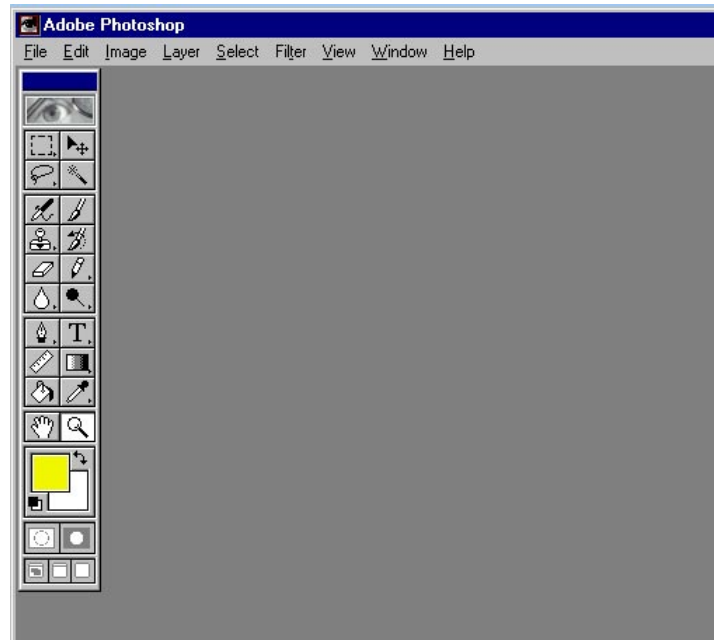


startup PHOTOSHOP 1

-----Applications-----

❶ Adobe PhotoShop is the Windows and Macintosh industry standard in raster image editing. The program has gone through a number of different versions in the last several years, but almost all of the basic functions are the same in versions 4.0 to 8.0. This Startup covers opening files, cropping, sizing, adjusting contrast, and printing.

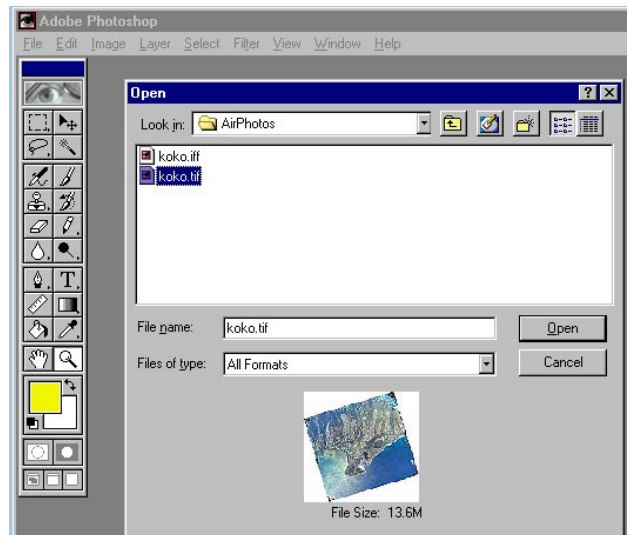


---- Special Requirements -----

r PhotoShop requires free hard disk space on the scratch disk(s) of approximately 5 times the size of the file being opened. If your file is 12 megabytes, you will need to have at least 60 megs free on your scratch disk. If this condition is not met, you will get the common "Scratch disk full" error message. The only way to deal with this is to close the program and free up space on the Scratch disk and/or change the location of the Scratch or add a secondary Scratch. The Scratch disk and its size is identified under File / Preferences.

---- Opening and Saving Files -----

◆ Files are opened under the File / Open heading from the main menu. Selecting "Open" will display the Open browser for file selection and open a thumbnail image if one is available. Explore the "Files of Type" window in the browser to see the range of file types that can be opened with the version of Photoshop in use.



◆ After editing your file Make sure that you choose File / Save As and choose a new name unless you want to overwrite the original file. Save As is also used to convert between graphics formats. Make sure that "Files of Type" format that you are converting to is selected before selecting Save.

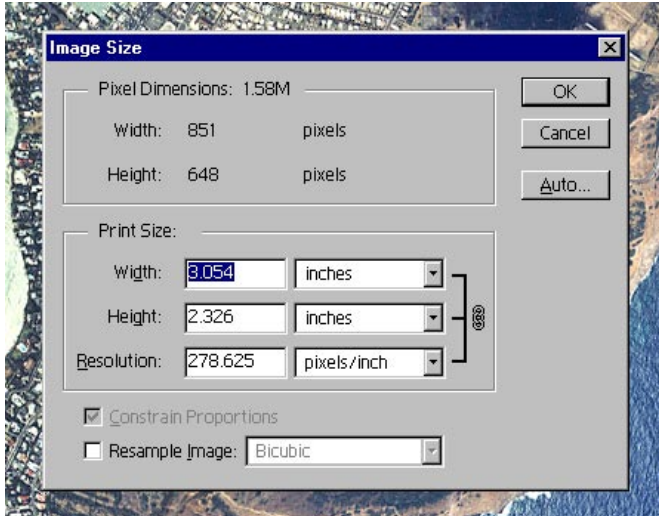
---- Sizing or Scaling Files -----

◆ Almost all of the basic functions are located under Image in the Main menu. To scale a file choose Image Size to open the scaling dialog.

◆ Make sure that Resample Image box is **not checked**. If this box is checked,

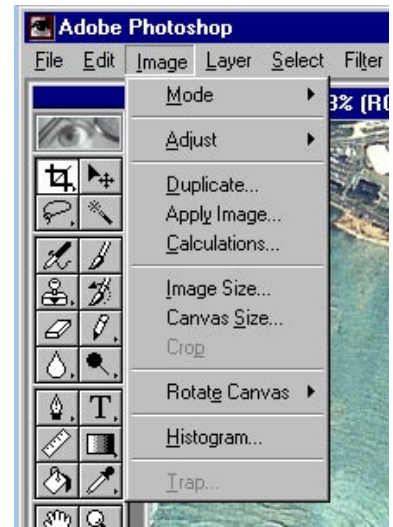
your image resolution will be changed when you click OK.

◆ If Resample Image is checked, it will be possible to rescale in two different directions. If you want to maintain the image proportions, make sure that the Constrain Proportions box is checked.



◆ Resizing an image may change its screen appearance.

The hot key Cntl O [zero] will fit the image to the screen.

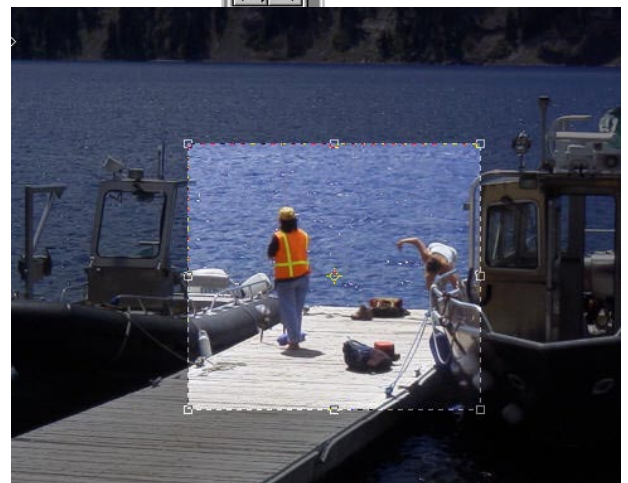


---- **Cropping Files** -----

◆ Many files need to be trimmed or cropped to select a specific focus or to reduce the image size. The cropping tool is located "under" the default box selector.

◆ After selecting the crop tool [crossed corners] at the end of the dropdown option bar under the selection tool, use the mouse to drag the crop frame over the area to be cropped. When the mouse is released the exact positioning of the frame can be edited by mouse moving the handles on the edge of the frame.

◆ When you have the exact positioning desired, double click in the center of the crop frame to complete the cropping action.



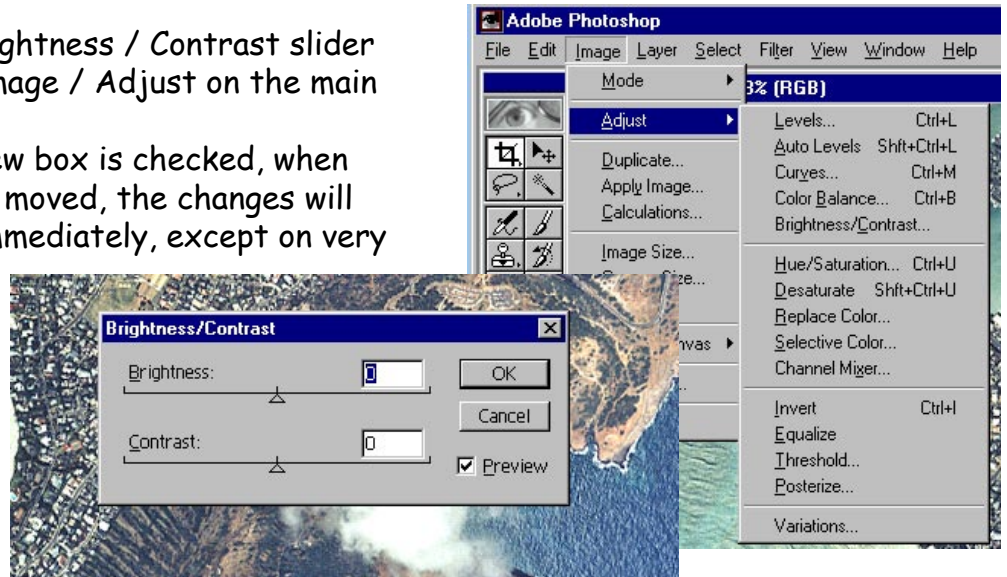
---- **Adjusting the Image Contrast and Brightness** -----

◆ The most common image editing task is to adjust the image's appearance.

This is most often done by changing the contrast and brightness of the image. [Remember that the screen appearance may not be the same as the appearance of the image when it is printed.]

- ◆ Open the Brightness / Contrast slider dialog under Image / Adjust on the main menu.

- ◆ If the preview box is checked, when the sliders are moved, the changes will be reflected immediately, except on very large image. However, the changes will not be written to a file until OK is selected.

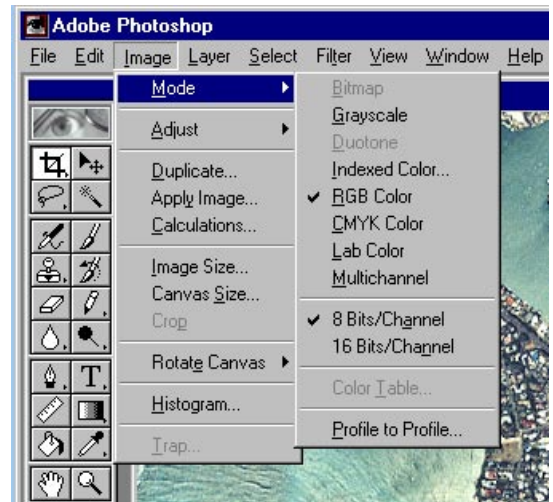


----- File Mode -----

- ◆ Occasionally, it will be necessary to change the mode of your image. For example, it may be useful to change a color image to a greyscale one if you are not working with a color printer.

- ◆ In addition, some editing functions will not work in all mode formats. If you want to add color to a greyscale image, it must be converted to RGB mode. Or if you wish to edit a USGS Digital Raster Graphic file, it must be converted from Indexed (8 bit/pixel) color to 24 bit (8 bit / channel) color.

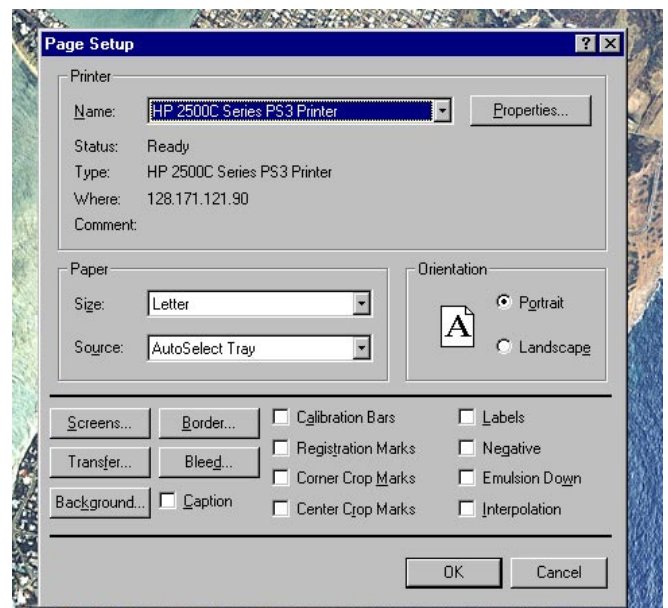
- ◆ These changes are made under Image / Mode.



----- Printing Files -----

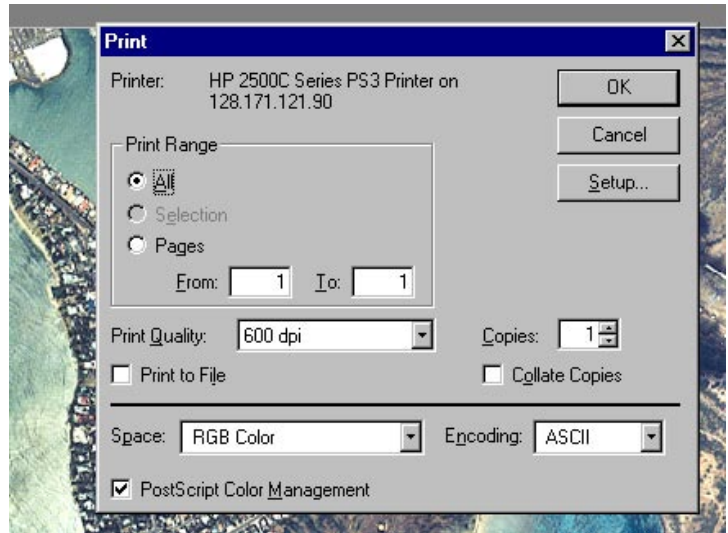
- ◆ PhotoShop is a fairly touchy print engine. It does not have a scaling or a "Fit to Page" function in the print dialog box. Before printing, images must be sized to the printer material available. To set up the printing function, first choose File / Page Setup to choose the printer and select the paper size and orientation. Some printers may have special printing characteristics that may have to be changed under the Properties button but most do not.

- ◆ Once the printer and page size



characteristics have been selected, press OK and then open the printer box.

- ◆ To actually start the printing, open the Print dialog box under File in the main menu.
- ◆ There is usually nothing to change in this box other than the number of copies to be printed. However, some printers do not react to the number of copies selection made in this box and you may have to print multiple copies manually.
- ◆ Press OK to print and wait. If you are printing a large format image, it may take some time to create the printer file and move it to the printer.



November 27, 2001

---- Special Requirements -----

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---- Toolbar Features -----

◆ There are many different related tools hidden under most of the icons in the toolbar. In Version 6.0 accessing the control of these tools has changed a little bit from the earlier versions of the program.

Note that there is a small cross symbol in the lower right on many keys in the toolbar. This signals that there is another form of the tool hidden underneath the displayed tool. Holding the key down with the left mouse key exposes the alternate functions.

◆ Whatever tool is chosen for subsequent work opens an options bar in the area just below the main menu at the top



of screen. The several windows in this "Options bar" are most important to the operations of the selected tool. Especially when doing any kind of image retouching, pay close attention to the brush size and operation mode of the tool.

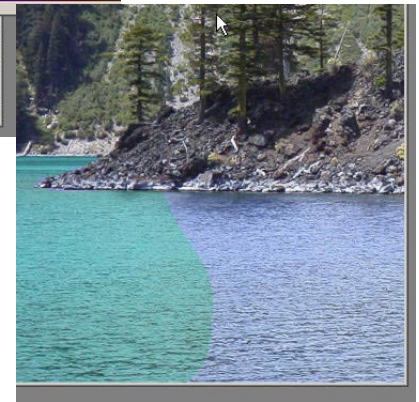
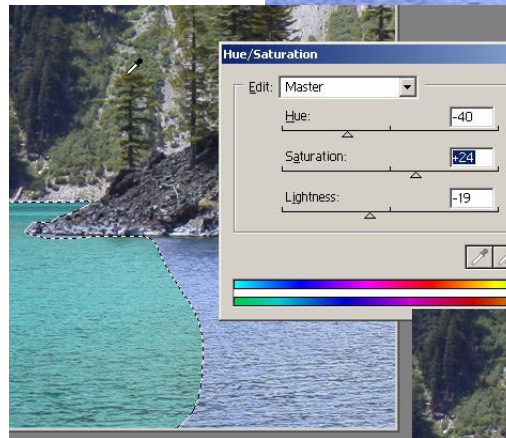
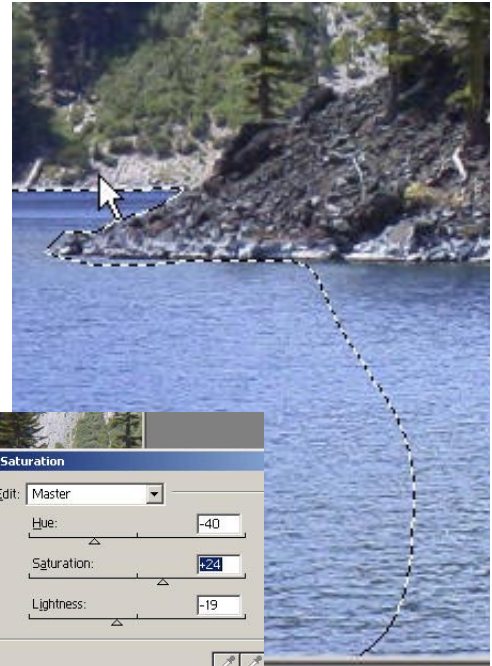
---- Cartographic Tools -----

◆ Since PhotoShop is a suite of image editing tools, it is usually used in cartography primarily for editing images that that serve as background or colored surfaces for the more common vector themes of maps and images. The three types of editing tools that are particularly useful in cartography are the selection tools in order to isolate image elements for modification, the cloning tool and the airbrush tool for image retouching. Each of these tools will be outlined with an example as a route into the many other tools that are present in the toolbar.

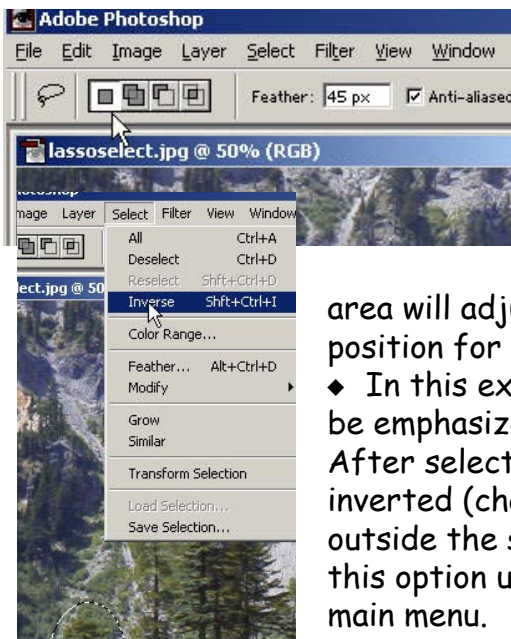


-----Lasso Selector -----

- ◆ In many situations, one will wish to modify only a small part of an image in order to move it to another part of the scene or to make it appear more dominant than the rest of the scene.
- ◆ In the following scene, it might be desirable to adjust the color of the water in order to allow to better match some other color in a projected layout. Since the water has a gentle and smooth contour, it is easy to use the lasso tool to follow its contour.
- ◆ While the selection is active, any of the main editing functions can be used on the selection. In the case to the right, the Hue Saturation box under the Image / Adjust was chosen to change the color of the water.
- ◆ When the selection is deselected under the Selection heading in the main menu or by using the shortcut Ctrl-D keystroke, the image has been modified. Note that the edited area has used the selection line as a hard edged selector.



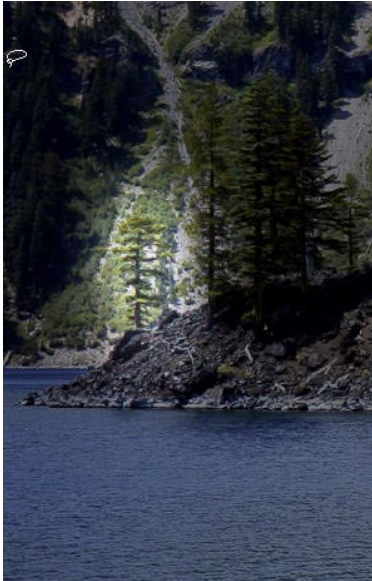
- ◆ In many cases one may not want a hard line to delineate the area to be edited. In this case the feathering function in the Options bar may be useful. The value in the feathering window is the number of pixels of gradation between the modified and the non-selected area. Notice when one uses feathering in the lasso tool, the selected area will adjust itself to reflect the starting position for the feathering.



- ◆ In this example, the tree on the point will be emphasized by using a feathered edit. After selecting the tree, the selection is inverted (changing the selected area to be outside the selection area) by clicking on this option under the Select heading in the main menu.



- ◆ By using the Image / Adjust / Brightness and Contrast box, the area outside of the tree is darkened. After this edit is completed, again using the Invert selection function and the Brightness and Contrast function, the tree itself is lightened and made more contrasty to make it in better contrast to the rest of the scene.



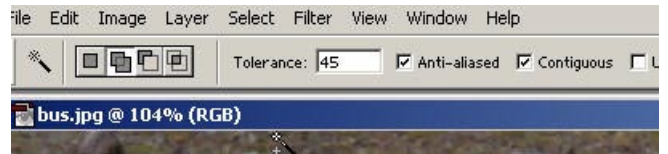
function and the Brightness and Contrast function, the tree itself is lightened and made more contrasty to make it in better contrast to the rest of the scene.

- ◆ Notice now that the selection has been graded from one edited state into the other.



-----**Magic Wand**-----

- ◆ The Magic Wand selection tool selects a zone of pixels that is controlled by the "Tolerance" box in the options function bar. For a very tight selection as one might use in image processing, a small value will be used. If one wishes a very broad selection, larger numbers can be used to include more variation in the color and tone of the selected area. In this case quite a broad range of selection of 45 has been used.



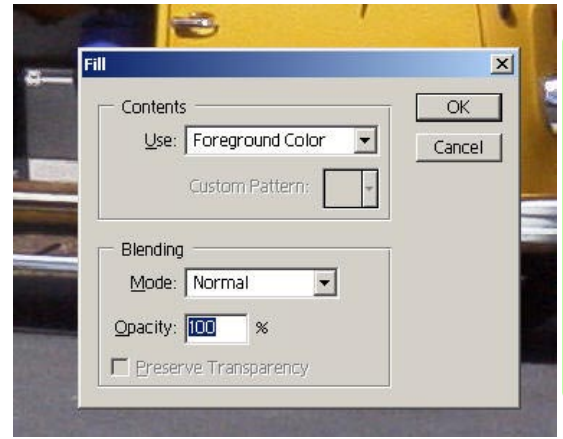
- ◆ Notice also that there are four buttons to the left of the Tolerance box. These allow different options in how selects accumulate. In this example the second box - "Add to selection" - allows each application of the Magic Wand to add to the previously selected ones.
- ◆ After all of the areas to be edited have been



selected, double click on the foreground box in the toolbar to open the color selector. Choose the color that you wish to use to replace the selected color and then select "Fill" under the Edit header in the

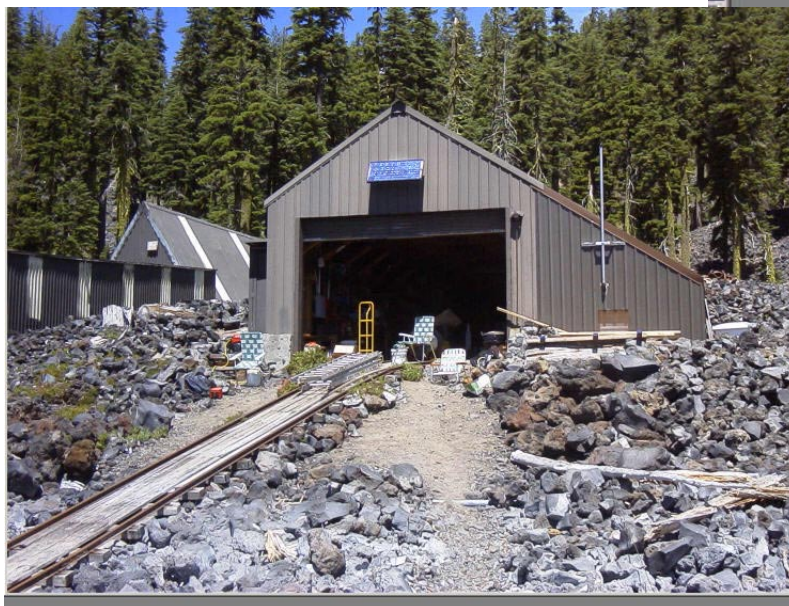
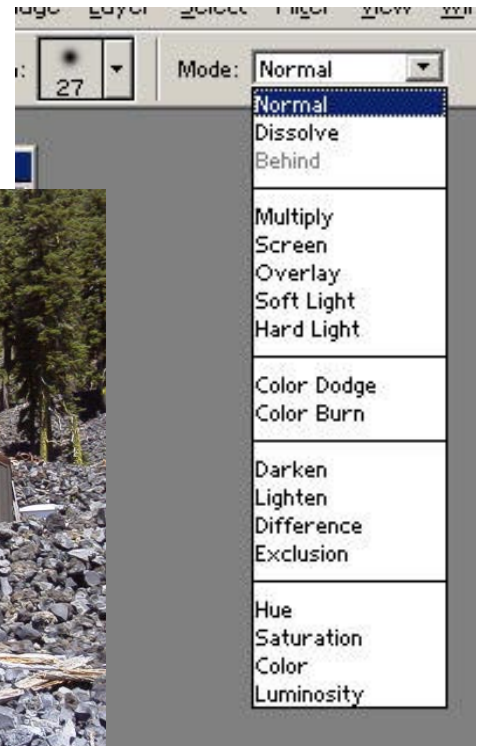
main menu and then choose the option "Foreground" under the Contents pane in

the dropdown Fill window. Clicking OK will complete the Fill operation, applying the new color to the selected image elements.



-----Rubber Stamp or Cloning Tool-----

◆ When retouching or modifying an image, the Rubber Stamp tool is the most used by many people. This tool allows a selection area to be defined for transfer to a new area. When the tool is activated by clicking the mouse or painting with it with the left key depressed, the image element will be transferred to the mouse cursor location. The amount of image transferred or cloned, is controlled by the size and shape of the "brush" defined in the Options Bar. The choices made in the Options



Bar are most important in almost all

PhotoShop operations but especially so in the Clone tool and its use must start with careful choices here.

◆ The size and shape of the brush should be obvious. When a choice is made in that palette, a circle will appear as the mouse is moved around in the image. When the ALT key is pressed, the program records where the circle is located

as the source for the image element to be cloned.

◆ Once the ALT key has been triggered, move the mouse to the point where you want to place the image clone. By clicking the mouse key or painting with left key held down, the image at the relative



location in the circle will be transferred to the mouse location. The destination location now has the clone circle, a small cross shows the location of source image. Notice that if you paint the image with the mouse key down, the source circle moves with moving mouse cursor at the same relative location as defined with the original ALT key use. This allows one to transfer an

image element over an area larger than the circle.

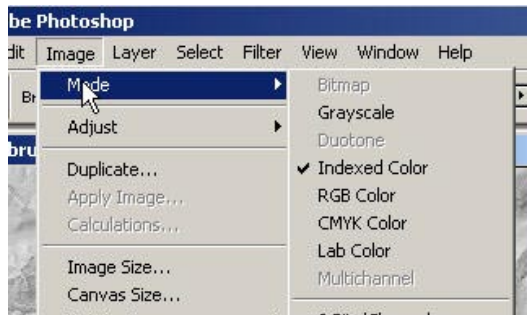
◆ To avoid creating an exact copy of a texture in the destination area, the location of the source image element should be changed often. When you change the location of the Source area, "repaint" part of the destination image to introduce a degree of randomness to the pattern being developed if that is desired.



When one does not change the source area often, you can see the results of this in the image above where rocks have been cloned to cover up the marine railway. There are two identical rocks with dark shadows too close together and lines of lighter rocks in vertical "rows" across the new rock field in the lower part of the scene.

◆ The airbrush tool works very similarly to the brush and pencil tools but has a number more controls in how the pattern is applied. The following example of colorizing a section of shaded relief should outline its applications and different functions.

◆ The first step in all such retouching work is to make sure that the image is in RGB format so that all the artist's tools work properly. Under Image / Mode, check to see that the image is in RGB - almost all digital photographs will be, but many grayscale images will not be in this mode. It is quite common to have shaded relief prepared in 8 bit grayscale or indexed color.



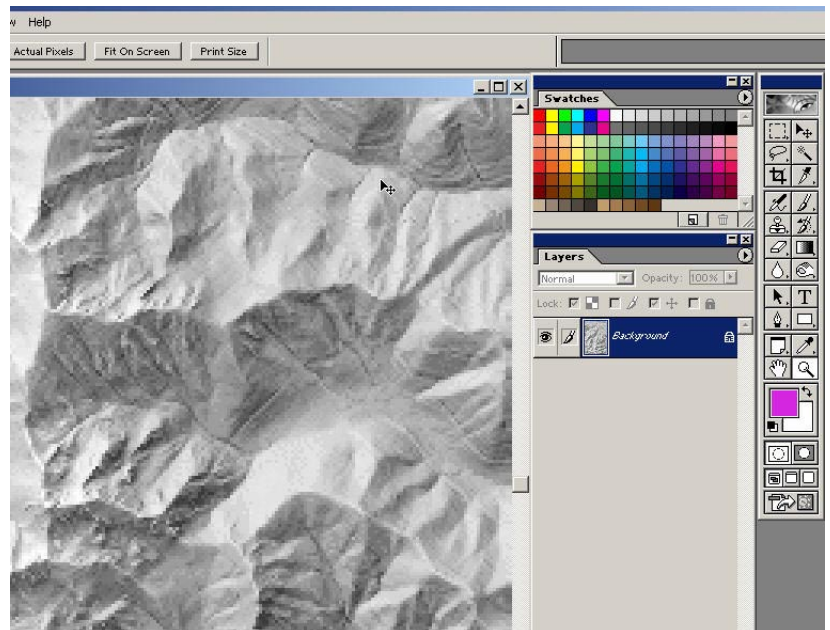
or indexed color. Also the color raster images of topographic maps (Digital Raster Graphics produced by the US Geological Survey) are in indexed color.



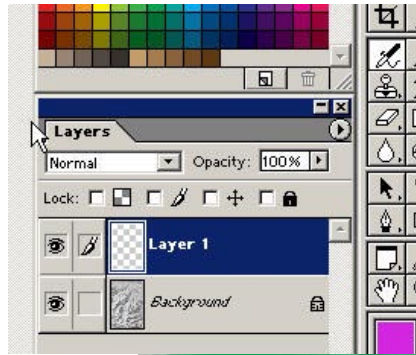
Clicking on RGB color with the image open will convert the image to RGB (and make it much larger).

◆ When retouching, generally one works at smaller sections of the area starting to the coarse work and then moving to the detail and then to the overall view. When working on colorizing the shading to the right, zoom in on a smaller area and arrange the tool palettes so that everything is close at hand. In particular, one needs close access to the Options Bar, the Color Swatches and the Layers Control window.

◆ To start colorizing a

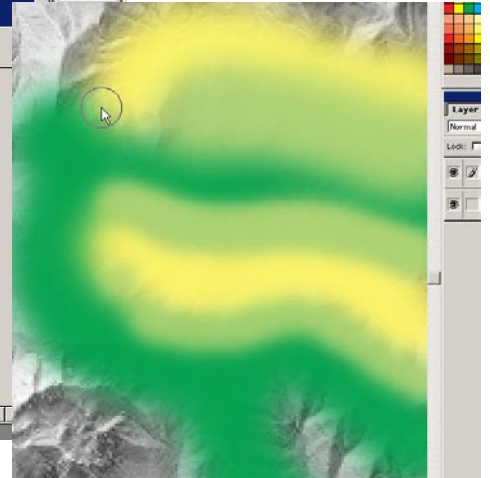
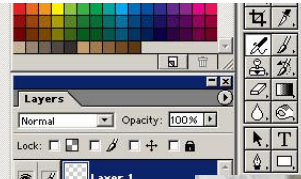
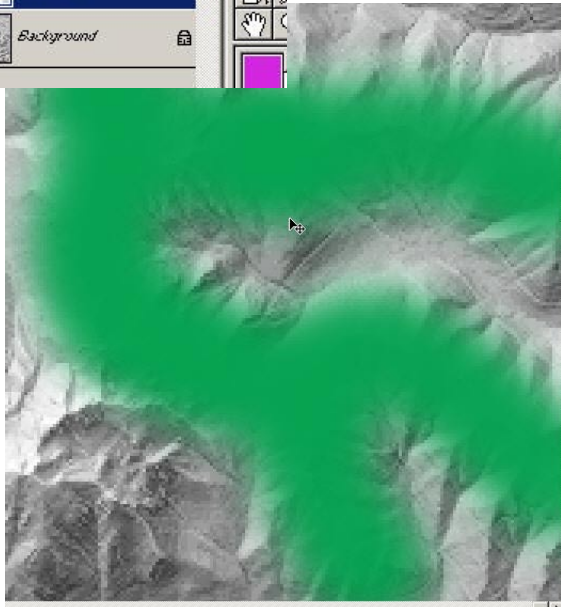


shading relief, it is important to do your work in a different layer than the original shaded relief. Add a new layer with the icon next to the garbage pail at the bottom of



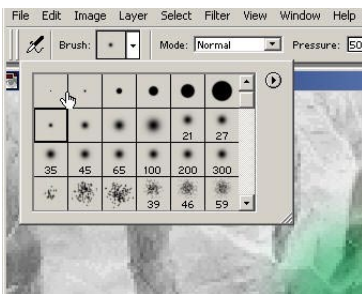
the Layers Control window. Notice that this adds a new layer at the top of the layer list and makes it active.

- ◆ Choose a highland color from the Swatch boxes and apply it with a wide airbrush until it covers the shading. Then choose a lowland and an intermediate tone and apply them in appropriate zones to the image, filling up all the area and making sure that

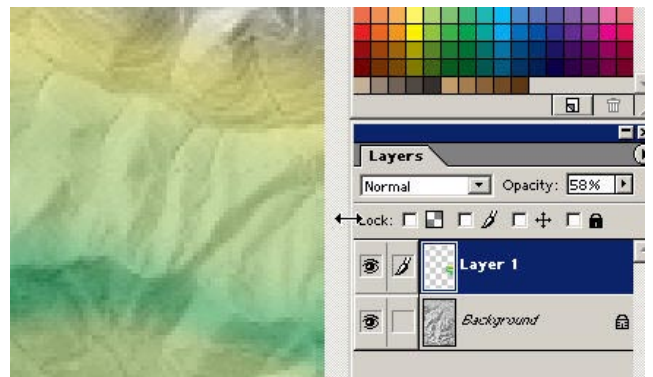


the relief is fully covered.

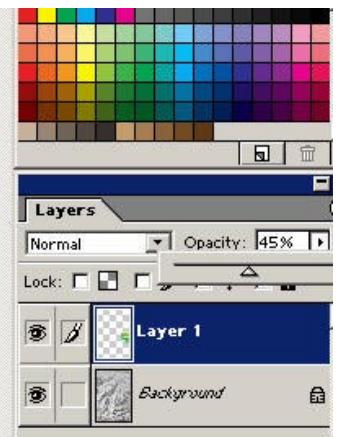
- ◆ Then decrease the transparency in the Layer Control box to allow the shading show through from underneath the shading.
- ◆ At this point it may be desirable to add more detail to the smaller terrain elements with a smaller brush.



to add more detail to the smaller terrain elements with a smaller brush. Choose one of the smaller brushes

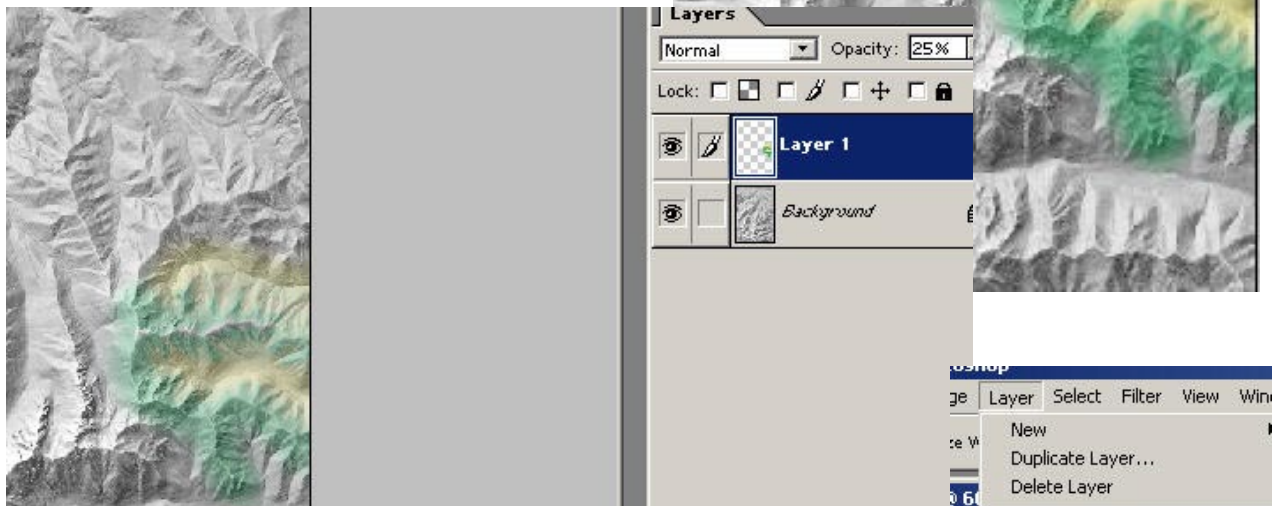


from the dropdown brush size window and then pick an appropriate color and begin adding some more texture. In this case I have added some green along the streams,

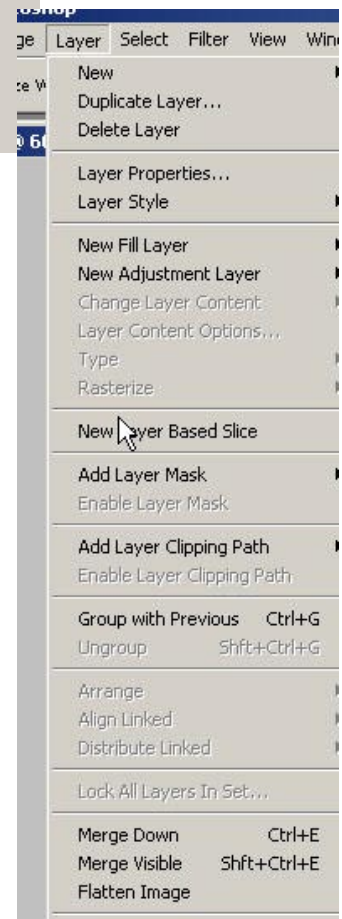


some tan in the upper valleys and some grey rocks at the crests along with scattered white snow patches.

- ◆ At this point it is useful to scale the image out to the whole frame to see how the color appears. It is quite common for work done at a detail scale to appear over-saturated at a reduced scale. In the frame to the right, this is the case so it is useful to further increase the transparency so that the crispness of the relief is more dominant.



- ◆ When all of the work has been completed and adjusted, a copy of the edited image should be "Flattened" by clicking on the "Flatten Image" option under Layer in the main menu. This combines all the image layers into a single layer and decreases the size of the file. However, this should only be done to a copy of the working file because when the image is flattened, the layers cannot be separated again to do further editing work.



December 10, 2001