

An introduction to **WEATHERING TECHNIQUES** for garden railways

Part 1: Prototypical weathering and using chalks

by Alan Olson | Arvada, Colorado | Photos by the author



A GARDEN RAILWAYS
PROJECT
BEGINNER

This flatcar was built up from a Phil's Narrow Gauge kit, with a diecast Allis-Chalmers dozer added for the load. Both pieces were weathered with many of the techniques described in this series.

Garden
RAILWAYS
MAGAZINE

© 2012 Kalmbach Publishing Co. This material may not be reproduced in any form without permission from the publisher. www.GardenRailways.com

Why weather a model? Why would anyone want to cover up that shiny, beautiful paint scheme on expensive new locomotive or piece of rolling stock? For me, it is simply a matter of taste. And, just for the record, some of my closest friends are people who don't add weathering to anything; I have even abstained from dusting up my streamlined diesels and I would shudder to think that someone would add weathering to any tinplate model.

Weathering has its place in our hobby. It can bring a model to life and help portray what railroading is actually like. When done correctly, it adds a level of realism and a sense that hard work has been performed. Weathering can turn a well-done model into something that looks like it has seen a life of hard service in the real world—and perhaps give it a bit of a soul.

During my years as a model builder, some techniques have become favorites and I continue to try many more. This article will not attempt cover all of these, as there are literally hundreds, and more are discovered on a regular basis. Who knows—you may come up with a new way to simulate weathering as you are working on one of your own projects.

How real weathering happens

Weathering can and does occur quickly. For example, when D&RGW locomotive N° 346 was rebuilt and put back into service at the Colorado Railroad Museum, it was spotless. It had gleaming paint, shiny surfaces, clean windows, and white lettering. However, after operating for a two-day event, its appearance had



1. The door-locking mechanism on an all steel, plug-door boxcar shows the effects of moisture.

changed dramatically. This almost-over-night change came about because of all of the exposed parts a steam locomotive has that require lubrication, ranging from heavy grease to oils of different types. Since N° 346 burns coal, it is surrounded by dust, soot, and cinders. Add in exposure to harsh sunlight and rain or snow, and you can understand why a clean-look-

because of financial concerns, as was the Rio Grande Southern, so some of their equipment saw heavy, long-term usage.

Things to think about

There are a few things to remember when you start that weathering project, and they are common to everything that is exposed to the elements. You will notice gravity

“ WEATHERING can turn a well-done model into something that looks like it has seen A LIFE OF HARD SERVICE in the real world – and perhaps give it a bit of a SOUL. ”

ing engine might not stay that way long.

This is not to imply that all locomotives are or were operated with heavy weathering. Many mainline locomotives, such as the New York Central's streamlined Hudsons and the passenger consists they pulled, were cleaned on a regular basis because these trains were the pride of the fleet.

On prototype railroads, it is rare to see all locomotives and rolling stock showing the same amount of wear and tear. Many railroads have rebuilding programs, so it is not uncommon to see freshly painted locomotives or cars in a train with units of the same class in need of repair. The 3000-series of D&RGW narrow-gauge boxcars is a good example of this. Some railways are forced to defer maintenance

also plays a big part. If a car is made from several different materials, your weathering project may require that each be treated with a different method. Liquids tend to flow downward but they can also wick up, as in the case of porous materials like wood, or they may get flung around by moving parts while the train is in motion.

Rust usually occurs when metal is exposed directly to moisture, which is most often caused by peeling paint or when the paint has worn through from use. The door-locking mechanism of an all steel, plug-door boxcar is a good example of this (photo 1). When paint peels off of a wood surface, an area of gray-colored wood with extremely pronounced grain is usually evident, as seen in the photo of D&RGW boxcar #3670 (photo 2).



2. Wood that has been exposed to the elements for long periods usually has a gray color and a pronounced grain due to peeling paint.

Sunlight and humidity can effect how quickly paint fades due to oxidation. Other things to consider are exposure to chemicals and location of use, such as proximity to a mine producing iron ore or an ocean with its corrosive salt atmosphere.

Another common effect of exposure to the elements is that individual details become clearer. Individual boards on wooden structures or pieces of rolling stock start to stand out. Edges of seams on an all-metal boxcar or the various components that make up a passenger-car truck become more apparent.

It is always best to try to find examples of the kind of weathering that you want to do. Photograph and study these examples, then choose some of the following techniques to achieve the desired results.

A word of caution: I have observed that a little weathering can go a long way toward giving a model a more realistic appearance—more is not always better. A common mistake made by modelers just starting out is to overdo it by applying heavy coats of washes, chinks, or stains. We have all seen examples of well-intentioned weathering projects gone bad. Extreme weathering on prototypes that are still in operation is fairly rare and can be a sign that the owner's finances are in dire straits.

I'd like to mention here that I use many different techniques to weather my models and I don't recommend that you use only one type. I suggest using chinks for first-time projects because they are forgiving. Experimentation with other

methods will give you a good chance to find out what works best for you.

Getting started

I recommend that you pick up an inexpensive piece of plastic rolling stock at a sale or swap meet to practice on. This could be any kind of car but the easiest to attempt will be a boxcar, which will give you two sides with large flat areas to work on. Whatever the test subject is, it should be something expendable because you will likely make mistakes along the way.

Make sure that all surfaces are clean, free of oil and dust. Usually a good washing with warm, soapy water and a thorough drying will suffice for this step.

To demonstrate an entry-level project,

I'll use a Delton outside-braced hopper car (photo 3). It is obviously not as simple a car to work on as a boxcar but it will show you how easy-to-do weathering can help bring out detail and give the impression of hard use to even a complicated car.

It has been my experience that if you plan to weather several cars of a particular type or class, it will be easier to do them all at once. Sometimes it is difficult to match the color, intensity, or even the technique on a new piece that needs to match one previously weathered.

The easiest way to start weathering is to give the project an overall coat of a dulling spray or clear wash to simulate slightly oxidized paint. When the dulling paint is applied, it reduces highlights that interfere with shadows. Shadows actually add definition to the different surfaces on a model and the result is that more detail becomes apparent.

For spraying, I use Testors Dullcote or Krylon's Clear Flat. Both are solvent based and should be tested on a scrap or in a hidden place on the model to make sure that they are compatible with the material that you are working on. Mask any areas you don't want sprayed, such as windows, to avoid overspray. This should be considered a non-reversible step and be done only with good ventilation. (I have discovered that an application of Dullcote is somewhat reversible—more on that later.) As with any spray paint, use light applications to avoid runs.

If you don't want to spray a solvent-based coating, Badger's #16-457 Dull



3. The shiny new paint on this Delton hopper car can be dulled by using spray or brush application of a dulling finish.

Coat is a water-based acrylic paint that can be brushed on or applied with an air-brush to leave a nice flat finish. I use a ½" wide, flat, chisel brush for most applications of this product.

Chalks

Using chalks or soft pastels is perhaps the easiest and quickest way to make a significant change in the appearance of your project. As long as you do not seal your chalk work with a flat coat, you can just wash it off with a soft brush and soapy water. This way, you can experiment with several different colors of chalk to get a feel for the results.

Chalks used to be available only in stick form and were found most often at art-supply stores. If you wanted to do an overall application, you would need to make your own chalk powder by scraping the stick with a knife edge, or by rubbing it on some 180-grit sandpaper or 320 grit, wet-and-dry paper (photo 4). This is not to imply that chalk sticks are not still useful for weathering. They have a definite purpose, which I'll discuss later.

When using sticks to make your own powder, start with black, white, and several earth tones, such as yellow ochre, red oxide, raw sienna, and burnt umber. Most grays that we most often use are not just a mixture of black and white; they also contain at least one brown earth tone and are referred to as "warm grays."

There are now many chalk weathering sets available, both in stick and powder form. These come in a wide variety of col-



4. Chalk powders can be made from chalk sticks rubbed on 320-grit wet-and-dry sandpaper, or bought ready to use from hobby shops.

ors and, when using them in powder form, can be mixed just like paints.

Use a small, resealable container to store your custom-color mix. As you gain experience, you will also be able to mix the colors right on the piece that you are weathering. I always do my chalk work over a piece of newspaper. This will catch any chalk that does not adhere to the model and, when you are finished, you can pour the excess back into the container for reuse later.

When you decide that it is time to seal the chalk work with a flat spray, you may notice that the chalk seems to "disappear." This is because some flat sprays, such as Dullcote, actually absorb the dust. Don't



5. After first coating the trucks with chalk powder, the author then applied the powder to the body of the hopper car.

panic! Just reapply the chalk and spray again. You can do this as many times as is necessary to get the required intensity.

I use mostly flat brushes to apply chalk dust. These range from ⅛" wide for individual details, up to 1" wide for overall applications. Once you start using a brush for chalks, though, it will not be much good for anything else.

Weathering the hopper

On the prototype of our hopper car, the trucks and underbody likely became the first areas to show that the elements and usage were starting to affect their appearance. A good way to replicate this is to simply brush on a warm-gray chalk



6. A comparison between a stock hopper sprayed with Dullcote and one that has been weathered with chalk. The various details of the weathered car have become much more noticeable and it looks like the car has seen some hard service in the real world.



7. This car was built from a kit. When finished, it was given a coat of red-oxide primer and weathered entirely with the selection of chalk pencils shown beside it.



8. A white chalk pencil is used to make it appear that pigment from the fading lettering has washed down the car side.

powder over the sideframes, wheels, and couplers, and follow the procedure mentioned above. You can easily remove the chalk and coating from the wheel treads and flanges with a cotton swab and some rubbing alcohol.

Another option is to cut masking tape into 1/8"-wide strips and wrap them around the treads and flange surfaces. Also, remember that most of our locomotives and some rolling stock pick up current from the wheel backs, so be careful

to avoid dusting up those areas.

Usually a simple overall coating of flat finish and a dusting of the trucks will make a subtle but noticeable difference in the appearance of any piece of rolling stock. To show further damage from exposure and hard use, you can give the entire car a dusting of chalk (photo 5). Work the chalk dust into all of the various surfaces, including interior details, and seal with Dullcote.

These steps can be taken as far as you

want. For example, photo 6 shows a car with a just a single, clear dulling treatment behind a car with three successive chalk and flat-spray applications. There is quite a difference. The various details become clear, easier to see, and the car is much more interesting.

This brings us to chalk pencils, which are also useful, especially in tight spaces. When you buy colored pencils, make sure that you get the dry chalk version, not ones that contain wax or oil. I generally use Conté brand pastel pencils or Stabilo's CarbOthello brand. If you are not sure about what you have, test them. They should have the same feel, work onto the surface, and blend exactly like chalk powder or sticks.

Chalk pencils can be used for such things as coloring individual boards on building siding, tight-space trim work, or to represent stained areas. If you want to imply the discoloration of individual boards on a car side, get several close shades of the main color of the siding—some lighter and some darker—and apply these in a random fashion, using vertical strokes to start with. Color each board individually with one or two colors. The car in photo 7 was given a coat of red-oxide primer before weathering, and it was weathered using only chalk pencils.

Perhaps you have white lettering on a car side and would like to show that the paint has bled down a bit. You will want the bleed to occur only directly under the individual letters. A white chalk pencil works very well to create this look (photo 8). With light pressure, simply draw down from the bottom of the letter a short distance, then use your finger or a cotton swab to smooth the chalk into the car surface with downward strokes. Of course, you can use chalk pencils for different colors of lettering and black or red oxide can be used around hardware.

Next time I'll finish up discussing the use of chalk and talk about some non-paint-weathering techniques. ▾

Online Extra

For subscribers: Download a bonus article on simple weathering techniques for rolling stock, originally published in the December 2006 issue. Click on "Construction & Landscaping" under "How to."