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Ron Scott's Tutorial - Glassy Spheres

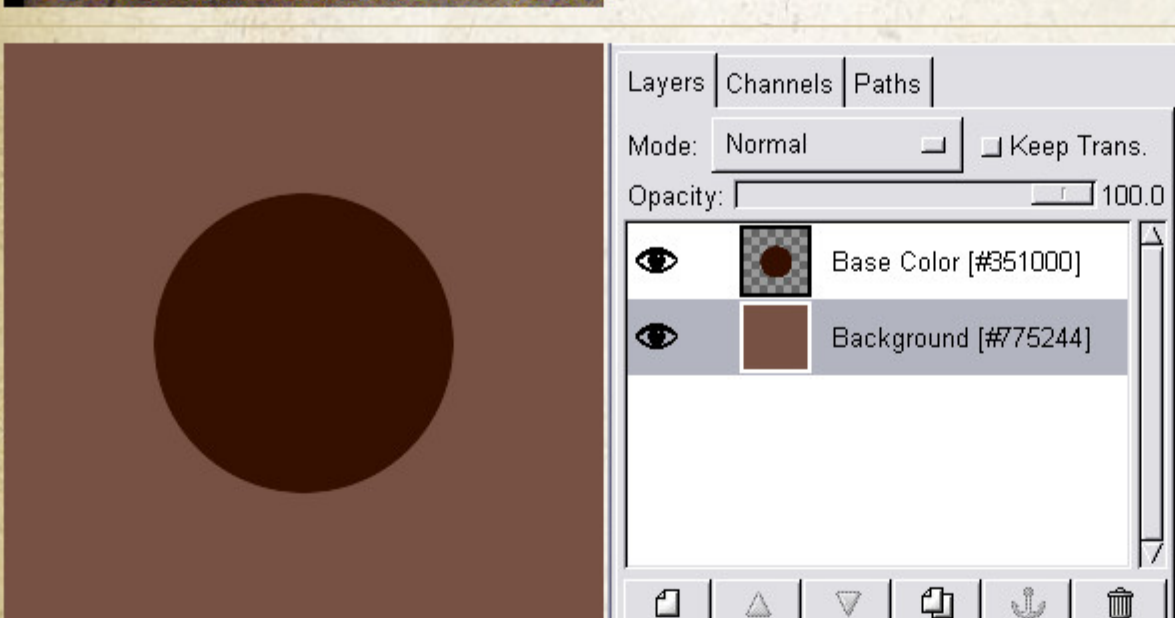


Here is one way to make glass spheres that contain diffuse glows, highlights, halos and specular reflections of the surrounding environment. An interesting feature is the extensive use of selection feathering and cutting.

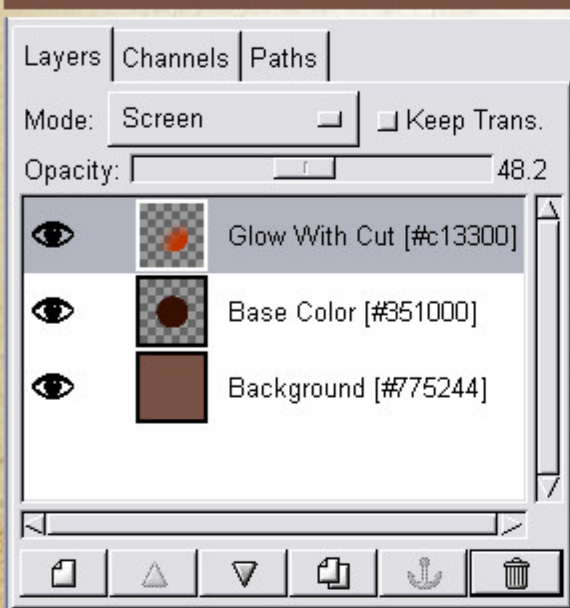
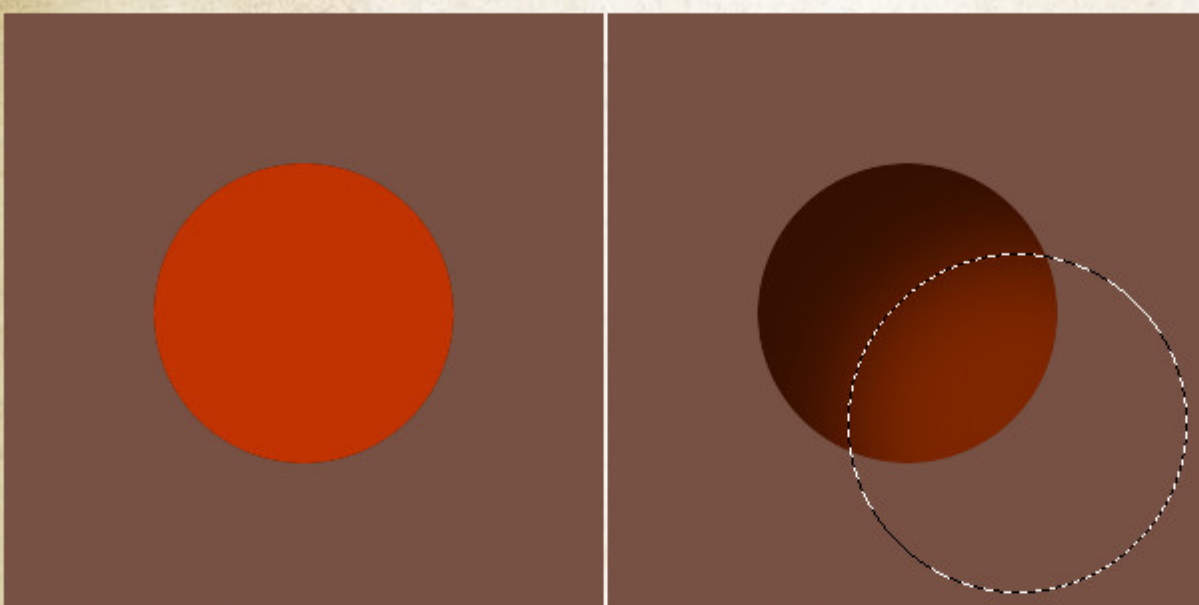
The specular reflection is useful for large spheres because it helps to create the illusion of sphericity. For very small glassy balls (used for "buttons" and such) the specular reflection can simply be omitted.

The specular reflection is going to be achieved by mapping an image onto a sphere. Because of the way the mapping function works in GIMP, we have to start with a perfectly square image whose dimension is exactly twice the diameter of the glass sphere we intend to make.

This tutorial presents just the basics and is meant only to be suggestive; almost every step I describe involves some subjective judgment, leaving plenty of room for experimenting and innovating.

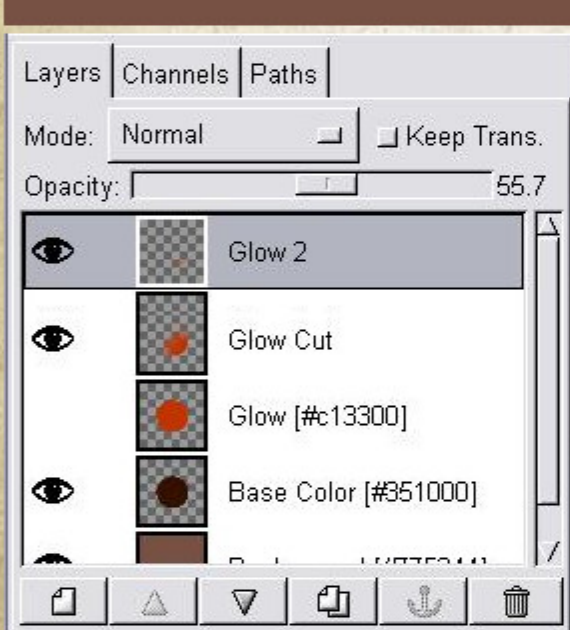
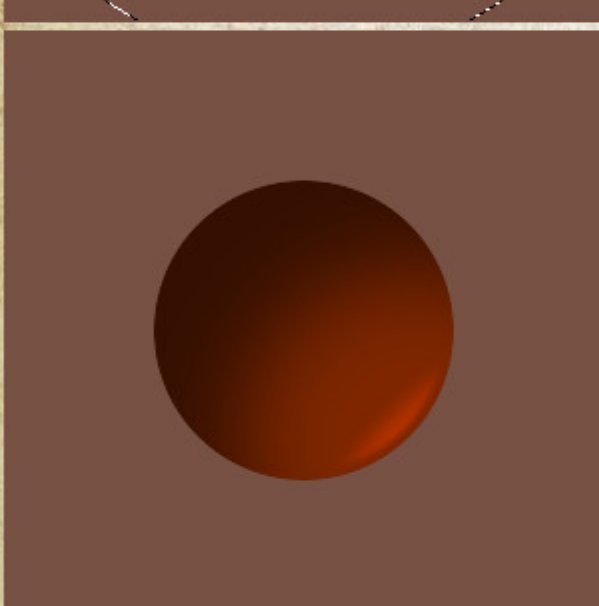
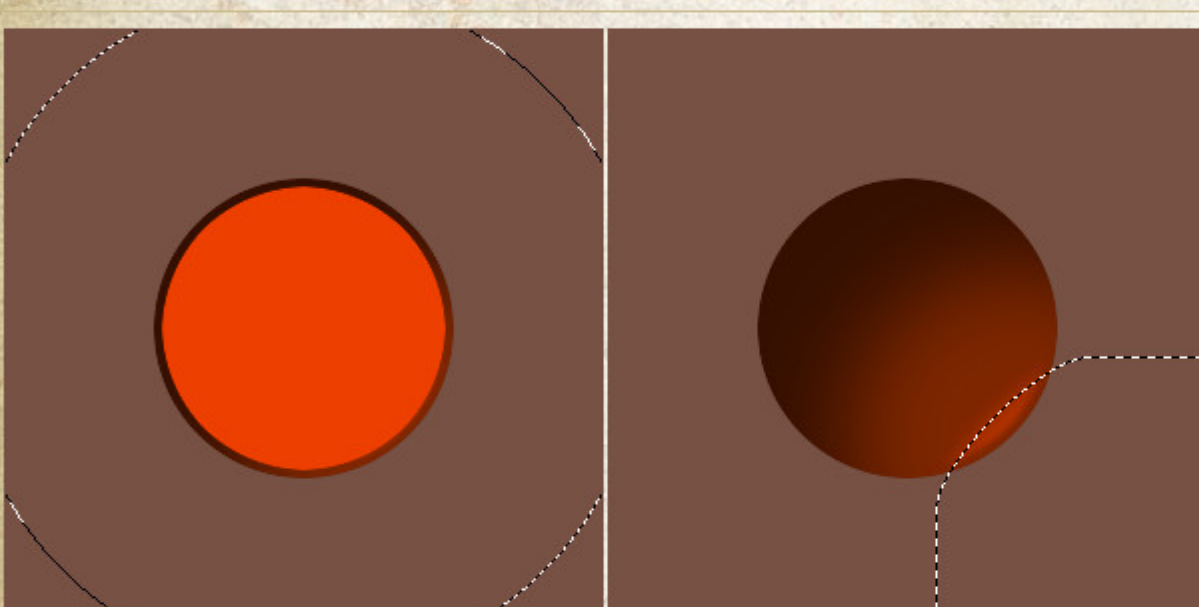


1. Open a new image of 300 X 300 pixels, choosing a background color against which to view your sphere. Over that make a transparent layer. On this new layer use the Select Elliptical Regions tool to make a perfectly centered circular selection 150 pixels in diameter. Now fill the selection with a dark color of your choice. I arbitrarily used the color #351000, a dark orangy red, and labeled the layer "Base Color"



2. Next, with the selection still active, create a new transparent layer. On this layer we're going to create a gentle glow. Using the Color Selection, GIMP tab, take your original color, #351000 in my case, and increase its Value a bit. I chose #c13300. Use the Fill tool to fill the selection with the new color as shown in the left illustration.

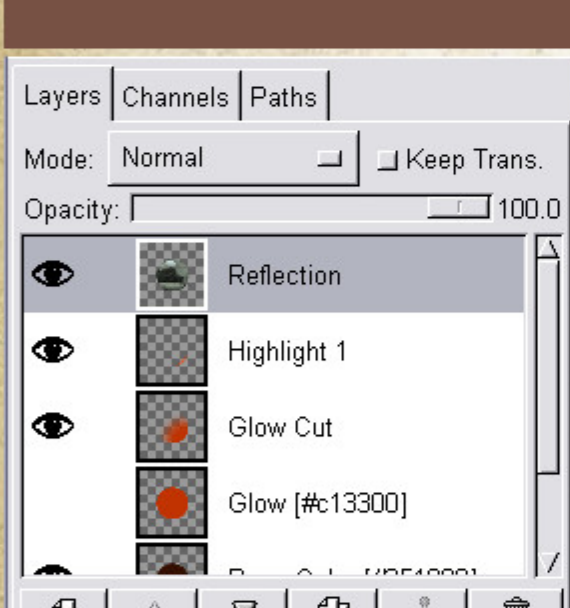
Now, Grow the selection by 12 pixels. Then, using the Move tool with the Alt key depressed, drag the selection down and to the right so that your total move is 55 X 55 pixels. Feather the selection by 75~85 pixels or so. Invert the selection and clear it (Edit->Clear), but only once. Change the layer Mode to Screen and knock the Opacity down to about 50 for now; we'll make a final adjustment later. I labeled this layer "Glow With Cut" in the illustration above.



3. In the next step, we'll make a second glow. Get the circular selection of the bottom layer (labeled Base Color) and make a new transparent layer on top (I label it "Glow 2"). Select a lighter version of the last color; I just increased the Value of the last color somewhat to give the color #ed3f00. Now, working on the Glow 2 layer, shrink the selection by 5 pixels, feather it by 5 pixels and fill it with this new color. See illustration on the left.

Next, Grow the selection by 100 pixels. Using the Move tool with the Alt key depressed, move the selection down and to the right so that you just "cut off" a thin sliver on the lower right of the colored circle, as seen in the illustration above center; in my case, this was a move of about 165 X 165 pixels. This is somewhat subjective, as you'll see. Now invert the selection, feather it by 17 pixels or so, and then Clear the area outside the selection. You may want to Clear twice, depending on taste. Use Undo and Redo to decide. (In the example I cleared once). Set the layer Mode to normal or screen to suit your taste and the Opacity to about 56 -- for now.

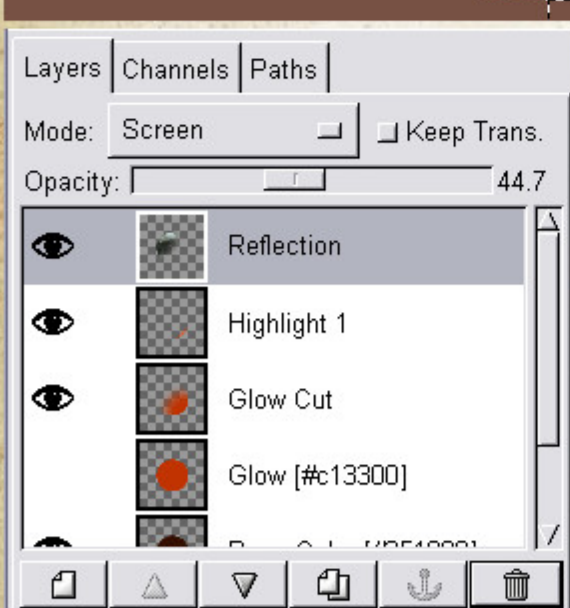
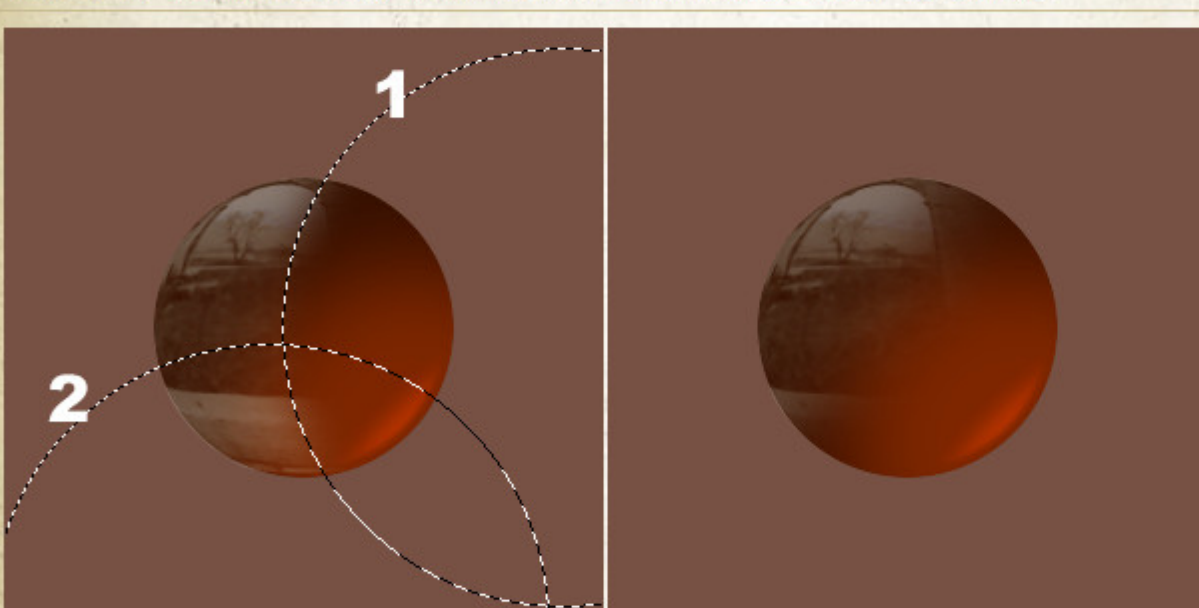
For a more crescent shaped glow, move the selection in the opposite direction, up and to the left, until a small sliver of color shows outside the selection, and then feather and cut. See the examples at the end of the tutorial.



4. The next step is to add a reflection. Make a new transparent layer on top, which I'm going to label, "Reflection." Copy the picture of a stone window from my illustration on the left above and paste it into the new layer, right over your orb. Or use any other picture you like that might be a reasonable source of light. While the selection is floating, move it to a position so the brightest part is somewhere over the upper left quadrant of the glass ball, as shown above (left).

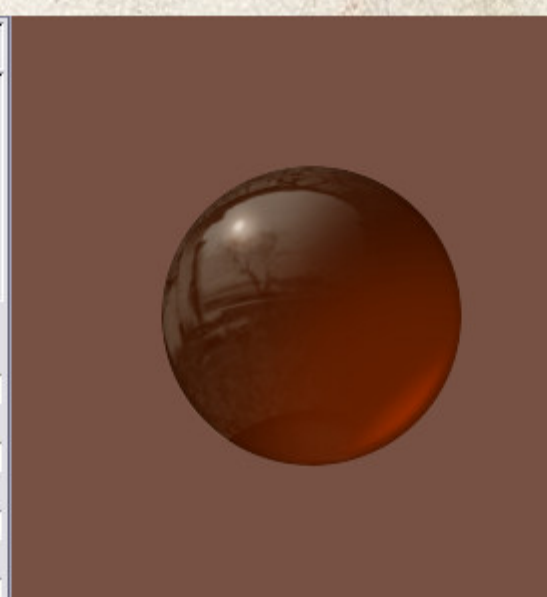
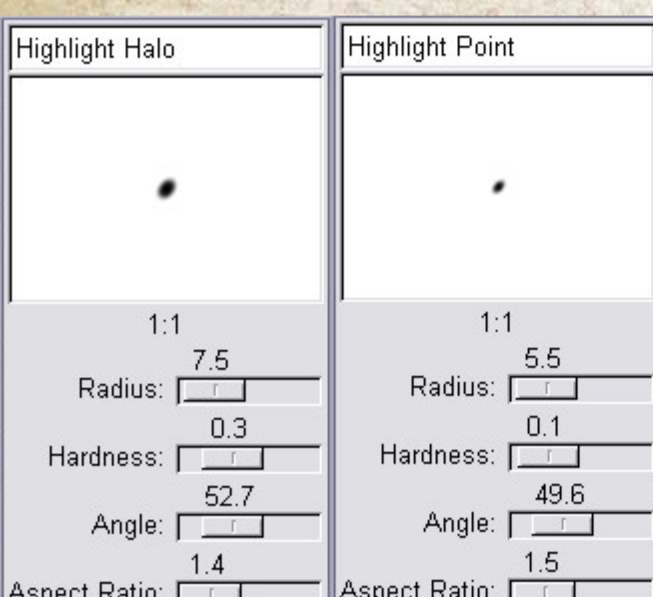
Now go to the Map to Object filter. On the Options tab select Map To: Sphere and Transparent Background. On the Light tab select Lightsources Type: No Light, and click the Preview! button. On the Orientation tab adjust the the Rotation X,Y and Z values, checking each time with the Preview! button, until you have the brightest part of your window over the upper left quadrant of the sphere in some pleasing way. Click OK and you should see your picture mapped onto the sphere as shown above center. Incidentally, this is the sphere that requires the image size to be square and twice the diameter of the glass sphere, as I mentioned earlier.

I found this window image by searching Google Images for "window". Other images such as interiors can be made to work, too. Also, you may want to try adding secondary reflections in the lower quadrants of the sphere.



5. In the next step, we have to trim the reflection photo, i.e. the window, and adjust its Mode to make it look more like a reflected image. To start, set the Mode of the Reflection layer to Screen and reduce the Opacity to about 45 so that we can begin to see what we have. Next, get the selection from the Base Color layer and Grow it by 65 pixels. Move the selection into something like the position labeled "1" in the illustration, above left. Feather the selection by about 55 pixels and clear the selection once. Now repeat the procedure starting with a fresh selection from the Base Color layer, but this time move the selection into a position similar to that marked "2", feather again by 55 pixels then Clear once to obtain something like that shown in the center illustration. This is only meant to be an example. The trimming can be done in different ways, depending on the nature of the photo used. Often a single cut can be used, or more or less feathering will be required. The basic idea is simply to trim the reflection image down and to use large feathering and Screen Mode so that it looks convincing. Just play with it.

Note: The center illustration was obtained by cutting with the selection "2" more to the right and up than is suggested by the illustration on the left -- the two illustrations were made at different times.



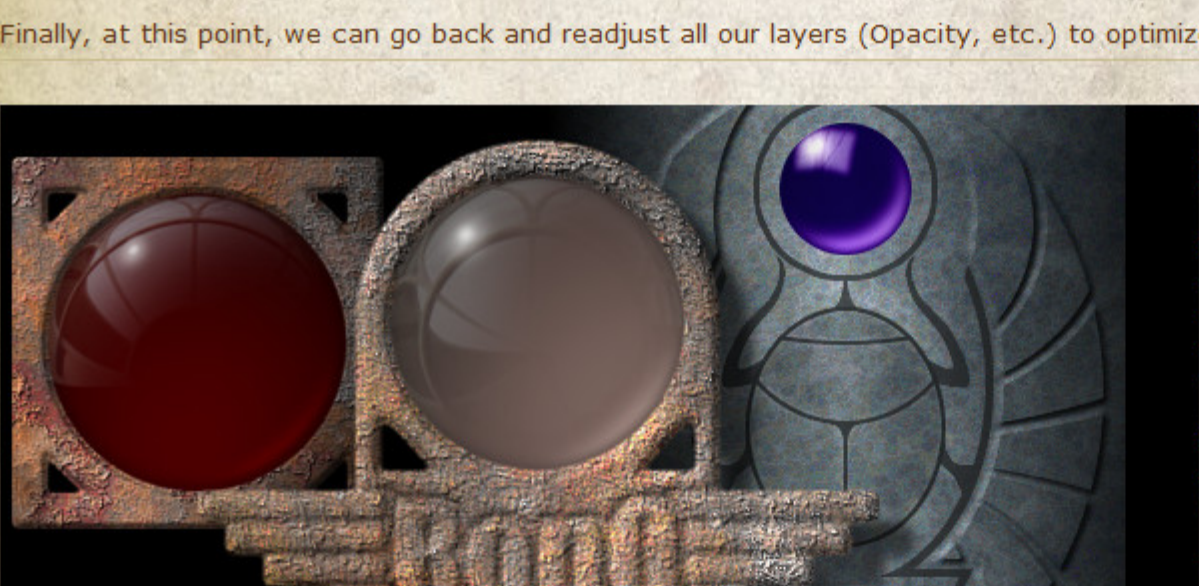
6. Now we add a final highlight like that in the upper left quadrant of the sphere shown on the left. (To save space, I'm omitting an illustration of the Layers Channels and Paths menu from this point on. We'll be adding two more layers.)

To do this we need to create two brushes like those shown on the left, labeled Highlight Halo and Highlight Point. Next, add a new transparent layer on top and use the Pencil tool, with color set to white, to single-click an image of the Halo brush at the point the highlight is to appear. You'll get a big, klunky oval. Blur this by 14 or 15 pixels. The brush image will turn dark and nearly disappear -- don't panic. Just click on the Keep Transparent button and paint over the area; your blurred halo will appear. Set its Mode to Overlay (or possibly Normal) and adjust Opacity. (You may later want to use Duplicate Layer to create a copy and adjust the second layer to get more brightness.)

Finish off the highlight by making yet a new transparent layer on top. Use the Zoom tool to enlarge the halo somewhat and then single- or double-click an image of the Highlight Point brush right over the halo you just made, not necessarily precisely centered on the halo. Set its mode to Screen and adjust Opacity to suit. You may want to blur the Highlight Point image by 2~3 pixels.

There is a lot of arbitrariness here; both brushes could have been larger, for example.

Finally, at this point, we can go back and readjust all our layers (Opacity, etc.) to optimize the appearance of the image.



On the left are some old images that I made. Your glass orb takes on a new character when finally viewed in some kind of context.

Once completed, the image can be manipulated by adjusting its color, value and saturation. The milky sphere in the center is the result of reducing saturation. A sphere can be altered into just about any color in this way.

Small spheres like the green one seen on the left can be made by simply omitting the reflection image, steps 4 and 5.

These examples also show the crescent shaped second glow mentioned in step 3.