughly before applying the next.

When you are satisfied with your colour coats, rub down any obvious "ribs" and then give your model a thin coat of matt varnish (oil- not spirit-based). This is to protect the colour coats whilst lining and lettering. The final varnishing comes later.

For wagonry the process is much simpler. Two colour coats are usually sufficient and the lettering applied directly to the second.

#### Lining and lettering

When the matt varnish is dry it is flatted just enough to give it a tooth for holding the lining. A dusting with toilet talcum or a swab with the corner of a handkerchief moistened with spirit helps the lining to run evenly and true.

Arrange the model so that it will not rock or tilt and is flanked by books or other packing on which you can rest a straight-edge just clear of the job. Have a rest, too, for your wrist at a convenient height—and try not to breathe too fiercely on the model.

I use both thin oil colours or poster water colours for lining. The latter flows more evenly from a ruling pen and is, therefore, suited for flat surfaces. I find that a fine sable brush and oil colour are easier for boiler bands.

The advantage of poster colours is that you can wash off any mistakes without affecting the body colour.

Mix the poster colour with water and add a spot of gum or liquid glue as a binder. Fill a draughtsman's ruling pen from a brush to

give about  $\frac{1}{2}$  in. column of colour and be sure the outer edges of the pen are dry and free from paint. The viscosity of the paint is fairly critical. Try various consistencies until the colour flows smoothly. Your thumb-nail makes a good testing panel.

Rule one line at a time, then clean and refill the pen. If the lining has curved corners, put these in afterwards using a fine sable brush drawn to a fine point. A watchmaker's glass is invaluable here.

When mixing the colour for the lining, it should be quite considerably subdued to get the right prototype effect. A white line is actually mixed to a dove grey, otherwise it will seem to be overpowering and overscale. Similarly, white lettering on wagons should be greyed and with a slight tinge of the wagon body colour (if other than grey) added.

Lettering is easier with a brush than a pen. Study the shape and proportions of the prototype meticulously and practise with pencil and paper until its characteristics and peculiarities are mastered.

Paint the outlines first and fill in afterwards using the fine point of the brush to get sharp and true corners to the letters. Keep the paint thin to avoid ugly three-dimensional effects. If you prefer, you can use the ruling pen to outline the larger geometrical letters.

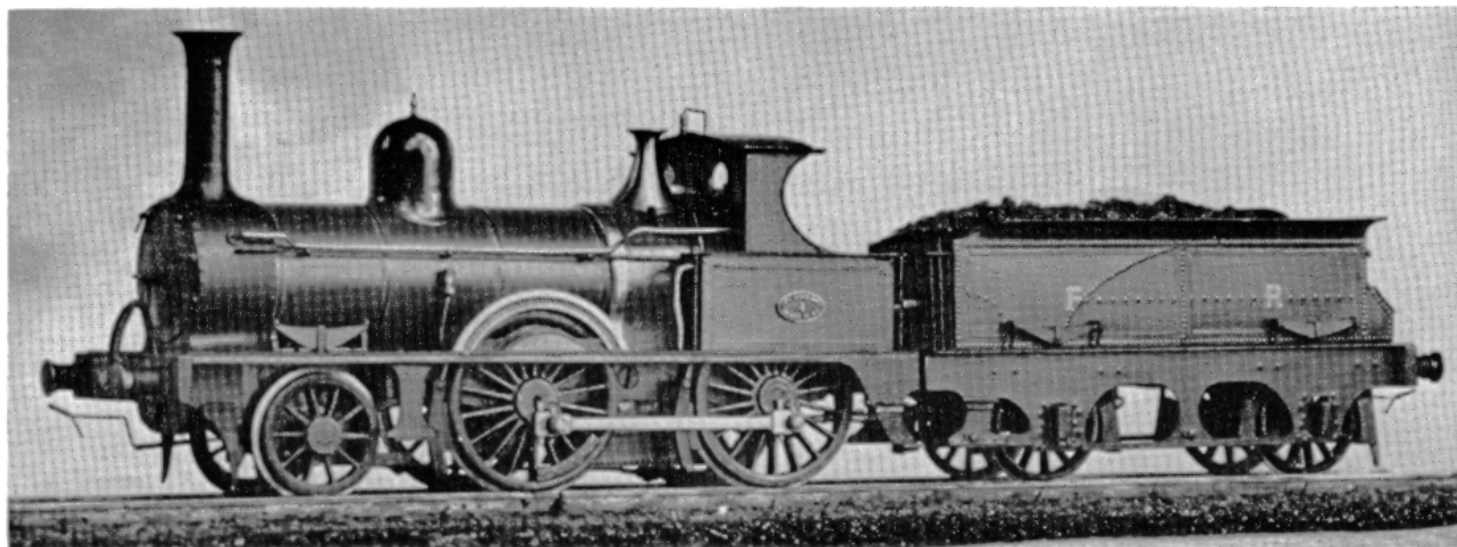
Crests can be simulated by tiny blobs of colour if care is taken to get them symmetrical and to the correct and uniform size. Use a glass and do not rush the job. If you can get transfers, so much the better.

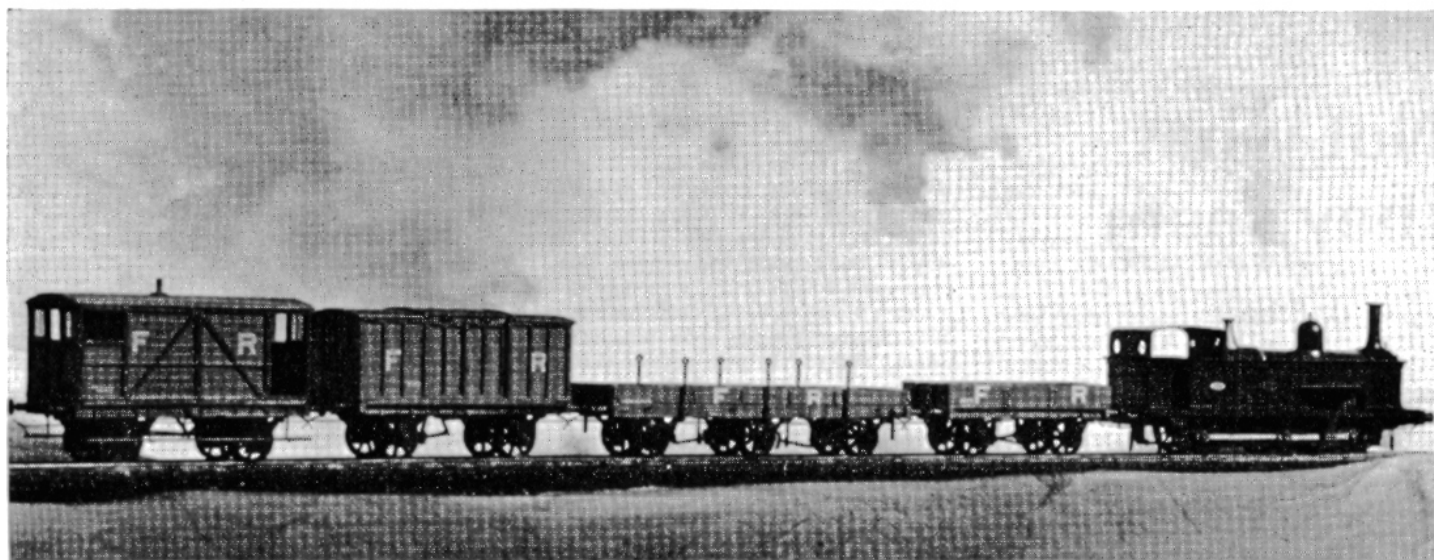
#### Varnishing

The functional purpose of varnishing is to protect the finally decorated livery from weather and wear. The choice of varnish—matt, eggshell or glossy—is up to you and your interpretation of the prototype appearance.

For brush finishing the varnishes of any of the three types must be oil-based. Use a soft brush and float on the varnish panel by panel or section by section. Take up on the brush just enough varnish for each. It should be worked by the brush as little as possible. Give a coat of varnish, too, to the brightwork. It will keep it shining and unvarnished for years.

Wagons that have been lettered in poster colour can be "fixed" with a matt spirit varnish applied with a mouth spray as supplied





by artists' shops. Do not apply it with a brush or you will smudge the letters. Wagons that have been lettered in oil colours do not need any varnish unless they are likely to have to suffer frequent handling.

If you feel that a matt-varnished model looks on the dull side, you can, providing the varnish is thoroughly hard, polish it with a softish clothes brush. If the model looks too bright and glossy, it can be dulled and given an "in service" look by brushing very judiciously with a little Brasso on the brush.

**Brushwork tips**

Only practice can give you confidence with a paint brush. Only experience will tell you the best fluidity for paint; but in general it is probably thinner than you think. For this reason never use paint straight from the tin. Put some into a clean and dusted tin-lid and add sufficient pure turpentine to reduce its consistency so that it drips slowly from the brush. As you work the paint in the tin-lid it

will tend to thicken. Add a few drops of turpentine from time to time to maintain its correct viscosity. Dip only the point of the brush into the paint and take up just sufficient to cover conveniently defined area of the model; for instance, the smokebox front, tank side or cab roof. Try to avoid joining up new paint into the previous brush load; let your brush flow the paint along the greater length of a surface or round the circumference of a curved part. Make each stroke slowly and deliberately, complete from edge to edge of the area. Do not dab or doodle. Brush away from re-entrant corners and details so as to avoid loaded gulleys.

If anything goes amiss, do not try to titivate until the whole coat is dry. Touching up or rubbing down can then be confined to the affected panel without risk of spoiling the rest.

Work in a warm room and leave the job in the same room overnight. Sudden changes of temperature and humidity can result in ropey, bloomy finishes.

**Tools and materials**

I use ox-hair flat brushes 1/4in. and 1/2in. wide and sable round brushes Nos. 00 and 3 for lettering and small parts. Good brushes are apt to be pricey but are well worth their cost.

They last for years if properly cared for. After use, wash them thoroughly in white spirit (turpentine substitute), and then several times in soap and water. Rinse thoroughly and when dry, store in a plastic case such as toothbrushes are sold in. This is to keep out dust and also moths which find expensive sable brushes very tasty.

The draughtsman's ruling pen has already been mentioned. This should have a Surgotti adjustment and fine, but not sharp, tips. Keep it clean, and to protect the tips from damage, keep them embedded in a cork between sessions. The Bonds and Humbrol ranges of paint can be recommended. If there is no stock colour to match your particular livery, get the nearest available and modify it with other colours from the same makers. In most cases artists' oil colours can also be used but these are often slow drying, so watch the time between coats.

Writing these notes on paint shop techniques makes one realise that it is rather like trying to teach a person to swim by correspondence course. I can only hope that the reader is ready to believe that swimming is possible and has gained sufficient confidence to dive in at the deep end and to emerge from the paint shop with increased satisfaction.

*The photographs on these pages show how good painting embellishes a good model. Take particular note of the two locomotives: these are over life size reproductions.*

