

# MODELER'S CLINIC A BRIEF LOOK AT WATER ELEMENTS FOR MODEL RAILROADERS.

By Fred Alsop

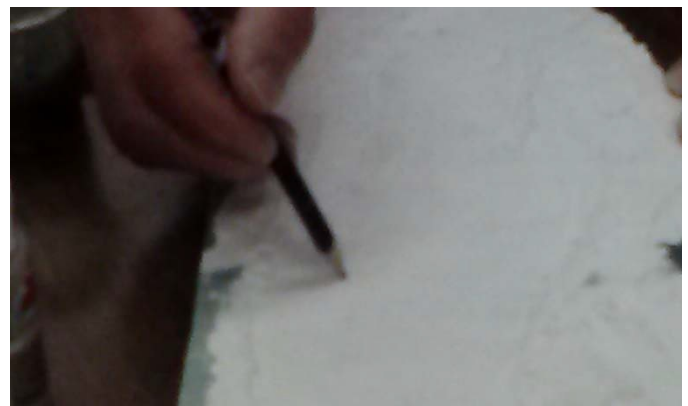
Photos courtesy of Fred Alsop & Ted Bleck-Doran



[Editor's Note: Fred initially thought of titling this article "WATER COLUMN" - but thought better of it.)



The Pond Base consists of a foam insulation board base that has been carved and covered with Sculptamold plaster



The Meandering Stream sample



Three samples of water effects - Ponds, Mountain Stream, and Meandering Stream



Here's the Mountain Stream based which has also made from insulation board layered, shaped and covered with plaster - note Fred has incorporated several small rock castings into the slope of the hillside

Every model railroader who is working with scenery for his layout will at some point decide that a little water is needed on it. Water effects can range from wet puddles in the roadway, to ponds and lakes or bays, to flowing water in small streams and big rivers. The steps on how to get there are basically the same and there are many articles in model railroad magazines, scenery books, sites on the web, and videos on disks that will all give you great information on how to get started and how to proceed to the creation of that last drop of "water".

I began working with scenery modeled water with my first club module and found that with modern products the process is not so difficult and the results can be very pleasing. And, like so much of the model scenery we create, if the finished product does not suit you, it can always be redone, often with improved results just from the practice and experience you gained from making the first one.



EnviroTex hardener and resin used to make the "water"

There are lots of good products on the market from a variety of manufacturers and most of them give very good results. I will tell you how I do most of my "water" elements for my own modules and for some of those belonging to club members as well as some that I am creating for our Tweetsie Project that has small mountain streams, creeks and ponds, the middle sections of the Doe River as well as some of its larger and deeper sections as it reaches the Hampton area of the layout.



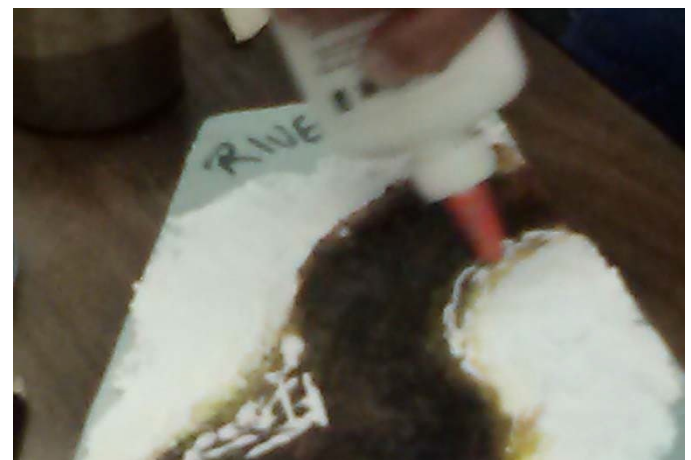
Fred has marked the shallowest portion of the meandering stream using Yellow Ocre paint taking care to have the depth conform with that in nature – shallowest where the water is the slowest and drops the sediment it carries

Like other facets of our modeling the world in miniature, it pays dividends to study the subject before trying to emulate it. Look at photos of water in books, magazines, on calendars and in the photos you take. This is especially important if the subjects are similar to those you wish to build on your layout or diorama.



With the water's flow in mind Fred uses increasingly dark colors to simulate increasing depth in the streambed – one does not have to be exacting – nature certainly isn't

Learn and study what happens when a stream drops and creates cascades, waterfalls, rapids, pools, riffles, and the runs of the stream in between these features. When a river curves what physical geological effects are created? In a curve in a stream the water is running much faster in the outside of the curve than it is traveling in the inside of the bend. Imagine marching in a band with every row straight across and the band comes to a corner that requires the rows of marchers to maintain that perfect row as they negotiate the turn. The outside marchers have to go at a rapid step while the band members on the inside of the row must slow to almost stepping in place.



The shallow portions will receive some rock and debris for detail – to accent how the stream has deposited rock, silt, and logs during high water and flood stage periods.

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There is a lot of force on the outside of the bend of a stream and the water is carrying a lot of sediment and objects along with it while it eats out at the banks of that section and scours away at the stream bottom.



Fred spreads the full strength white glue or scenery cement in the shoal area of the stream in preparation for adding the deposited rocks

Nothing is being deposited in the outside curve of the stream bend, but the inside of the curve has water that is moving so slowly that sediments are dropping out with the result that this side of the stream is getting shallower and gravel and mud bars are being constructed. Make your stream look more natural by putting the deep water and the shallow bars where they would naturally occur and you go a long way towards creating the effect you want.



A piece of cardstock or paper folded in a "V" is used to spread the rocks – start with the finest grains and work up to larger rocks – and finally to tree limbs and other highlights



Tube or bottled acrylic paints are used throughout the project – colors include earth tones (Yellow Ochre, Raw and Burnt Siena, Raw and Burnt Umber, Payne's Grey, Titanium White, and Forest Green)

Begin your project by selecting the location of the water element you plan to create. Small bodies of water can be as effective as larger ones, so size here does not matter as much as the illusion you seek to create. The products I like to use need a sealed surface to support them and my favorite is a product called EnviroTex Lite manufactured by Environmental Technologies, Inc. This is a two-part liquid product that has one container of resin and one equal-sized container of hardener. It is used by mixing it in equal parts and pouring and spreading it on the surface of your pond or stream to create the glossy water look. But, that is one of the last steps as first we have to prepare the surface. Most surfaces will take EnviroTex, but not foam board without some sealer on it as the resin product will eat it away. You will have to paint the surface of the foam board, or put some plaster in some form over it, i.e., sculptamold, plaster, hydrocal, etc.,



Pour equal amounts of resin & hardener into a plastic, glass or waxed paper container (not Styrofoam) and mix for 2 minutes

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Make sure there are no holes in the pond/stream bed or the poured EnviroTex will find it and flow with gravity through it covering whatever is beneath. If you are building a water element that ends at the end of your module you will have to create a dam to hold your newly poured "water" back until it has a chance to thicken and harden, a process that make take several hours (the mix is completely dry at room temperature in about 24 hours; read the instruction sheet in the box). I have found a material that works perfectly for me and that dries clear, a perfect see-through dam, in using silicone for this. Get the kind that dries clear and just squeeze on a little wall of it at the end of the water element-to-be and let it dry before you make your pour.

You will achieve the illusion of depth of your water not with the thickness of your resin mix pour, for it will be only 1/16 to 1/8 of an inch thick, but with the tones and hues of the paint you use to cover the water element's bottom. Two colors in your paint box are almost never to be used; black and blue as they are almost never found in natural water. Water surface color often is a reflection of what surrounds it, but more importantly, what is beneath it. If the water is to be represented by clear water as in a mountain stream, the rocky substrate on the stream bed may be what shows through. Water that is deeper and carrying sediments may not be clear, but more translucent or even murky with its turbidity.



Here Fred is creating the illusion of depth in in a pond. He will use darker colors to simulate the deepest portion of the pond



Fred uses a broad flat head brush to apply the paint to the bottom of the pond.

I like to use a lot of earth colors; tans, raw umber, burnt umber, raw sienna, burnt sienna, various greens from light to dark, and for the deeper, darker water; Payne's gray. My favorite paints are acrylics. Acrylics are water soluble when they are fresh and can be thinned with water; but when dry they are water insoluble. Clean up of the brushes is easy with soap and water.



The "mountain stream" w/o water poured



The pond is now ready for the pouring of the "water" - notice the green "algae" highlights



The "pond" and "river" without the water

Use the lighter earth tones to simulate the shallows of the pond or stream with the lightest hues edging out from the shoreline graduating into darker hues and finely into the greens and dark grays of the depths. Blend the colors as you paint the pond or stream bed so that there are no sharp lines. Move the painted strokes to follow the contours of the banks and the shallow peninsulas or islands that may protrude from your water scene. The flowing lines of the blended paint will help you achieve the look you want of the underwater pathways that have been carved by the movements of the "water".

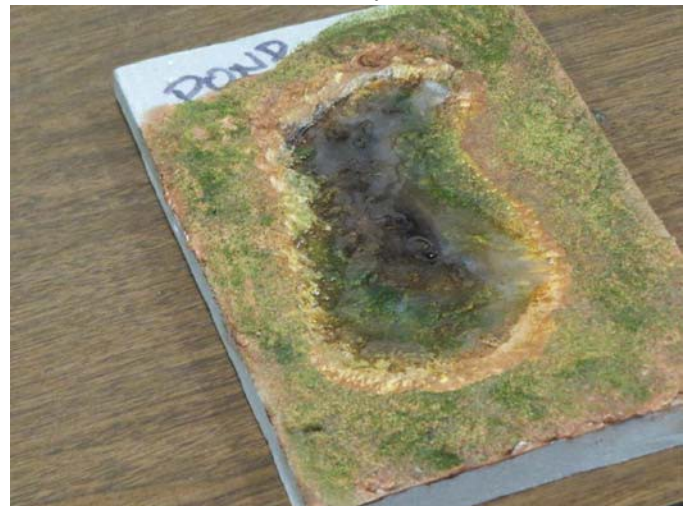


Bubbles are removed by blowing through a straw directed towards the water and held just above it. The carbon dioxide in your breath removes the tiny bubbles.



When poured and spread into the prepared model basin the mixture will look frothy with tiny bubbles in it.

If you want to place objects into the water, in the shallows, on the stream or pond bed, do so after you have finished with you painting of the water element's bottom and after the



The pond pour after the bubbles have been removed. The work needs to be set aside for approximately 24 hours for the "water" to harden.

Following the mixing directions with the product mix it thoroughly (a full 2 minutes for EnviroTex Lite) in any container that is not Styrofoam, and then pour it onto your prepared surface. Make sure the pour is thin, not more than 1/8 inch deep, and spread it evenly over the entire surface of the water scene using a toothpick, small stick or paint brush handle. If you find you did not mix up enough resin-mix you can make up more and continue where you left off with the first batch and the finished pieces will blend together seamlessly. As this mixture dries it has the

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tendency to creep up the sides of everything it comes into contact with just a little. After everything has dried if these glossy areas are not the look you want you can "erase" them by taking a small brush and using clear, dullcoat paints, just paint over them and they will lose their bright wet look when the dull paint dries.



The pour into the "river" is done in a similar fashion without attempting to cover the entire area. The enviroTex will be spread evenly using a toothpick or small brush handle.



Spreading the "water"

Moving water often does not have the flat finished surface that EnviroTex will produce. Woodland Scenics makes a product called "Water Effects" that you can spread on areas of your smooth water to give it some texture and relief. It goes on white and opaque, but dries clear. You can shape it into ripples around rocks and logs, create wakes for boats or swimming waterfowl, or just currents in the stream. For higher water drops such as cascades and water falls it is best used with other materials. We may cover these special water effects in a later workshop and article.



Use Scotch brand magic tape to make "water" cascades for the mountain stream. Cut off small pieces and ball/mash into rounded shapes and place beneath fall areas to represent swirling water.



Placing formed tape in place beneath rapid



Stream bed with small pieces of wadded up magic tape in place beneath the falls in the dark areas on the model.



Pouring the mountain stream "water"

For now, check out some of the water elements that have been created on the various layouts in the Carter Railroad Museum to see how they appear and think about creating your own. It is really not very difficult and I will be happy to discuss my techniques with you any time. Just ask and we can test the waters together.



Spreading the envirotex to make the stream "water" consistently spaced along the streambed