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JULY 2004

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Special Tutorial
on RENDERING!
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Tools Needed: Carrara Studio (any version),
DIVX Codec



Butterfly embossed

Decals 2

Bite Marks, Fossils, and Beyond!

Claudia Coles

In last month's issue, we explored how to create decal shaders for our Carrara objects. However, the methods used are not limited to just making decal shaders. A variety of other shaders can be created when applying these steps in different ways. This tutorial will explore these other approaches in which decal shaders can be used to create cool shader effects for your Carrara objects and models.

Also, since the basics of creating a decal shader were covered in last month's issue of 3dXtract, I will be mainly referring to the Quick Steps references in this tutorial, along with some modified instructions. I also advise any reader who has not completed last month's tutorial, to do so before continuing with the following exercises.

Now let's proceed to create a new effect using the decal shader.

Ouch, Bite Marks!

In the Assembly Room:

1. Go to File > New.
2. Then, Insert > Cylinder. Elongate and resize the cylinder to resemble a pencil.
3. With the cylinder highlighted, enter the Texture Room (paintbrush icon).
4. Go to Multi Channel > Color and select a color that best resembles a pencil. You can also adjust the Shininess and Highlight values to your liking.
5. Select the Polygon Layer tool (third button from the left beneath the main menu). Draw on the cylinder object's surface an irregular polygon shape in the Preview: Shader Window. (Figure 1)

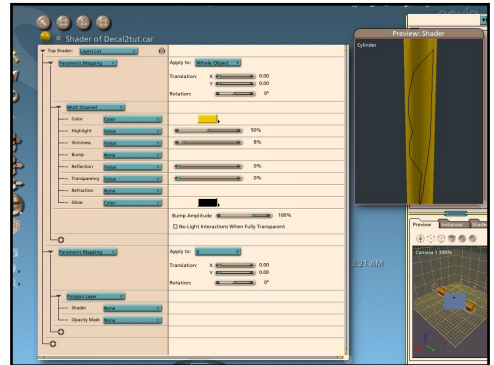


Figure 1.

6. In the Polygon Layer > Shader > Multi Channel.
7. Afterwards, HIGHLIGHT the Polygon Layer Channel and along with the CTRL/OPTION key, DRAG the Polygon Layer ON TOP of Opacity Mask Channel. (Caveat: Polygon Layer dimensions are only visible when channel is collapsed)
8. In the Opacity Mask Channel ("Polygon Layer") > Shader ("Multi Channel") > Color > Color > 100 % White.

9. Go back up to the original Polygon Layer > Shader ("Multi Channel") > Bump > Smart Pack > Turbulence >

Settings:

a. **Brightness = 775**

b. **Limits = 17-100%**

c. **Threshold = n/a**

d. **Seed = 16000**

e. **Octaves = 6**

f. **Global scale = 100%**

g. **Space = local**

h. **Scale x, y, z = 100%**

10. Set Bump Amplitude slider to -250 to create an indentation. (A positive numeral creates a relief effect). (Figure 2)

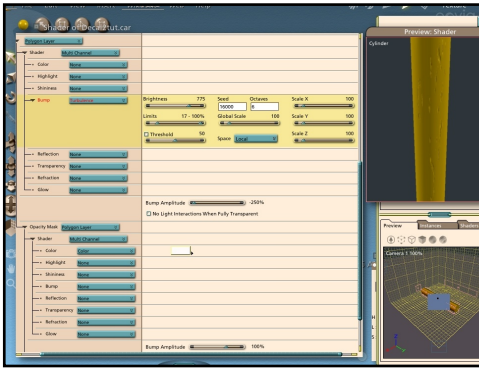


Figure 2.

Please note: I would just like to mention at this point that if you need to move your Polygon Layer (or any parametric component) along the face of an object or model, simply adjust the values of the X and Y Translation sliders within the Parametric Mapping Channel. You can also rotate your Polygon Layer by using the Rotation slider. This can come in handy when you need to adjust the position of your decal, layer component, or other parametrically mapped components after they have been created.

So what have you done so far? Well, you've just created "bite marks" on your pencil model. Bite marks, as well as scratch, dent, and scuff marks, are one

of the simplest effects to create using a decal shader. By using the Polygon Layer tool, you created a non-uniform boundary for your bite marks. Then, by placing a Carrara function such as Turbulence in the Bump Channel, you created irregularities that resemble natural markings. The color of 100% white is placed in the Opacity Mask Color Channel to generally set the Bump Channel in the Polygon Layer to "ON". However, it is important to note that the Opacity Mask itself may not be needed (that is, it can be set to "none") for certain 2D and 3D shader functions, but setting up the Opacity Mask's Color Channel to 100% white it is a good habit to get into when you are experimenting with your Bump Channel effects. It can be used as a "substitute" matte when browsing through texture maps, for example. Then when you find the texture map you like, you can create a separate b+w matte for it in a 2D paint program and use that. In this case, the 100% white activates (or turns "ON") the Rect Layer and prompts its Bump Channel to recognize any value above "0%" to be seen as a raised surface in its respective degrees and any value at "0%" to be seen as flat. By the way, in the Bump Channel, Carrara automatically converts 2D and 3D shader functions and texture maps into greyscale equivalents where "colors" range from black to white at value percentages of 0% through 100%, respectively.

Before we venture further, it is also important to note that light source placement plays an important role when using the Bump Channel to create effects. A light source set at an angle to your object will show your bump texture more clearly than a light source set directly in front of an object, or with the use of Global Illumination. Also, I would like to point out that texture maps used in the Bump Channel of shaders utilizing certain mapping mode,

such as Flat Mapping, do not always show up as “pronounced” as if a Carrara 2D or 3D function were used. Therefore, you may have to add a little more “punch” to the texture maps either by increasing the white value found in the texture map or increasing the value of the Bump Amplitude Slider in either a negative or positive direction.

Now, render your model and you should see pencil bite marks on your cylinder object.

11. CTRL/CMD + R (Figure 3)

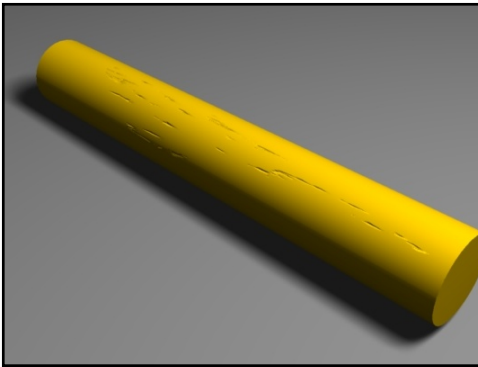


Figure 3.

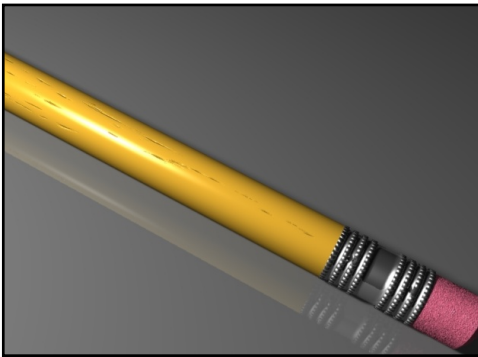


Figure 4.

And here it is applied to an actual pencil model. (Figure 4) Boy, that pencil sure seems to have seen many hours!

For certain effects, you may want to use other functions in the Bump Channel. Sometimes the pattern functions Julia or Mandelbrot Set may just be the type

of bump you are looking for. But BEWARE! Because you are using a layer component, some of these functions may visibly take on the dimensional or outlined shape of that component (such as showing a rectangled edge when using a Rect Layer component) So proceed with caution and choose your functions wisely.

Fossils Anyone?

Have you ever wanted to create an object that looked as though it was engraved in stone? Or how about a fossil? Well, this is just one of the cool effects you can create using a decal shader setup as your base.

First, in the Assembly Room, go ahead and create a cube in the shape of a stone slab.

Then, in the Texture Room, use whatever color you desire for it, but if you have a stone-like texture map available (such as this one: “Concrete”



100)1516.JPG

(file name: 100_1516.JPG located in the downloads file), apply that to the Color Channel as a Texture Map. If you desire, you can CTRL/OPTION + DRAG the Texture Map from the Color Channel onto the Bump Channel in order to copy it to create a bump map for your stone texture. Just make sure that the Bump Amplitude for your stone texture is not too high; 30% is a reasonable number.

Next, setup a decal shader for your slab, as outlined in the previous “Ouch, Bite Marks!” exercise, however, use the Rectangle Layer Tool to create your layer boundaries on your slab object’s surface instead of the Polygon Layer Tool. (Figure 5a)

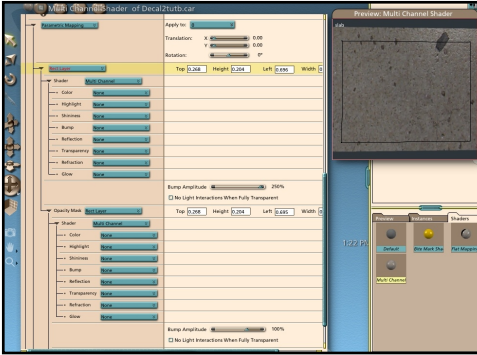


Figure 5a.

Afterwards, look for an image that you would like to see as a fossil. And please note, this image should be surrounded by 0% black to ensure clean edges around your image. In this case we will choose a butterfly (butterfly.jpg located in the downloads file).

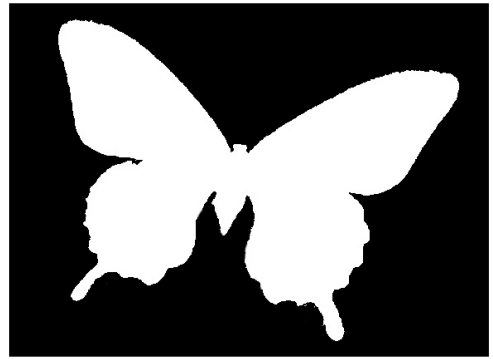


Butterfly

Now, place this image map in the Bump Channel of the Rect Layer Multi Channel, leaving all other channels blank.

Then, go down to the Opacity Mask's Multi Channel and instead of selecting 100% white in the Color Channel, use a b+w matte of your image. In this case,

we will be using the butterfly matte located in the downloads file.



Butterfly matte

Your shader tree should look something like this: (Figure 5b)

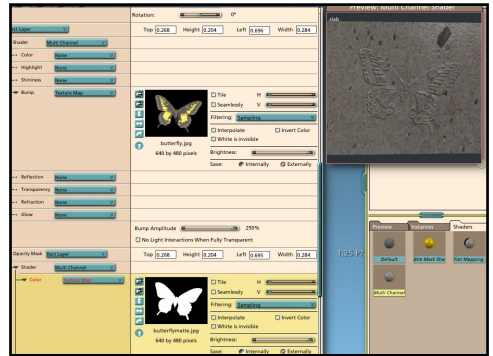


Figure 5b.

Now, go down to the Bump Amplitude slider and select either a positive or negative value over 100 for your bump effect. Remember, a negative value creates an indent, while a positive value creates a relief bump. The value of 250 or -250 seems to be ideal.

Now, go ahead and do a render and see your results.

Figure 6. Butterfly with +250 Bump Amplitude = Relief

Figure 7. Butterfly with -250 Bump Amplitude = Indentation



Figure 6.



Figure 7.

When using your own image map, you may find that you are not getting enough of the bump effect that you had hoped. To resolve this, you will most likely have to lighten up the darker values in your image in a 2D paint program to get the desired effect you want (this is what I had to do for the butterfly image). However, when you do, make sure that your black background remains at 0% black.

Beyond the Fossilized Layer!

Now, to create another effect using the "fossil shader", leave the Opacity Mask as is and go to the Rect Layer's Multi Channel and place one of the Natural Functions such as Cellular in the Bump Channel. Use the settings as follows:

- a. Intensity – 150**
- b. Shape = 4th from the top**
- c. Scale = 20%**
- d. Fractal (slower) = n/a**

e. Limits = 0 - 100%

f. Shuffle = n/a

Render and take a look at your results (Figure 8). Cool, huh? You now have a cellular pattern function that conforms to the shape of a butterfly.



Figure 8.

Try this next; use the Scanlines function found in Smart Pack. Use the horizontal setting at 40 lines. Now render. (Figure 9) Wow! Try some other functions on your own...you can create some really neat effects by using this technique.

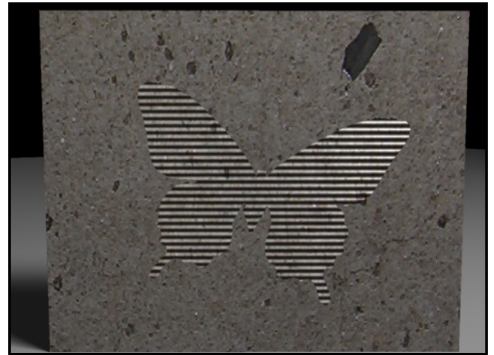


Figure 9.

Animation Awaits!

Now, try this on your own. Take an animated clip that has been produced on a 0% black background and apply it as a Texture Map in the Rect Layer's Bump Channel.

Next, place 100% white in the Opacity Mask's Color Channel.

Now, REMOVE any bump mapping in the slab texture's Multi Channel Bump Channel. This is done because currently, CS3 is not able to control two movie files at one time, so the ability to use a matching animated b+w matte in the Opacity Mask's Bump Channel which would allow for a truly transparent background effect, is for now, not available. So in order to not see the outline of the Rect Layer on the bumped surface of the slab object, all bump mapping information for the slab texture should be removed.

Now Render and watch your engravings and reliefs come to life! (Animated File located in downloads file).

So you thought decal shaders were just for creating decals. Well, applying the various techniques learned from this tutorial will allow you to create interesting shaders for your Carrara models which will help your 3D scenes and animated clips stand out from the crowd!

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Claudia's Decal Tutorial (Part 1) appeared in the June 2004 Issue of 3dXtract. Purchase back issues by visiting the download section on 3dXtract.com

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