Callisto™ 1.0 Tutorial #1:
The Martian Crater

This quick tutorial will give you some ideas for making terrain-like shapes starting with 2D imagery. We call this the one-minute Martian crater.

First, in Photoshop®, create a blank (white) RGB window, 72 pixels per inch, 3 to 4 inches square.

Next, choose a brown foreground color and (using the Text tool in Photoshop®) put a 200-pt letter 'o' (lowercase) in the center of the screen. Courier is a good font for this because it has a symmetrical lowercase 'o'.
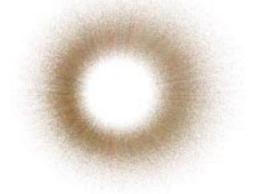
Now add Noise to the 'o' (at a level of 25). Add Noise again (at 25). Then deselect the 'o', removing the marching-ants dotted line from around it.

Use Photoshop's Motion Blur dialog to subject the 'o' to a Zoom blur in Draft mode, intensity 100.

Apply Zoom blur again (also at level 100). You should now have something that looks like this:

The letter 'o' with Noise.   *After applying Zoom blur twice.*

Fire up Callisto™ (go to the Filter menu; look under Other). Go into Prefs and choose High resolution. Then hit the Terrain button.

Hold the Command key down and drag the mouse until your crater "pops out" to the height you want.

Click on the ambient light color swatch to bring up the ambient light color picker dialog. Choose a reddish color. (Move the saturation slider about halfway to the left. Then click in the color wheel on a red shade.) Hit OK.
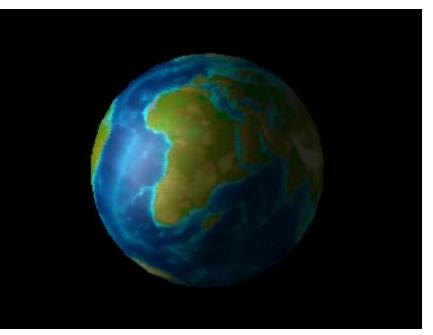
Try different ambient light percentages and dimmer values until you get the lighting you want. The final result is something like this:

Callisto™ transforms the 'o' into this crater.

Callisto™ 1.0 Tutorial #3: Earth in Space

If planets are your thing, you'll enjoy using Callisto™ to set up space scenes. This tutorial sets up planet Earth in the deep void of space. Start by opening an empty, white window in Photoshop®. The white image can be any size, but you can start with a 2-inch square image at 72 dpi.

1. Start up Callisto™ (Menu bar: Filter; Other; Callisto™). Hit the Planet button to make a perfect white sphere.
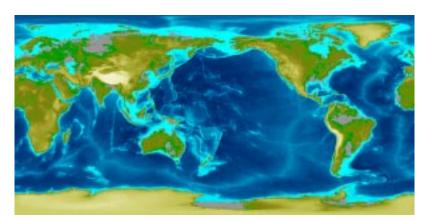
2. Hit the Prefs button. In the preferences dialog, click on the Background Color button. Slide the saturation slider all the way to the left to make the background color black. Hit OK. Exit the Prefs dialog.

3. In Callisto's main dialog, hit the Texture button and locate the PICT file named Earth-topo.PICT. Double-click it or hit Return; Callisto™ will import Earth-topo.PICT to use as a texture map on your white sphere. You should now have what looks like planet Earth floating in space.

4. Rotate the Earth until the North Pole is up and the South Pole is down.

5. Experiment with different lighting placements and dimmer values until you have a convincing space scene. The scene we created here used x,y,z light coordinates of -4000,1000,1000 with a dimmer value of 70 and an ambient value of 17.

Tip: You can create a convincing star field (background with stars) by using Callisto™ to render a "noisy terrain" in Dot-Render mode. Make the background color black and turn the lighting up high either with the dimmer or the ambient control, or both. The dots will look like stars. Save the star background as a separate image; then apply the earth over it as a top layer in Photoshop®.
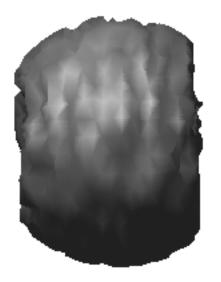

The Earth-topo.PICT map.
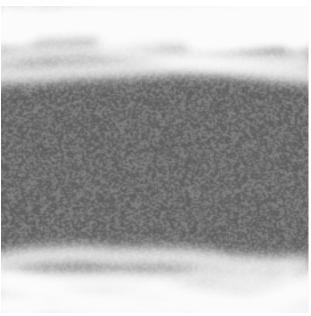
Callisto™ 1.0 Tutorial #2:
Prickly Pear

The succulent plants of genus *Opuntia* (which comprise the majority of cactus species in the southwestern United States) produce a seed pod that ripens into an edible fruit, colloquially known as "prickly pear." In this short tutorial, we use Callisto™ 1.0 to create a cactus fruit (prickly pear) quickly and easily—and convincingly.

Use Photoshop® to open the PICT file PricklyPearSource.PICT. (Be sure your monitor is set to 32-bit mode.) This is a grayscale file that was created solely in Photoshop® using simple noise filters. You'll note there is nothing particularly complicated about this image. (See below.) But do note that the very top and bottom are white.

Launch into Callisto™ 1.0 (Filter menu; Other).

Hit the "Planet" button. You will see something that looks like this:

The first prickly pear attempt.
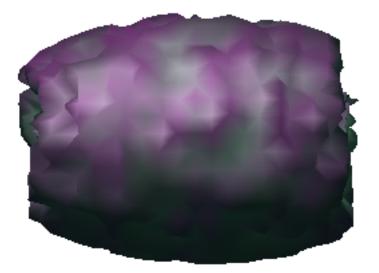

The 2D source image.

Since our source file was grayscale, our 3D image is gray. But prickly pears aren't gray! Let's add a little color. Click on the Prefs button, then hit the Ridge Hint Color button. Move the saturation slider to the left, then choose a purplish color in the color wheel. Hit OK, then (still in Prefs) click the Ridge Hinting On checkbox. Hit OK to exit Prefs.

Now let's add more color by making the ambient light something other than white. Click on the ambient light color swatch to bring up the color picker for ambient light. The color we choose here will "fill in" any areas of the prickly pear that aren't colored by irdge hinting. Adjust the saturation slider to the left and click in the color wheel to get a greenish color. Hit OK.

Now that we've chosen a hinting color and an ambient color, we need to regenerate the 3D object. So in the main dialog window, hit the Planet button again to regenerate the prickly pear. You should now have an object that looks about like this:

This object is too stubby to be a convincing prickly pear, so let's lengthen it. Hold the Command (Apple) key down and drag the mouse upwards until your fruit looks about like this:

Much better. Now, to show off the intricate 3D geometry, let's swivel the prickly pear slightly. Rotate it until you're looking at one end, like the above view.

This is our final prickly pear. Hit OK (in the main dialog) to exit Callisto™ and return to Photoshop®. A new window containing the prickly pear should appear in Photoshop®.

SUMMARY

In this tutorial you learned how to:

1. Create a complex, organic 3D shape.
2. Apply colors to a gray 3D object using ambient light.
3. Apply coloration to a gray object via ridge hinting.
4. Stretch a spheroidal object along its polar axis.
5. Transfer the 2D rendering into Photoshop.

Note how quickly and easily you were able to create an organic 3D shape. The prickly pear geometry is complicated, with many nooks and crannies; it would have been difficult to model it in any but the most expensive commercial 3D programs. We not only modeled it in minutes, but created a complex, colorful shading, on the fly, without resorting to texture mapping. The subtle variations in color achieved through ridge hinting would have been difficult to achieve any other way. (The color variations follow the geometry closely and systematically.)

Note that you can save your prickly pear geometry as a 3DMF model, should you want to import it into another 3D package later.