

*“If weathering is about replicating the way real objects age, then we must first concentrate upon studying real objects.”*



Each individual will have their own view on what the term “weathering” means. To some it is any finish used to make a model a more convincing representation of the real world. This need not mean distressing models to make them look old, it could just mean scaling down the colours (for those that haven’t read the section on scale colour I would advise doing so, as it underpins my whole approach to model making). However, for most modellers weathering is synonymous with faking the signs of dirt, damage and repairs that all give character. My own personal interest is in modelling derelict and run down architecture (odd perhaps?) but the finish is everything with such subjects. Professionally I work on a huge range of subjects and I’ll try keep this guide focused more upon machines and metal work than bricks and mortar as this will probably have a more general appeal.

Everybody seems to start by asking me if they need an airbrush to weather models. Put simply No! I spent years weathering and painting models without one, the only time you need an air brush is for applying smooth, even and uniform coats of gloss paint, which is rarely necessary when weathering. Nevertheless I did recently get around to investing some of the hard earned folding stuff in such a quality gadget and the requisite air compressor. No doubt with time as I play with this “new toy” I will find uses for it, but by and large all of the effects other people tend to state you must have an air brush for, I can achieve with a selection of paint brushes in less time than it takes me to set up and/or strip down and clean my airbrush. As far as I’m concerned all you need for weathering are a large selection of different types

of paint brush, more often than not old or cheap ones as many of the techniques I use destroy them, along with a selection of matt acrylics and assorted cheap chalk pastels. (The expensive oil pastels sold for artists tend not to work as well.) What I can’t do, which many people ask, is give shopping lists of paints for different finishes. I don’t have set colours or mixes for anything, I have a few basic paints and custom mix these to match reference photographs, or better still the real thing. For this reason the most important things needed for weathering are not things you can buy; They are a keen eye and ingenuity, both of which come through practice, with these at your disposal you’ll find ways of achieving what you want with the tools and materials you have, rather than resorting to going shopping every time you start a new project.

Weathering of real subjects, be they geological features, buildings, machines or even trees, is something which happens slowly and cyclically with time. Dirt, dust and muck build up, and then get washed away by the actions of wind and rain, or by the hand of man with an oily rag or bucket of soapy water. Time and time again this happens which slowly abrades surfaces wearing away material, colours fade and occasionally a more catastrophic incident will result in a major dent or breakage, exposing fresh material to start the whole process again. Through out this process our subject may be exposed to deliberate vandalism or alterations, modifications or repairs which will again change the appearance. It is the combination of all these subtle changes that give character and it is these changes that most modellers are looking to capture. If you think that there are quick ways of replicating this on a small scale model let me disillusion you now. The only truly believable way of replicating this look is to spend time, and lots of it, building up the finish stage by stage, replicating in turn, each process that happened to the real thing.

As few of us can spare all this time weathering becomes the art of compromise, carefully judging how many of these small, subtle and slow steps we can combine into one quick all encompassing step without sacrificing too much of the final appearance. Nevertheless I will often spend several times longer painting and weathering a favourite kit as it took to build, scratch built models may show a more even distribution of time. Some may consider this excessive as painting and weathering is to many, secondary to construction. Yet I’ve always felt that the overall colours, textures, and tonal balance is what helps a model settle into it’s surroundings, far more than fine fiddly constructional details, which are usually lost or obscured under a crudely painted finish anyway. It is for each individual to decide how long they are prepared to spend on a single model. The techniques I intend describing are not inherently slow, and can achieve acceptable results quite quickly but will really reward those willing to take their time.

People often ask me how to improve their weathering. There are just two main problems people tend to encounter; One I’ve already outlined; That is you need to spend more time on your weathering, not necessarily trying to do more, but to break down what you would have done anyway into many smaller more subtle

stages. The other problem is that most modellers don't actually know what real weathering looks like because they haven't been and looked at any. It may seem an obvious and slightly patronising thing to say, but you can't reproduce anything in miniature if you don't know what it looks like. Reading a book, a magazine article or even this web guide is no substitute to going out and looking at the real thing. There are an amazingly huge range of subtle textures and colours found out there in the real world, no two are ever exactly the same, therefore we can't rely on a few standard treatments when weathering models. Every model should ideally be matched to a real example. Investing in a good quality digital SLR camera made more of an impact on my model making than any other tool ever did. I can now take hundreds of photographs without worrying about the cost of developing them all, and details can easily be enlarged on the computer. I need never be without reference material again. If you can't gain access to your subject to photograph it, look for published pictures. If the worst comes to the worst use drawings, paintings or whatever is available to gain basic dimensional information for constructing your model, and then go out and photograph objects of similar materials from similar environments in order to give you a basic idea about likely colours and textures when it comes to weathering.



Having said that we can't rely on general approaches, there are still some common factors, pertinent to most examples of weathering we will need to replicate. Consequently the following ideas could be said to form a basic outline approach which should be subtly adjusted to better suit your own references. Firstly the combination of scale colour and weathering tends to lighten and fade surfaces. Therefore beware of using blacks, dark greys and browns. Secondly weathering introduces variation to otherwise flat uniform colours. So take care not to achieve too thick or even a covering when applying pigments to weather a model. Too many people's attempts at weathering involve hiding strong vibrant colours under thick dark coatings of simulated dirt. Better to tone down the original colours with thin pale washes as we are rarely seeking to achieve a complete change of colour, just subtly vary what's already there. In this way we harmonise and reduce the contrast between supposedly different colours.

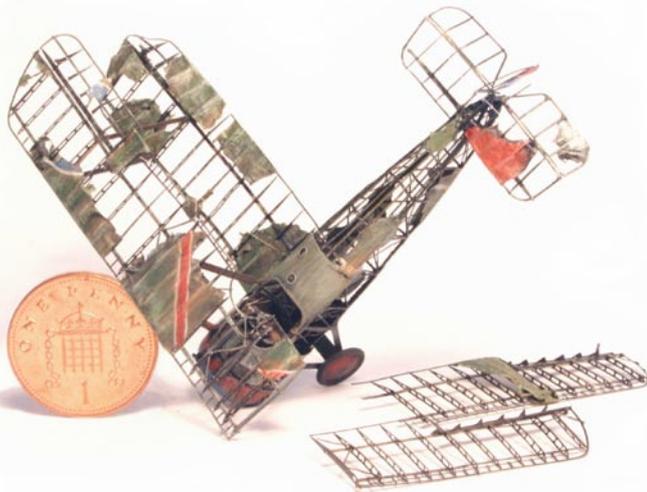


Now I may claim to have somewhat of an advantage over many model makers in this respect. As somebody who has worked as a museum conservator and restorer I have several years of professional experience studying dirt, decay and the deterioration of many materials, there were times when it felt as if my masters degree was spent studying nothing but the complex chemistry of rust! (If you thought rust was just rust then you'd be wrong, there are many common oxides and oxyhydroxides of iron including Goethite, Lepidocrocite, Haematite and Magnetite, before we get onto other corrosion compounds of iron such as sulphates, carbonates, hydroxides, silicates, phosphates and chlorides.) Anyway, whilst the complex chemistry of all these corrosion products need not concern us, the vast array of colours and textures should; With "rusts" ranging from shiny greys, blacks and silvers through powdery dark browns, reds and pinks, onto coarsely textured, even lumpy creams, yellows and oranges. So whilst I could go on, I won't, I will simply stress again the importance of basing your weathering upon relevant reference material rather than guess work and generic approaches.

Another point to note is that the action of rain often causes dirt to streak, gravity encourages this to streak downwards. So as to suggest this try to keep all brush strokes vertical when applying weathering by hand. Also note that moving objects tend to throw dirt up from the ground. Therefore it is the lower edges and surfaces, along with corners and recesses that trap dirt, that need weathering most. A point further emphasised by dirt from above being washed downwards onto them. Raised edges and protruding fittings are the places most likely to get abraded, knocked, scratched or broken, this tends to keep them relatively clean of dirt but exposes underlying material, be that wood, metal, rust or whatever, so these fittings tend to need different treatments. Again I could go on, but it all comes back to looking at your reference material to get an understanding of your subject.



The last thing I will mention before moving on is the difference between modelling a weathered finish, and weathering a finished model. The difference is perhaps subtle when written down like this, but huge in terms of approach. The former is always preferable. Wherever possible I would advise thinking about the weathering to be applied at the start of construction, and making this weathering part of a single building and painting process. Not only does this tend to give better results it can also be quicker. It is also essential in examples of extreme weathering as it may impact heavily on how you choose to build the model or require modifications and alterations to the design of any kit.



However, the latter is by far and away the most common practice. Many people still tend to build models, then think about applying an immaculate paint job, then finally think about weathering this to distress the finish. Such an approach will ultimately impact on what you can and can't achieve. As a professional I also have to deal with weathering factory finished models bought "off the shelf" or kit built or scratch built models finished by clients. Either way we are often faced with having to do something about the painted finish already applied. Sometimes the best option is the drastic approach of stripping the paint off and starting again, but more often than not an acceptable result can be had by working the weathering over the top of any finish already applied.

Writing a guide about weathering is somewhat of a thankless task. As every case is going to be different, you are faced with the problem of either writing something very general so as to be of use to a wide ranging audience, which ultimately ends up vague and says little of use. Or writing very specifically about one particular project knowing full well that it will fail to cover many of the points that others would consider to be of interest. The weathering effects for model tanks and armoured vehicles may differ greatly from combat aircraft, which may differ from commercial aircraft, which in turn may be very different from boats, or buildings, or racing cars, or any other subject people may choose to model. For better or worse I have chosen to produce a step by step guide to weathering an "off the shelf" plastic 'OO' gauge model railway wagon bought cheaply at a swap-meet. The sort of project the average modeller should be able to complete in

under an hour. Whilst not necessarily going into detail about all the myriad techniques at the model makers disposal, this should give a general overview of my approach to the subject of weathering. It may not cover exactly the techniques you may need, but it should give an idea of the way I think about weathering. If you can start to think of weathering being more about achieving an overall look, than specific rust patches or oil stains then hopefully you'll end up with a better looking model.



The starting point for our project; this is not a great model, but bought second hand for just a couple of quid it is typical of the sort of thing found on many model railways. Although it's a fair representation of the ubiquitous 16T mineral wagon there is still much a lick of paint can do to improve it. The train-set like qualities of chunky wheels with over width tyres and woefully deep flanges running on excessively thick rails set too close together probably says more about my prejudices against 'OO' as a set of modelling standards than any particular inadequacies of the model. However, if we can draw attention away from the wheels it will be to our advantage. The mass of gloss black plastic underneath the wagon goes some way to masking this but doesn't look realistic and also masks some really rather fine axle box and brake gear which we ought to be making more of. Huge tension lock couplings scream train-set again, but if we're not to replace them with something more prototypical, we must do all we can to disguise them. The body shell is actually quite well finished without too much of a high gloss finish, with neat lettering and markings, but when did you ever see one of these wagons where there was enough paint left on them so as to be able to read the lettering! To make this model a little more believable it needs toning down and coating in rust and muck.



The first step with this model was to attempt to scale down the overall colour and pick out the detail in the under frame with a quickly dry-brushed coating of a pale muck colour. My preference for such work is a pale creamy coffee colour. Effective dry brushing is about using a long-haired brush whose hairs splay outwards rather than holding a sharp point, and getting the consistency and amount of paint on the brush just right; It should have the consistency of cream, and *all* the excess should be removed by brushing gently against a paper towel until you are no longer achieving any discernable mark. When dry brushing your model use a *very* dry brush, and do not attempt to paint slowly and carefully but work quickly and vigorously as if beating eggs.

From here we next need to hint at the rusting of the body sides and bring out some of the detail in the door mouldings. This was done with a very watery wash of a generic rusty colour splodged liberally over every part of the model inside and out. As this was beginning to dry a clean flat brush was used to dry brush off the excess from the centre of the panels, leaving more of the dark paint trapped beneath raised edges where it simulates shadows. Using vertical brush strokes again helps simulate streaking. This is the only time I would seek to darken the overall finish of the model, and would hope all further weathering would lighten the appearance. When removing wet paint in this manner it is better to be over cautious and start almost immediately, than to let it dry too much before you start.

So far what we have done has been about toning down the colour by reducing contrasts and giving a blurred soft focus feel. We now need to simulate specific rust patches to add character and interest. Mixing a single colour for rust is nigh on impossible. The effect should be built up with several subtly different layers of colour, including reds, browns, silvers and greys. Long term stable rust tends to be these darker colours, fresh rapidly formed rust tends to be more vibrant oranges and yellows. As with everything match to your reference material. Gently abrading these rust patches with a glass bristle brush will stop them looking too thick. In reality the rust should be beneath the grey paint not applied over the top. This abrasion also starts to apply many micro scratches and textures to the whole surface and cuts back through the paint to underlying finishes, bringing back some of the original grey lost in the previous step.

Next we must look to bring up one or two points of detail. In most cases all that is needed is something that stands out against the muted overall finish to stop the model looking too blurred or soft. Things to achieve are to start painting in a few subtle shadows on the lower surfaces of prominent details, along with highlights on the upper surfaces to make them stand out. The complex mouldings of the end doors benefiting greatly from this, as lumps of moulded plastic can deceive the eye into seeing separate and delicate handrails. If we place the emphasis on the highlights this will also, psychologically at least, have the effect of appearing to lighten the model without actually changing any of the colours. We can also introduce specific marks, scratches, areas of damage or any other features from our prototype we feel are worth spending the time adding.



The final touch for me is always to spend a couple of minutes with the chalk pastels. These powders need brushing on dry around points of fine detail, dark powders to emphasise shadows, rust and muck colours in areas that trap dirt. The depth of pigmentation in these is far greater than paint and they have to be used sparingly as a finishing touch, but they do make a surprising difference. Having brushed these on, get a large soft brush often known as a mop (or pinch the wife's blusher brush from her make up bag leaving her to wonder why her cheeks look rusty the next morning!) and vigorously dust off all the powder you can. The amount that comes off is always seemingly more than went on and you wonder how these powdered pigments can possibly have an effect. They do though and it really does only take microscopic amounts for a believable effect, so do use them sparingly.

As with everything about weathering it is better to have an underdone and overly subtle finish that draws you in to the model, than an overdone finish that seems to push you back. Fine fettling and the finishing touches like these can make all the difference but you have to know when to stop, which is usually five minutes before you actually put down the paintbrush in annoyance at having spoiled your work. If you're unsure whether it needs anything more, the answer is always "No it doesn't!", spend your time on something else. Only keep going when you can clearly see why more work is necessary, and more particularly when you have a very definite goal in mind and know exactly what you are trying to achieve. Although experimentation is a good thing, don't experiment when painting the actual models you want to display. Practice techniques on bits of scrap so that you know what will happen when you apply the paint to your model. If a model hasn't turned out right don't study the model to work out why, go study the real thing, that way when you go back to look at your model, hopefully you'll spot all the differences and know what needs to be changed. Weathering is a time consuming process not because of the distance we travel but because of the speed at which we must travel. If you've finished and don't like what you've done, don't keep going, trying to do more to improve it. Clean the model back to where you started and follow the same path much more slowly, looking to achieve less pronounced changes with every little step.

Many people might think that the work ends there, and for too many people it does, a single model painted and weathered in isolation. However, it always pays to think about how you intend using the model, or where you are going to display it, as well as how it is going to be lit. No matter how well finished a model, to be seen at it's best it needs to compliment it's surroundings, and it's surroundings need to compliment it. All too often a model which looked beautiful at home displayed in a diorama or setting you have produced to house it, can clash horribly if taken to a club to display or operate in a model environment created by others. Right from the start we need to think about whether we are weathering a model to match the lighting and colour palette of an existing display or collection of models. Or if this is to be something different where we give priority to working to a new set of standards and will therefore need to think about producing a new display to house it.



There's undoubtedly much more that I could, and probably should have written about, but you could fill a thousand pages and barely have scratched the surface of this vast topic. For that reason I will leave it at what I have written. For when all is said and done the techniques of manipulating, applying and removing paints and pigments are not really what weathering is about, nor are they the difficult part of the process. Weathering is about a familiarity with, and understanding of how different materials are affected by different environmental conditions, and how, with time and use, they mellow and settle into their surroundings. So if weathering is about replicating the way real objects age, then we must first concentrate upon studying real objects.

