Painting Shadow Textures with Jungle 3D™

Painting 2D tree textures is simple using Jungle 3D and Painter 5. With little effort, you can paint a tree that actually resembles a true 3D object. The only problem is the shadow. That's because the 2D-tree texture is mapped to a flat panel when used in 3D. The resulting shadow reflects the flat nature of the panel. That can be a real scene killer because the shadow may not make visual sense within the scene. This tutorial offers a simple and effective solution to the problem.

Two dimensional tree textures only cast accurate shadows when the sun or light source is low on the horizon and facing the panel. When the sun moves overhead, the flat nature of the tree texture is revealed. The resulting shadow depicts the thin line of the flat panel rather than the rounded volume of the tree. So in effect, you don't really need this tutorial if all your 3D scenes use early morning or late afternoon lighting. Your 3D program will cast the shadows for you. If you do sometimes use overhead lighting, you may find the tutorial helpful.

Using a shadow texture to depict the tree's volume is a simple solution to overhead lighting. All you need to do is paint a realistic tree shadow as it would look with the sun overhead. If you not sure what that kind of shadow looks like, go stand by a tree when sun is directly overhead. The shadow is largely circular characterizing the circumference of the tree.

Once the shadow texture is painted, you simply apply it to a duplicate terrain model and position it beneath your tree texture. The nice thing about using a duplicate terrain model is the shadow will follow the contour of the ground terrain. That can enhance the visual effect even further. Plus, the render hit is small.
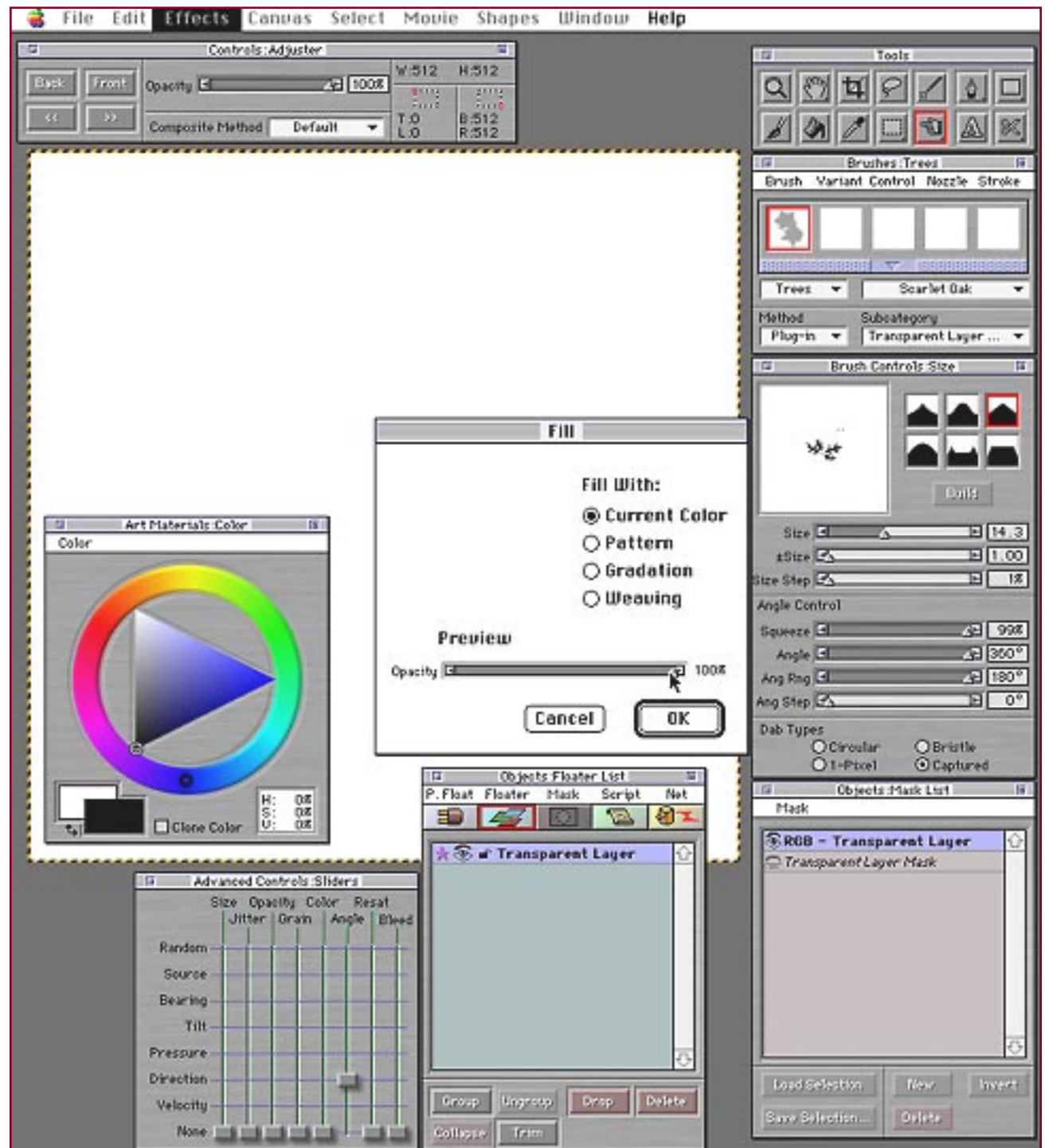
Jungle 3D comes with an ideal series of tools for painting these shadows. The "Tree" and 'Leaf" shadow brushes let you paint with leaf shadows that actually match your tree as do Shadow nozzles. With these brushes and nozzles you can quickly create a lifelike shadow that will made your 2D tree appear to have 3D volume.

Here's how. Copy the Tree Shadows brush or the Shadows nozzle library from the CD to your hard drive (or download the "Extras" folder). If you're using Windows, be sure to remove the "Read Only" setting on theProperties window if you copy the files from the CD. Launch Painter and...

1) Open a New file at 512 x 512 pixels.

2) Select the Load Library command on the brush palette by expanding the upper left brush "name" window.
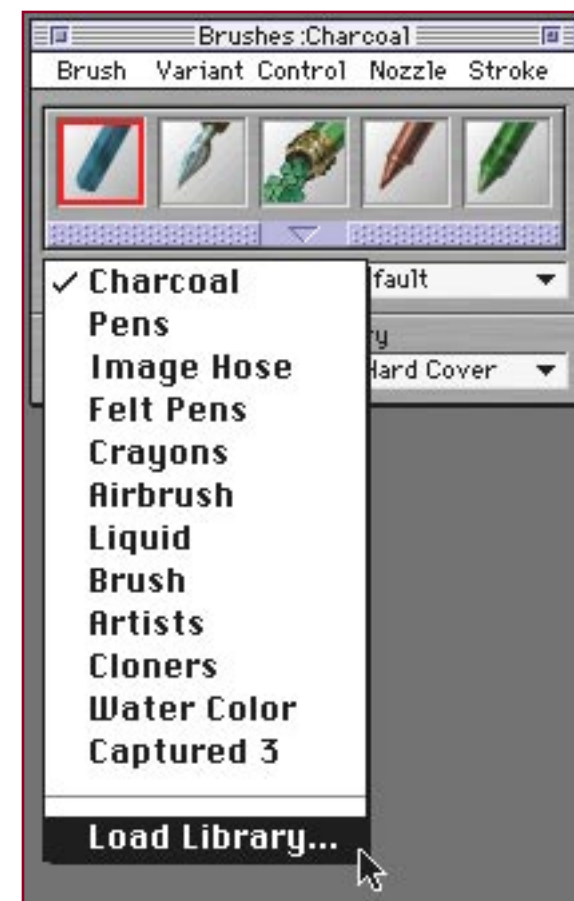
3) Open the Tree Shadows library from your hard drive and then select the Scarlet Oak brush.

4) Set-up the desktop to display the Brush palette. Cmd + 2 (Mac) or Cntrl + 2 (Windows) will display the Brush palette.

5) Use the Controls pull-down menu on the Brush palette to display the Brush Control: Size and Advanced Control: Slider palettes.

6) Display the Objects palette (Cmd or Cntrl + 4), then drag out the Floater and Mask palettes.

7) Add the Art Materials: Color palette (Cmd + 3 for Mac, Cntrl + 3 Windows) to your desktop display.

8) Finally, include the Controls and Tools palettes (Cmd or Cntrl + 5 for Controls, Cmd or Cntrl + 1 for Tools)

9) Okay, now select a Transparent Layer from the Floater pull-down menu.

10) Once you have a Transparent Layer, fill it with black (Cmd/Cntrl + F). Make sure you Fill With Current Color .

11) That's it, if your layout look similar to the picture at the right, you're ready to paint the tree shadow.

File   Edit   Effects   Canvas   Select   Movie   Shapes   Window   Help

Controls : Adjuster

Back   Front   Opacity ⬜ 100%   W :512   H :512

<<   >>   Composite Method   Default ▼   T :0   B :512   L :0   R :512

Tools

Brushes : Trees
Brush   Variant   Control   Nozzle   Stroke

Trees ▼   Scarlet Oak ▼
Method   Subcategory
Plug-in ▼   Transparent Layer ... ▼

Brush Controls Size

Build

Size ⬜ 14.3
±Size ⬜ 1.00
Size Step ⬜ 1%
Angle Control
Squeeze ⬜ 99%
Angle ⬜ 360°
Ang Rng ⬜ 180°
Ang Step ⬜ 0°
Dab Types
○ Circular   ○ Bristle
○ 1-Pixel   ⊙ Captured

Fill

Fill With:
⊙ Current Color
○ Pattern
○ Gradation
○ Weaving

Preview

Opacity ⬜ 100%

Cancel   OK

Art Materials : Color
Color

H :   0%
S :   0%
V :   0%
☐ Clone Color

Objects Floater List
P. Float   Floater   Mask   Script   Net

★ 👁 ⌨ Transparent Layer

Group   Ungroup   Drop   Delete
Collapse   Trim

Objects : Mask List
Mask

⊛ RGB – Transparent Layer
○ Transparent Layer Mask

Load Selection   New   Invert
Save Selection...   Delete

Advanced Controls : Sliders
Size   Opacity   Color   Reset
Jitter   Grain   Angle   Bleed
Random
Source
Bearing
Tilt
Pressure
Direction
Velocity
None

12) You want to paint on the Transparent Layer, so that means selecting the Plug-in brush. You make that selection on the Brushes palette under Method.

13) Since you're working with a 512 pixel texture map, you'll also want to adjust the size of the leaf brush to a smaller size. I set the size to 14.3.

14) Similarly, because you're making a texture map, you'll want the shadow to be a solid color so set the Controls: Brush palette, set Opacity to 100

15) Finally, set the Ang Rng slider to 180 on the Size palette. That allows the leaves to apply facing in all directions.

16) If you want to control the direction, move the Angle slider on the Sliders palette to Direction. That means the leaves orientation will be determined by the direction of your pen stroke.

17) Start painting by working from the center of the image. Make sure the Transparent Layer is active as shown at right.

18) Remember, it's the negative space (the gaps) that make the shadow work so be sparing. If the leaves apply to densely, adjust the Spacing and Placement sliders on the Controls: Brush palette.
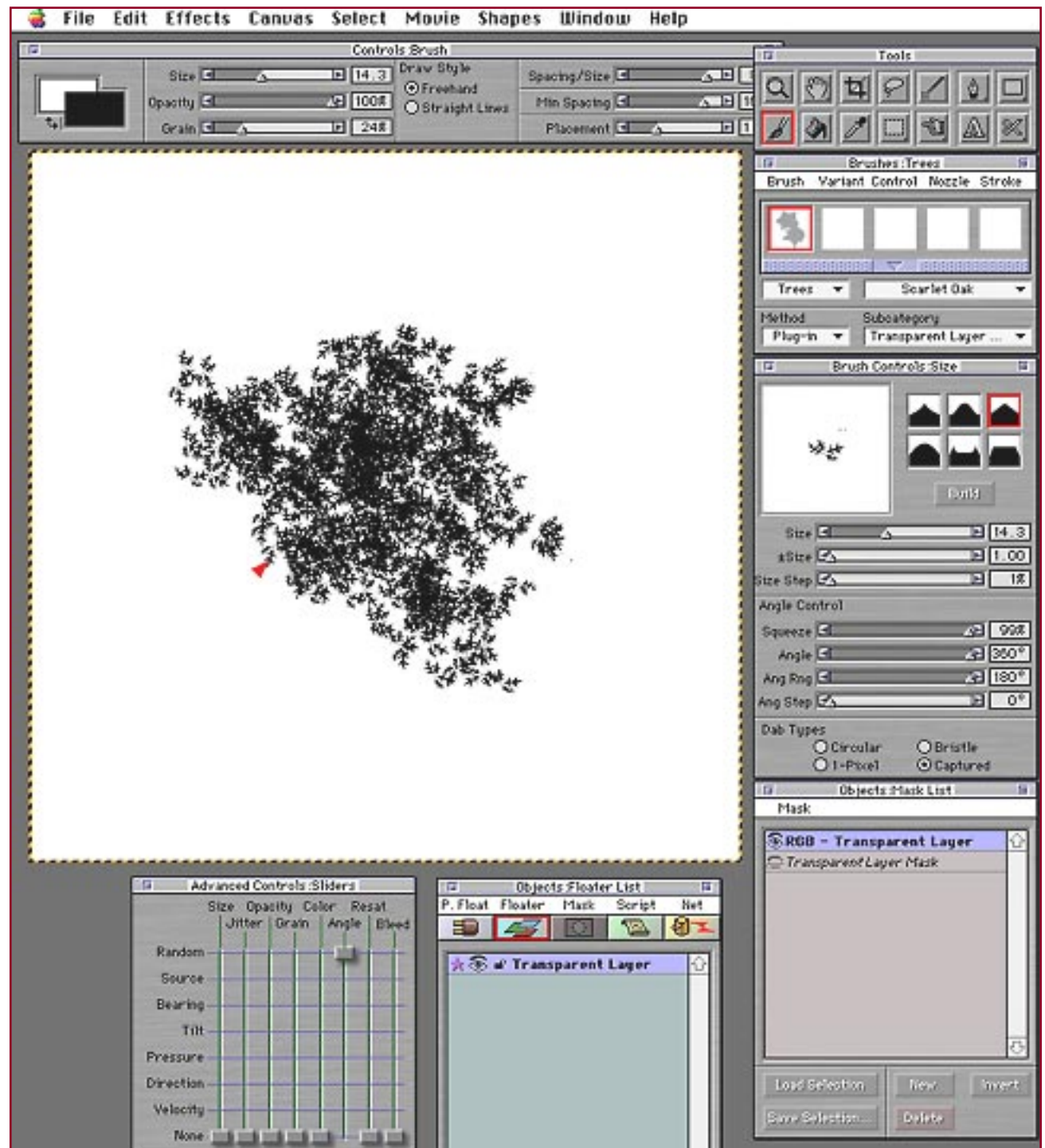
19) When you have the tree shadow you want, use the Trim button to crop the floater .

20) Because you're going to be using this "painting" as a texture map, it's best to have square dimensions. To get those, choose Floater Size from the Floater pull-down menu on the... you guessed it, Floater palette.

21) The Floater Size display tells you the dimensions. At right, the variance was only one so I added one pixel to the top of the layer thereby making it a square image of 366 x 366 pixels.

22) If the difference had been 10 pixels, I would have divided by 2 and added 5 pixels to the top and 5 to the bottom of the image. Get the picture? You want to center the shadow.

23) Once you've made the shadow layer a square, Copy the layer (Cmd + C for Mac or Cntrl + C for Windows).

24) Use the Paste: Into New Image command from the Edit pull-down window. That creates a new, flattened file from your floater. The image is defined by the layer mask.
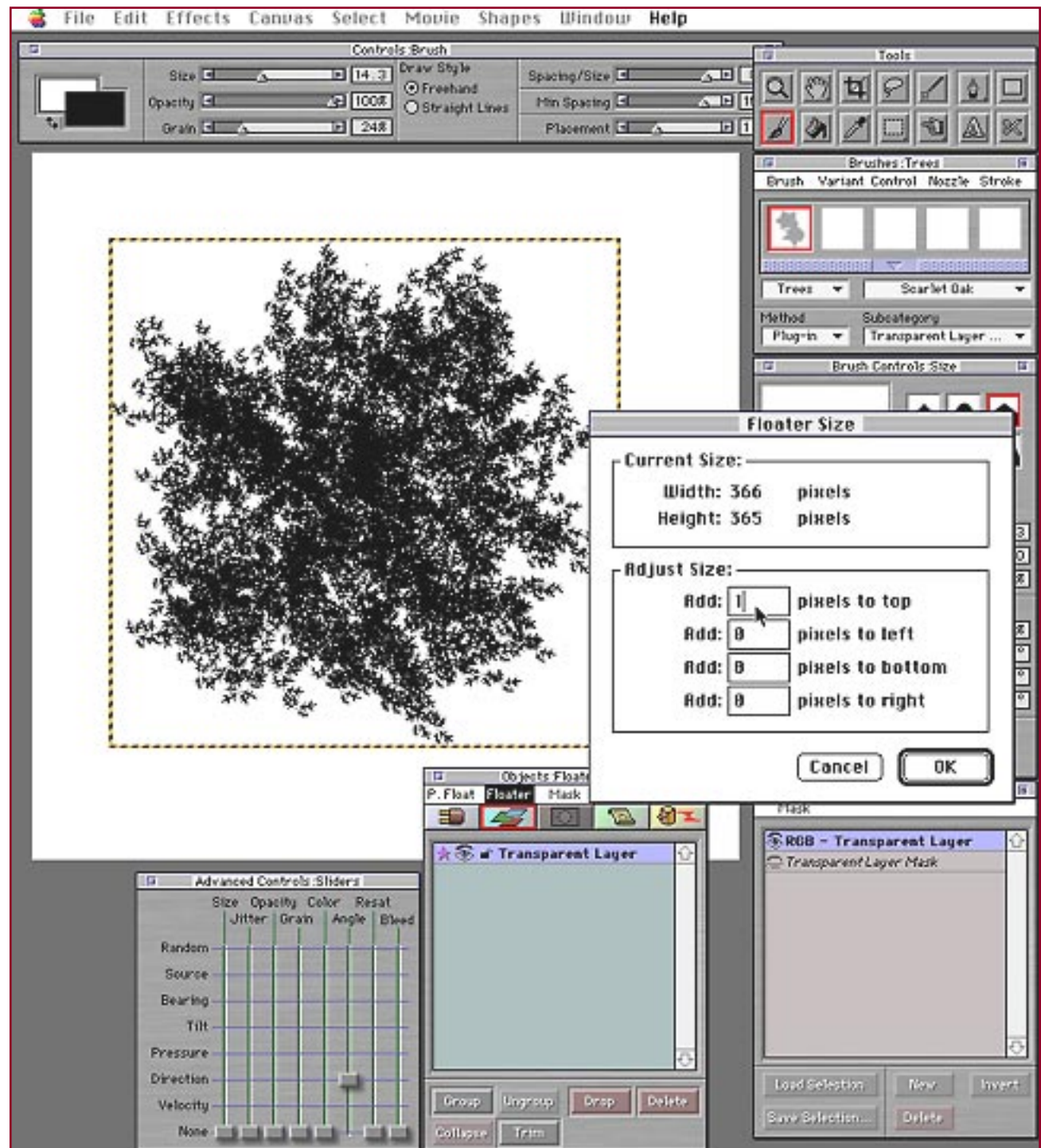
25) The result is a black filled square image. Don't worry, the mask is still there to define the shadow. What's more, the black insures you won't have a white halo around the shadow's edge when it maps as a texture.

26) At the bottom of the new image window is a little brown icon. It's seen above the cursor arrow in the image to the right. Click on that icon so that it expands.

27) Choose the brown circle icon at the far right. You can also use the Show Marquee command from the Select pull-down menu.

28) Now choose Save Selection on the Objects: Mask palette.

29) You're done. Name the file "shadow" and Save As a "pict" file if you're on a Mac or "tif" if you're running Windows.

30) Close Painter and launch Bryce (or the 3D application of your choice). You ready to apply the shadow as a texture map.
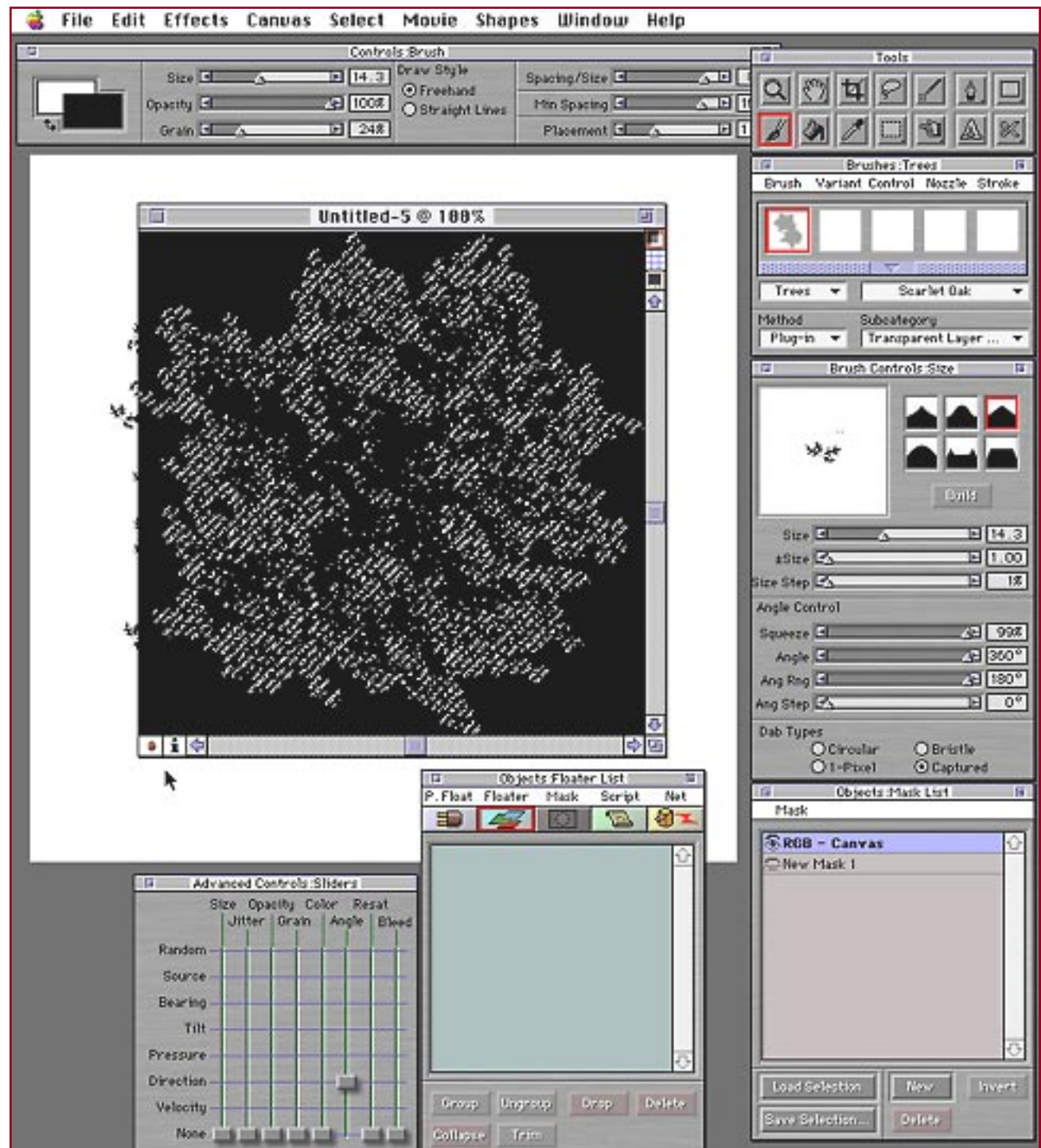
31) Create an Infinite: Ground or Terrain model if you don't already have a scene created.

32) Copy the ground or terrain and then Paste. This makes a duplicate of the ground model. It's the one you will use to map the tree shadow.

33) Select Object Attributes from the Objects pull-down menu and add 1/100th to the Y Offset number. This raises the terrain copy just slightly above the original.

34) Okay, now you have two terrains, one is just slightly higher than the other. You want to work on the "top" one.
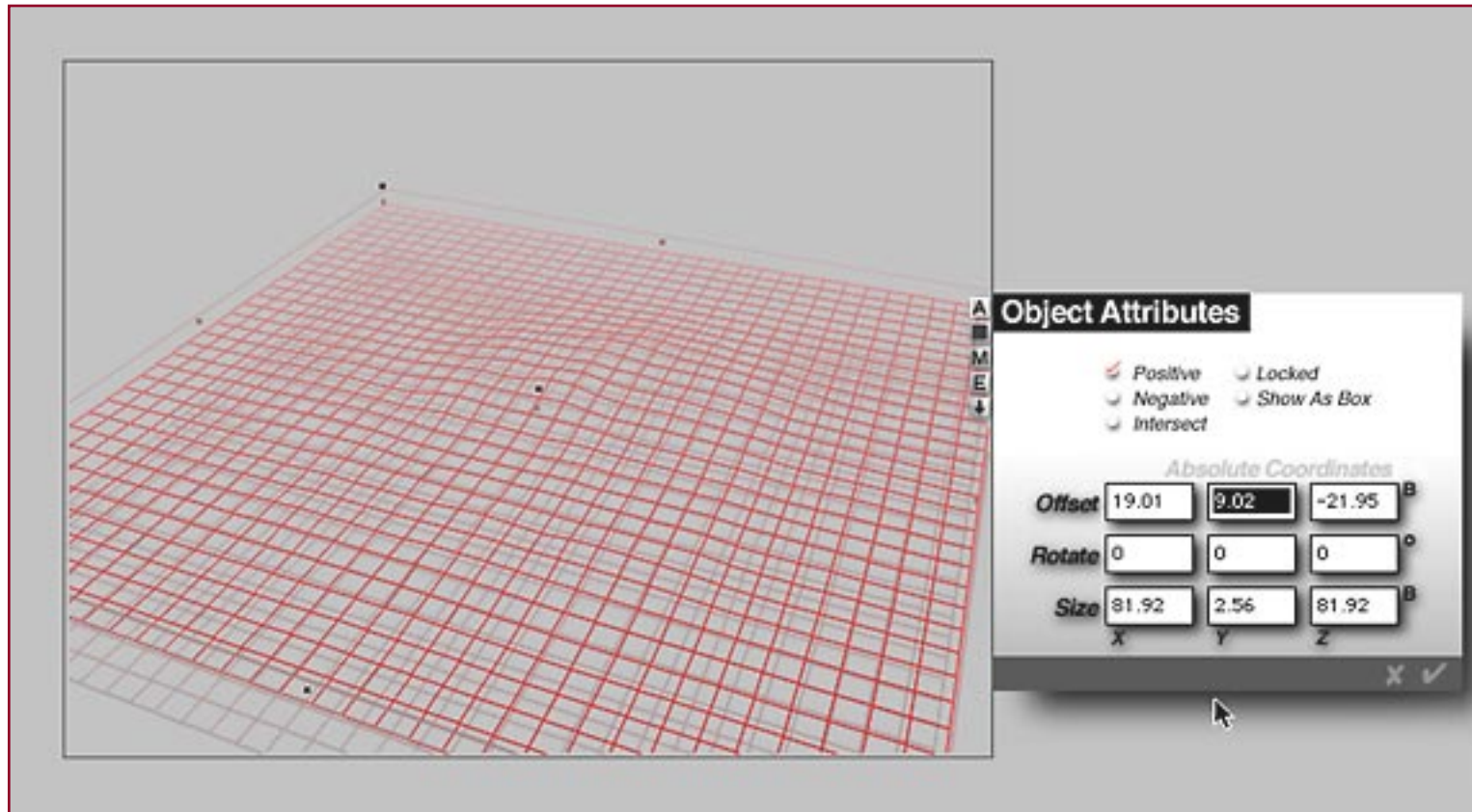
35) Choose the Edit Material command from the Objects pull-down menu. This opens the Materials Composer where you'll make the texture mapping settings.

36) Select "2D Picture" from the top of box A. This opens the Pictures window (see bottom right).
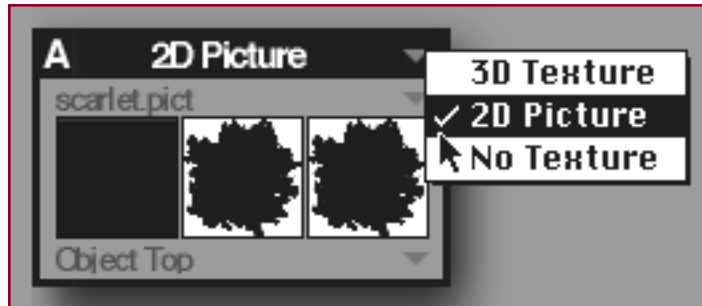
37) Click on one of the gray squares next to the little man, then select the "shadow" file. This loads the shadow texture map.

38) At the bottom of box A, select Object Top from the pull-down menu. This setting makes the image apply once, as it appears in the painting.

39) Now move the blue Transparency, Diffuse Color and Ambient Color icons into column A.

40) Shadows are semi-transparent so click on the number column in the Transparency row. A number near 120 will make the black shadow semi-transparent and more realistic.

41) If you want to make the shadow image smaller when it maps on the terrain, click on the "A" at the top of the column and enter a number. The larger the number, the smaller the shadow will be.
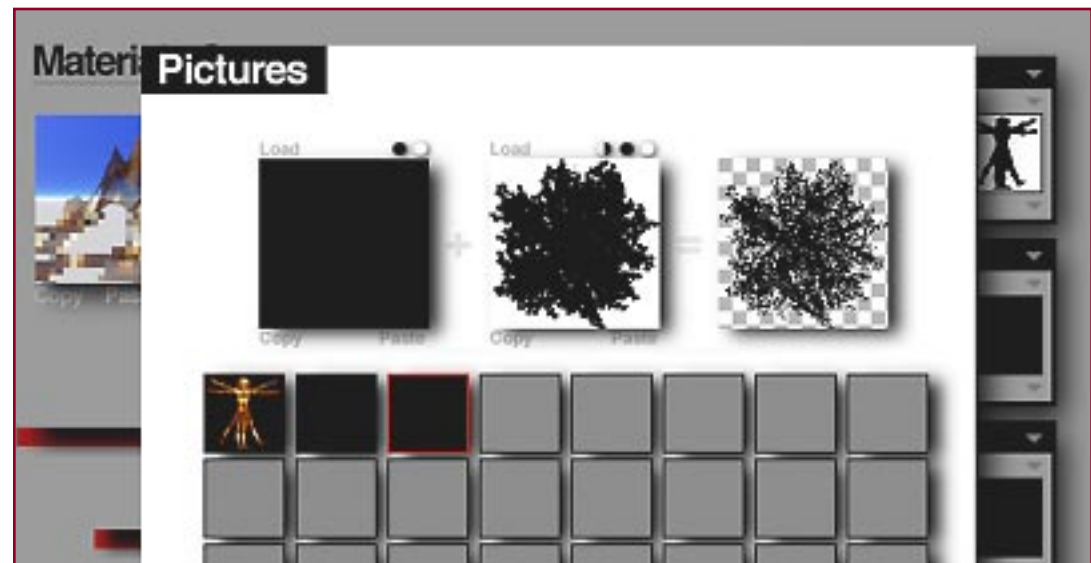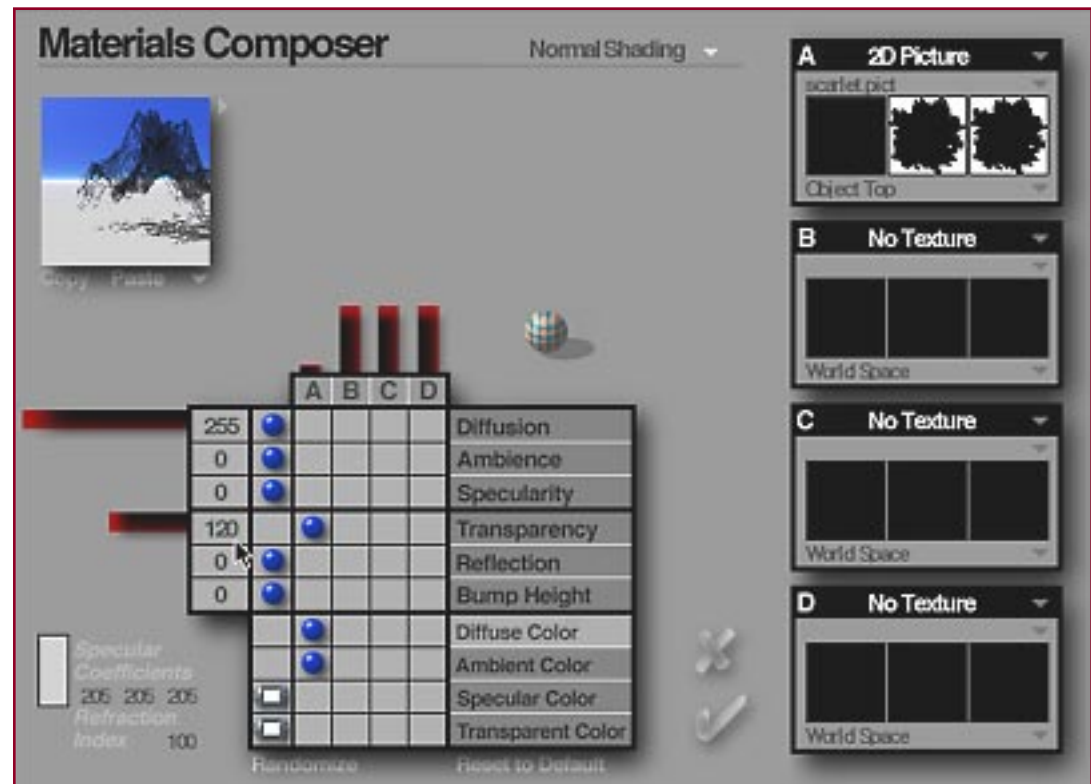
42) Here are three examples. The top image has an "A" value of 0. The image below it has a setting of 6. You can even paint more than one tree shadow in an image as shown at the bottom. Five different leaf brushes were used to create a single shadow map.
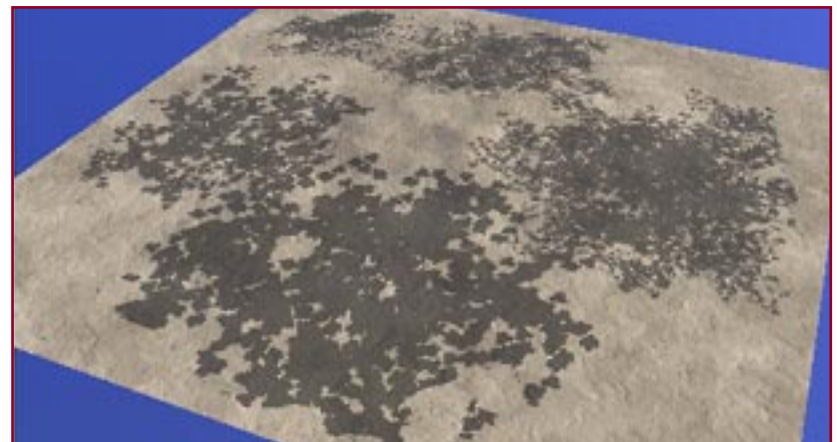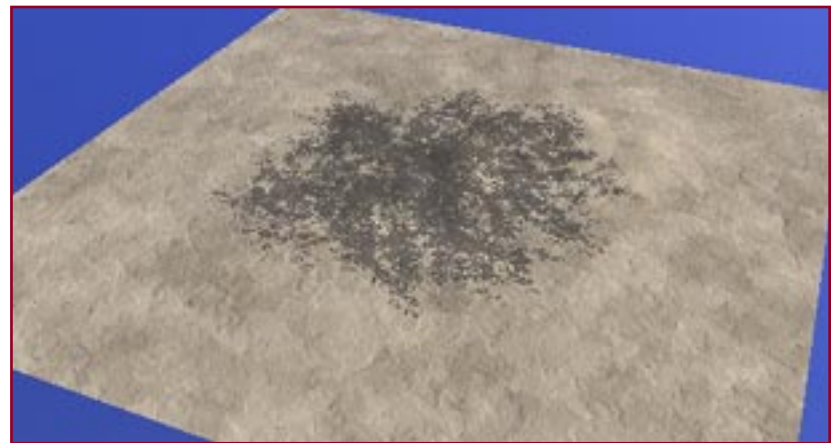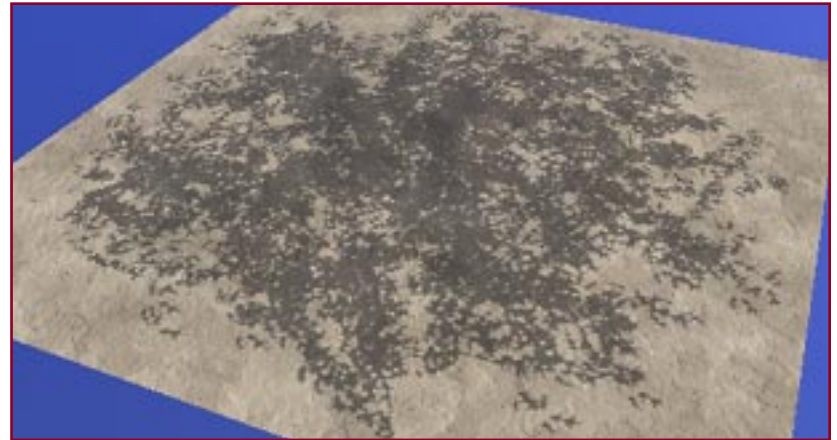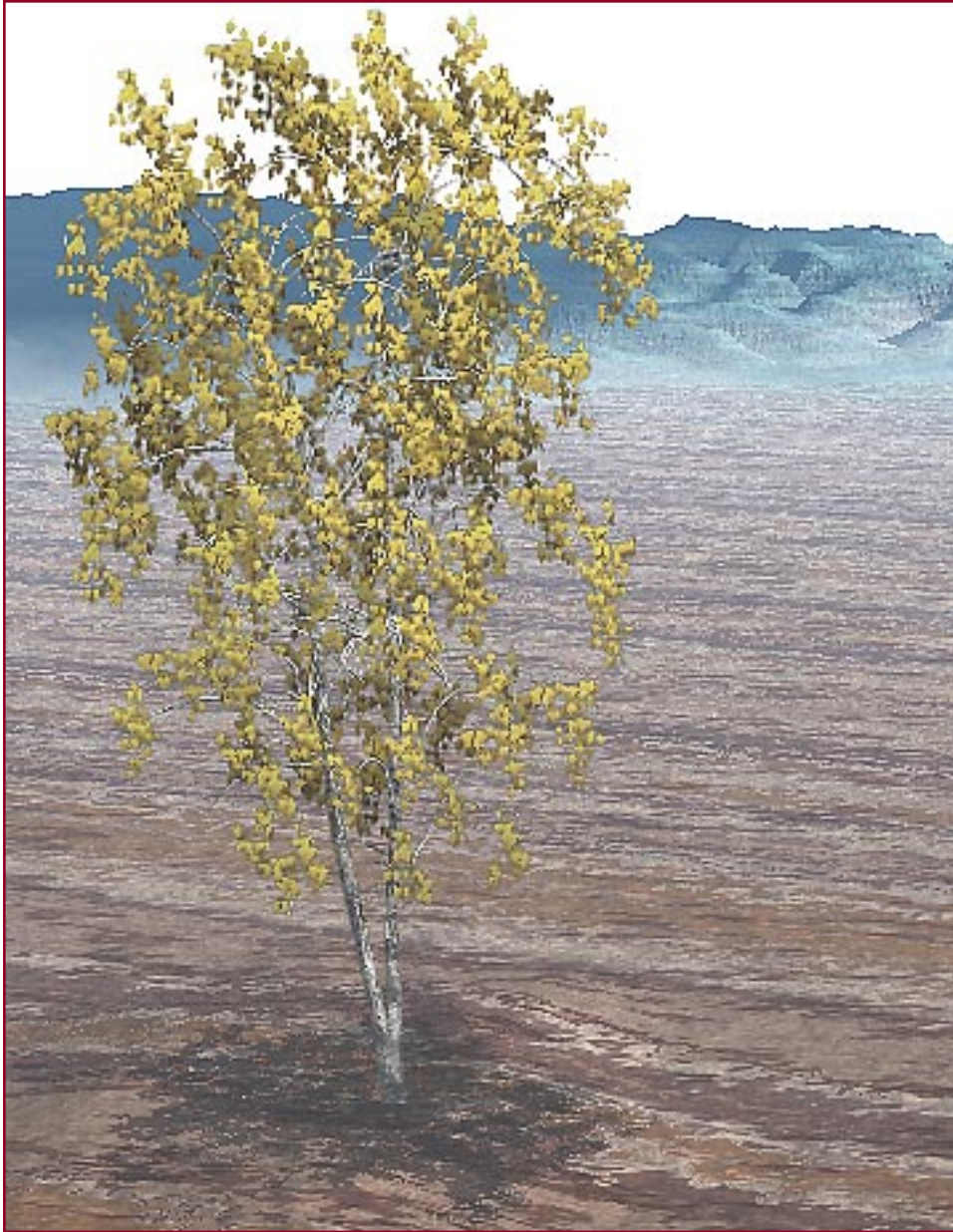
Associating shadow textures with trees and other foliage has a lot of possibilities. The shadow tools have other uses as well. They make great Gel Cookies for casting very realistic, soft-edged shadows onto 3D surfaces. The shadows can also be applied as semi-transparent paint to an existing texture used as a wall, pavement, cement or surface for a model.

Painting Tree Shadows for Painter 5 is the second in the revised series of Jungle 3D tutorials. It compliments the *Painting Trees with Jungle 3D*. Be sure to read that tutorial as well. The last in the series of revised Jungle 3D tutorials demonstrates how Jungle 3D can be used to create "tiling" foliage textures you apply to actual terrain models. Have fun.

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