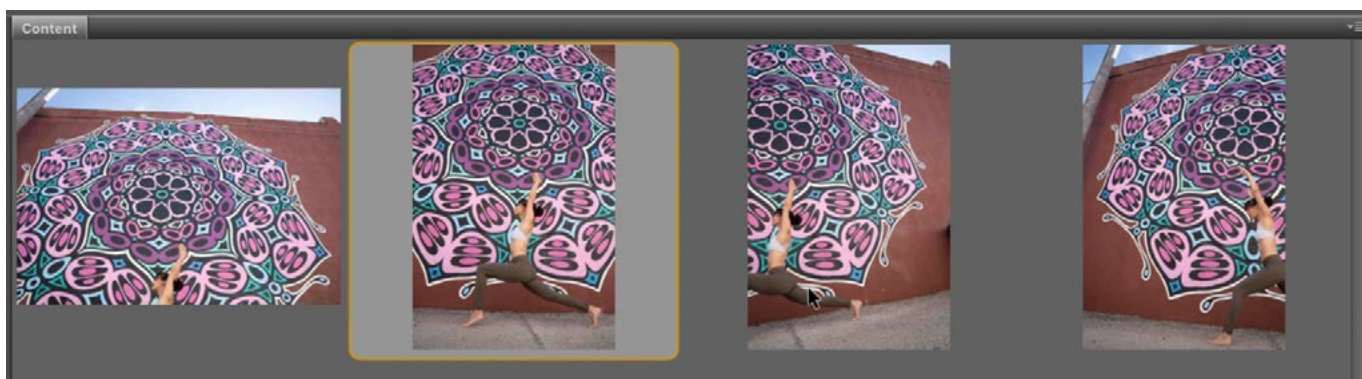




Yoga Stitch

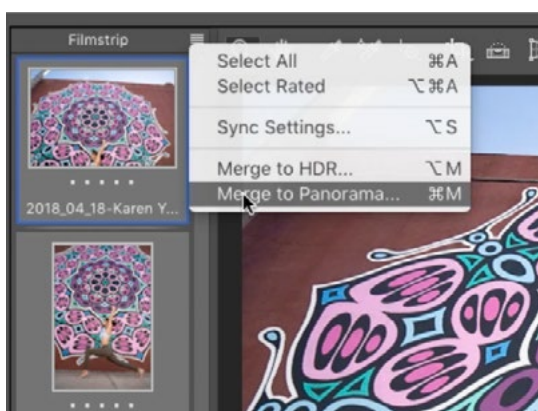
# Yoga Stitch

In this lesson, we're going to cover some techniques that can be used to merge a difficult panorama. In the example image, I was photographing Karen in front of a mural that was located in a narrow alleyway. Because my lens wasn't wide enough, I had to take multiple shots in order to capture the entire scene. The shots were also captured by angling the lens up, left and right, and this created a challenge when merging the images together.



Above are the four images that were shot to capture the entire scene.

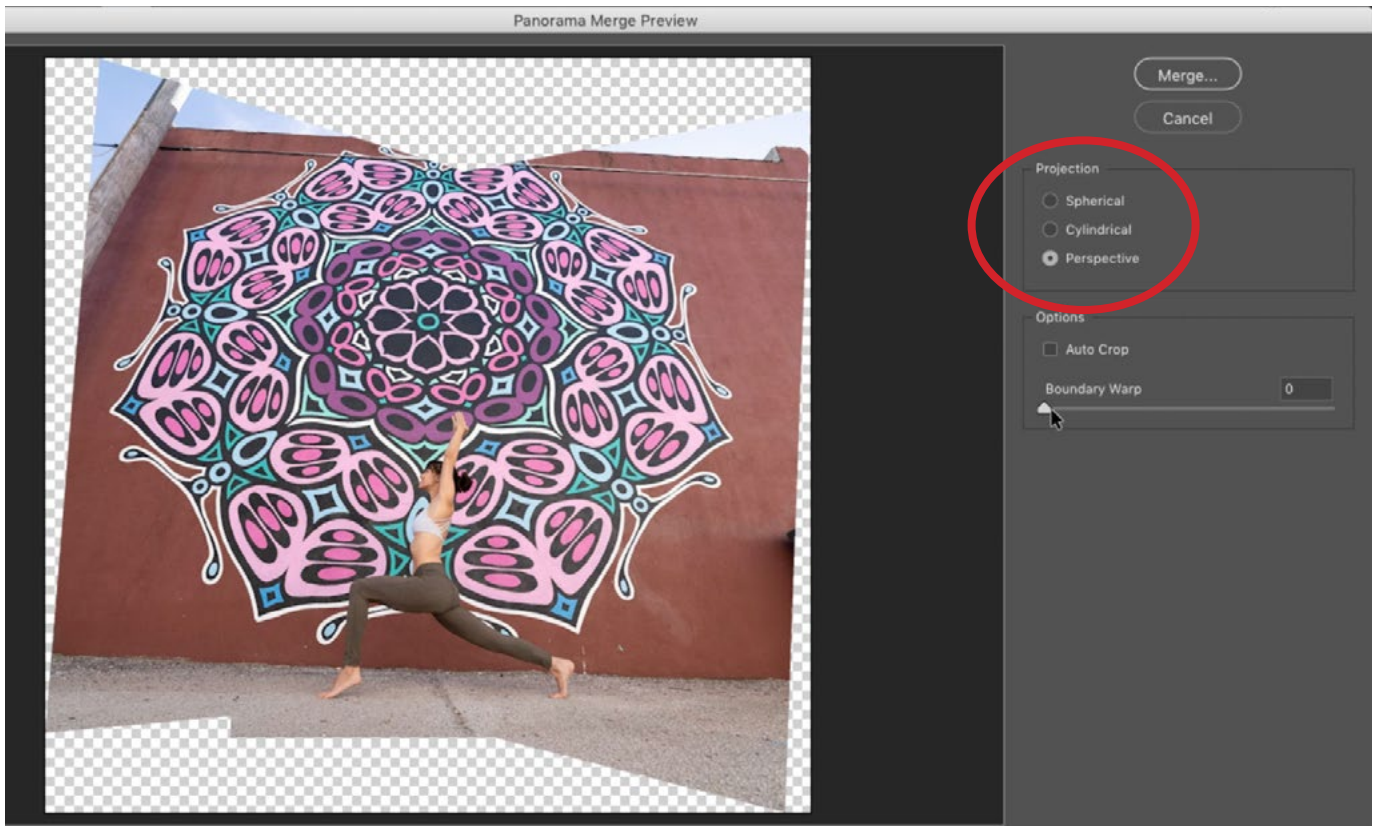
In the video example, we are merging the images using Bridge and Adobe Camera Raw (ACR) but you can just as easily use Lightroom. From Bridge, we'll select all of the images and use the keyboard shortcut Command+R (Ctrl+R on Win) to open the images in ACR. The images will appear as thumbnails within the Filmstrip



The images are all selected in ACR and we are choosing to merge them into a panorama.

on the left side of the ACR interface. To merge the images into a panorama, we'll first click on the little hamburger menu at the top of the Filmstrip and choose Select All. Then we'll go back to that same menu and choose Merge to Panorama. (Note: In the video example, we got an error because one of the images was shot in a different orientation. We deselected that image and then chose to merge the pano.) In the Panorama Merge Preview dialog, we'll turn off the Auto-Crop check box so that we can see the

entire image. Because the images were shot by angling the lens a lot, the resulting panorama does not look all that usable so we will switch the Projection setting to Perspective. This option is designed to correct for distortion and it provides us with a good starting point. We'll click the Merge button and a dialog will appear asking us to name the document, choose a location and then click Save. Back in ACR, the newly-merged pano appears in the Filmstrip and we can continue to work on it.

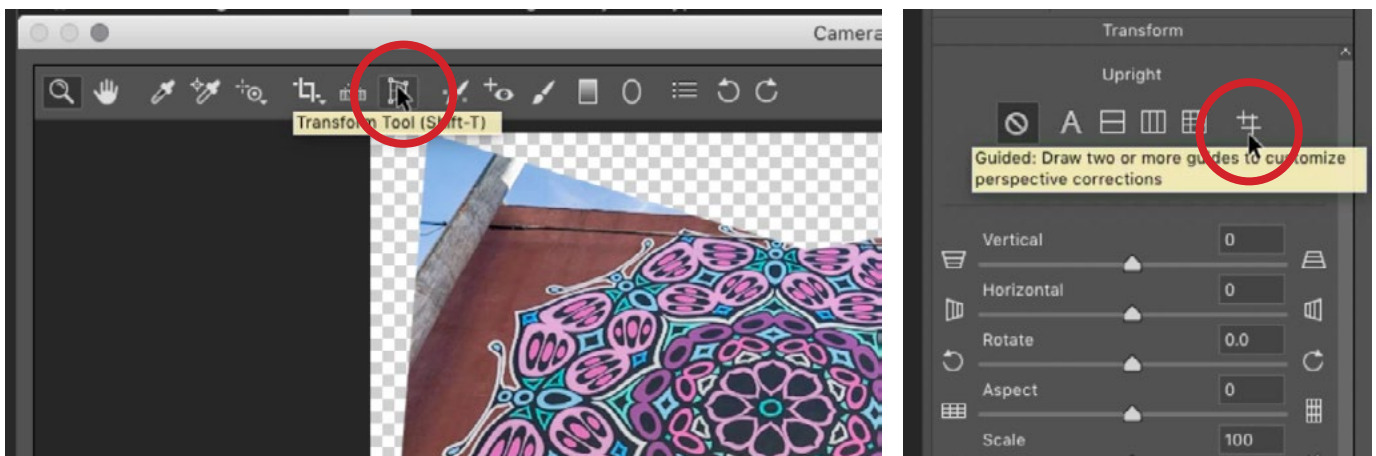


**In the Panorama Merge Preview dialog, we chose the Perspective setting, which did the best job at correcting for the distortion.**

**Merging in Lightroom:** If you are using Lightroom instead of ACR, you would select all of the images, go to the Photo menu and choose Photomerge > Panorama. The same Panorama Merge Preview will pop up and you can follow the same steps that we did using ACR.

Back in ACR, we're going to select all of the images again, making sure that the merged pano is the one we're viewing. We're adjusting all of the images at once to ensure that all of the images will match, should we have to use one of the supporting images to fill in the pano's empty areas. Using the adjustment sliders, we'll darken the highlights a bit (to bring detail back into the sky), increase contrast, lighten the shadows and then use the White Balance Eyedropper to ensure the color is correct. Then we'll click the Done button to return to Bridge.

From Bridge, we'll open the merged pano into ACR. Here, we'll try to correct for some distortion. We'll activate the Transform Tool, which can be found in the Tool Bar at the top of the interface. (In Lightroom, the same tool can be found within the Transform panel in the Develop Module.) When the Transform Tool is active, the settings relating to it will appear on the right side of the interface. We're going to choose the Guided Upright tool, which is the icon on the far right.



**Left: The Transform Tool can be found at the top of the Camera Raw interface.**  
**Right: We are choosing the Guided Upright command within the Transform settings.**

We'll use this to drag out a line over the top edge of the building. This tells ACR that this line should be perfectly horizontal. Nothing will happen, however, until we drag out a second line. We'll drag out another line on the bottom edge of the building and ACR will attempt to correct the distortion based on the information we provided.



**Left: The Guided Upright tool is being used to drag out lines on the surfaces that are supposed to be horizontal. Right: ACR corrected the distortion based on the lines we created.**

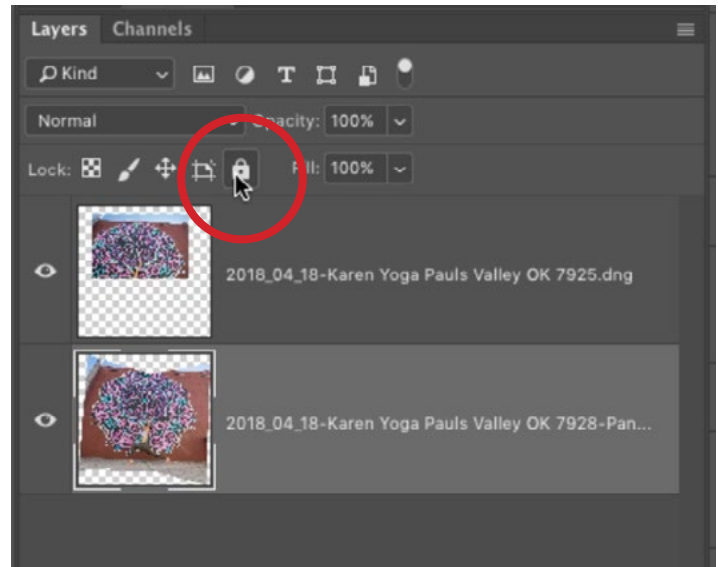
The Guided Upright tool can also be used to correct for the vertical distortion, but in this image, I actually want to maintain some of that distortion, so I will use the Transform sliders instead. I'll use the Vertical slider, dragging it to the left until the distortion looks a bit less drastic.

After making this correction, part of the image started to get cut off by the edges of the frame. To fix this, we'll use the Scale slider to scale the image down, making more of it fit in the frame. We can also use the Offset sliders to move the image up/down or left/right within the frame. We'll click the Done button to get back to Bridge.

The merged panorama is missing a chunk of the mural at the top of the frame, so at this point, we want to start filling in that top edge with parts from another picture. We'll select the pano picture as well as the picture that includes the top edge of the building, then go the Tools menu and choose Photoshop > Load Files into Photoshop Layers.

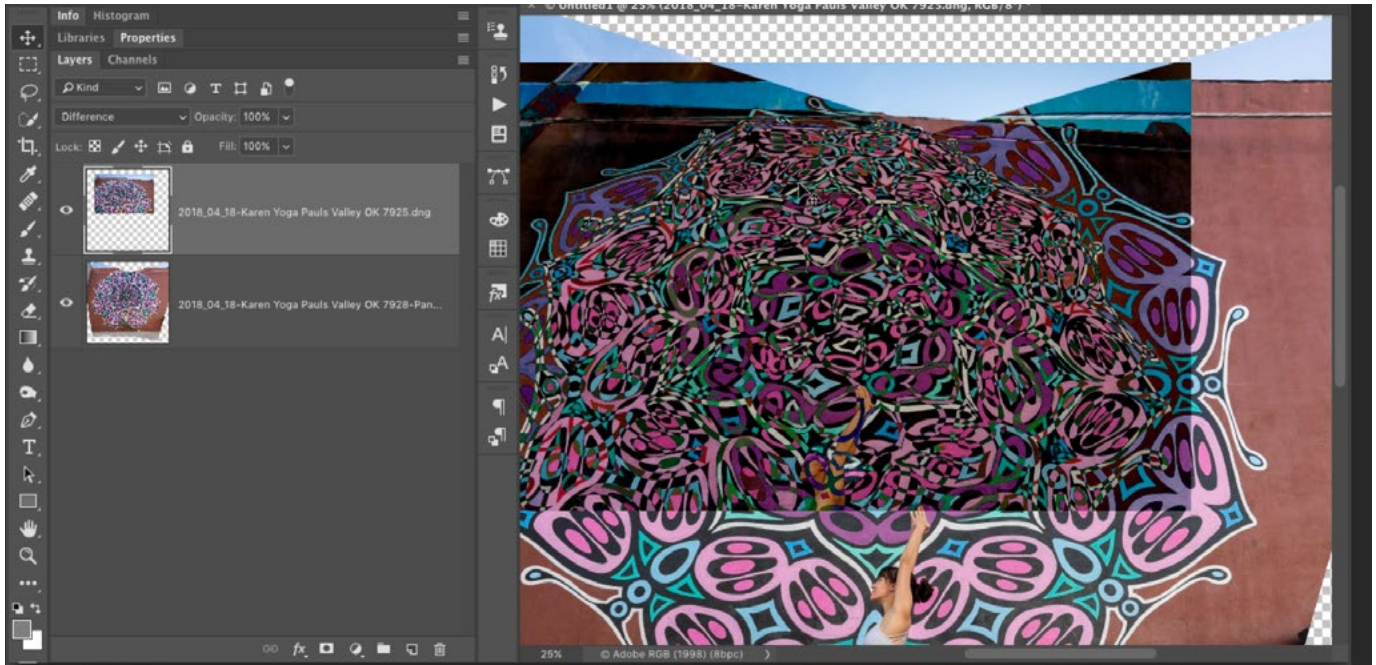
The two images will open as separate layers in a single Photoshop document. Because of the distortion, we're not going to be able to simply move the lay-

ers to line them up. We'll have to use other techniques. We'll make sure the pano layer is on the bottom and with that layer active, we'll click on the little lock icon at the top of the Layers panel. This will ensure that Photoshop can't scale or distort this layer. Then, we'll go to the Edit menu and choose Auto-Align Layers. When the Auto-Align dialog appears, we'll leave the settings at Auto and click OK. Photoshop will move and distort that top layer to best line it up with the underlying, locked layer. Sometimes this works really well and other times, we'll need to try other methods.



**We are locking the bottom layer so that it is not distorted when we use the Auto-Align Layers command.**

If the Auto-Align command does not work, we'll instead activate the Move Tool and position the top layer to generally line up with the underlying pano. We can change the blending mode of that top layer to the Difference mode and this will give us a view that shows where the two layers line up and where they differ. We'll choose one area in the mural and make sure that it's lined up with the same area on the underlying layer. Now we need to scale and transform the layer so we'll activate the Free Transform command by going to the Edit menu and choosing Free Transform. With the Free Transform command active, handles will appear around the layer and a little crosshair will appear in the middle. This crosshair represents the center of the layer, and we can move it in order to anchor the layer in a specific place. We'll drag that crosshair to a location where the two layers line up. Then, we'll hold down Shift+Option (Shift+Alt on Win) and drag the transform handles to better align the layer.



The top layer's blending mode is set to **Difference** so that we can better see where the layers are lining up. We are using the Move Tool to best position the top layer so that some of the contents lines up with the bottom layer.

Because of the distortion, we still won't be able to get the layers to perfectly align so we'll next turn to the Distort command. We'll go back to the Edit menu and

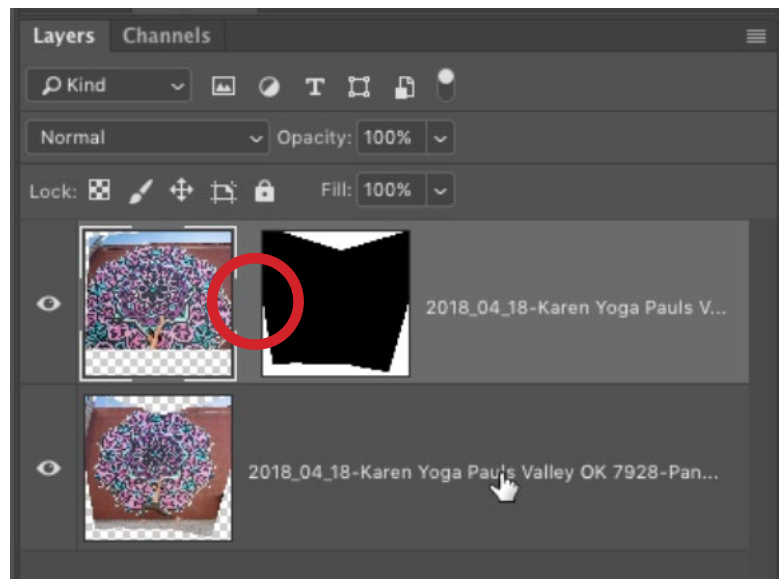
choose **Transform > Distort**. This will allow us to move the four corners of the layer independently of one another. We'll position the corners in an attempt to line up the layers, placing extra focus on the top part of the wall because this is the part that we'll actually be using. When we're done, we'll hit the Return/Enter key to lock in the transformation. We'll then change the blending mode of that top layer back to Normal.



When using the **Distort** command, we can move the four corners of the layer independently of one another.

Now, we want to use the top layer to fill in the parts that are missing from the bottom layer and we'll start by making a selection around the empty areas on the bottom layer. We'll hold down the Command key (Ctrl on Win) and click on the layer thumbnail for the bottom layer. This will make a selection around all areas in the layer that are not empty. Then we'll go to the main menu and choose Select > Inverse. Now the empty areas are selected. We want to expand this selection just a small amount so we'll go to the Select menu and choose Modify > Expand. In the dialog that pops up, we'll leave the default setting of one pixel and click OK.

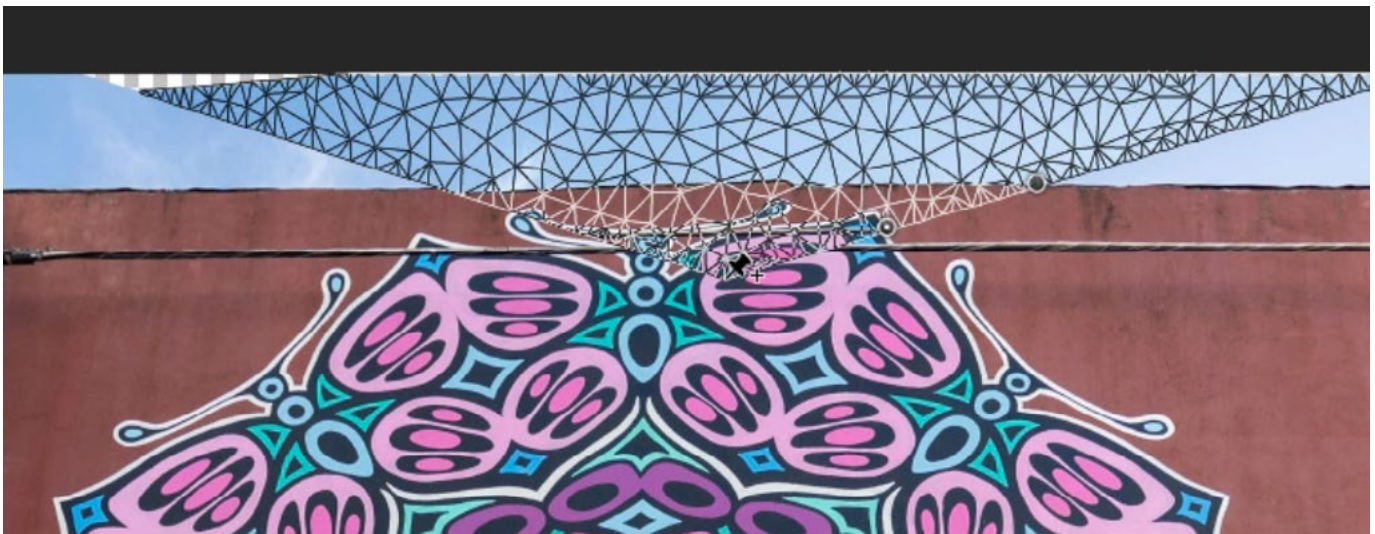
With the selection active, we'll click on the top layer to make it active and then add a layer mask by clicking the layer mask icon at the bottom of the Layers panel. Because there was an active selection, that selection was automatically applied to the mask. Looking at the result, the layers are still not aligned properly, so we'll need to do some more work. We want to move the top layer, but we want the layer mask to stay in place, because we know the mask is in the correct position. We'll click on the little link icon that appears between the layer thumbnail and the mask thumbnail so that we can move the layer independently of the mask. We just need to make sure that the layer is active, and not the mask. We can now use the Move Tool to further reposition the layer.



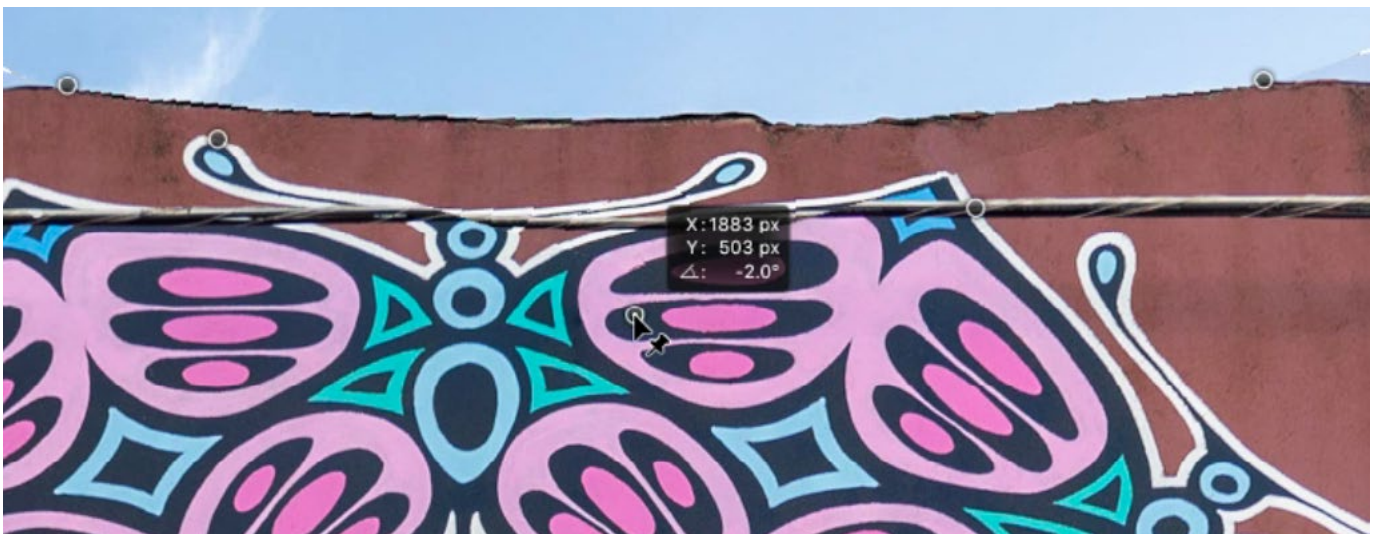
**After adding a layer mask, we want to move the layer contents while leaving the position of the mask unchanged, so we clicked the link icon between the layer thumbnail and the mask thumbnail to unlink the two.**



In order to get more control over the position of the layer, we'll use the Puppet Warp command (Edit > Puppet Warp). The Puppet Warp mesh will appear over the layer. With Puppet Warp, we can click on parts of the image to add pins that lock the area in place. We'll add a few pins in the areas we want to reposition. To get a clearer view of what's going on, we'll hide the mesh by turning off the Show Mesh check box in the Options Bar above the image window. We can now click and drag to move those anchor points we added, and we can add more if neces-



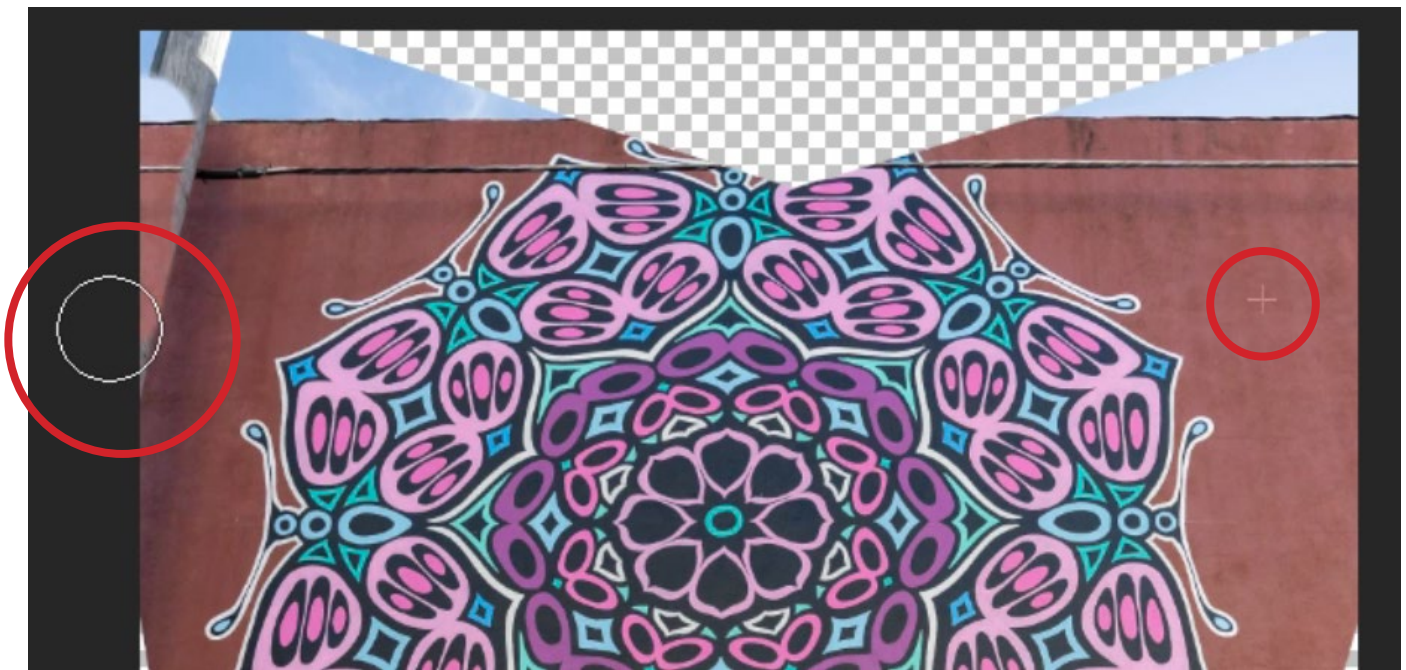
The Puppet Warp command is being used to add pins to the layer so that we can reposition specific areas.



The Puppet Warp pins are being repositioned in order to line up the layers.

sary. We are basically trying to add points and then line them up with the content in the underlying layer. We'll hit Return/Enter to lock in the transformation when we're done. Lastly, we'll use a soft-edged brush to paint on the layer mask to create a softer transition between the top layer and the underlying pano.

**Removing the telephone pole** Now that we filled in the empty area in the image, I want to try and remove the telephone pole from the left side. To do this, we'll create a new, empty layer and do the retouching on this layer. Then, we'll activate the Clone Stamp Tool and make sure the Sample menu in the Options Bar is set to Current & Below. We want to use the Clone Stamp Tool to copy from an area that does not include the pole or the pole's shadow, so we'll use the wall on the right side of the frame. We'll hold down the Option key and click on that area to copy it. Then, we'll paint over the pole area on the left. We'll continue to sample areas to try and remove as much of the pole as possible. This helped in removing the pole, but the colors are not blended properly, so we'll activate the Spot Healing Brush and use a hard-edged brush to paint over the area.



The Clone Stamp Tool is being used to paint over the telephone pole, sampling from an area on the right side of the frame.

Tip: It can be useful to take the layer that you'll be distorting and first turn it into a Smart Object. When a layer has been converted into a Smart Object, you can easily go back and change the adjustments made to it. For example, if you used Puppet Warp and then later decide you want to further adjust the warp, you can activate Puppet Warp and the same transform pins that you created before will still be there so you can further adjust them. To turn a layer into a Smart Object, make sure the layer is active and then go to the main menu and choose Layer > Smart Objects > Convert to Smart Object,