

The Electronic Darkroom: Improving Artifact Presentation

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ABSTRACT

Often, images available for publication purposes and presentations do not meet minimum publishing standards. Using Photoshop CS2, with its advanced browsing tool (Adobe Bridge), raw file image processing capabilities (CR2), and streamlined workflow capabilities, it is possible to digitally re-generate marginal quality images into publication quality illustrations. New features in Adobe Photoshop CS2 are discussed, offering a step-by-step example of how Photoshop CS2 tools can be used for archaeological presentations.

Introduction

Photographs of the most diagnostic artifacts are all too often poorly composed with inappropriate backgrounds. Instead of drawing attention to artifact detail, they are more likely to distract the viewer. Digital cameras, scanners, and a vast array of photograph-enhancement computer software make it possible to improve the quality of existing archaeological images for printed and electronic publication. With practice, imaging software can also be used to combine multiple photographs for comparative analysis. A previous article (Smith, this volume) illustrated a quick and efficient means of turning bad photographs into useful line art through application of Adobe Photoshop CS2 software (Version 9.0). Here the same software is employed to transform poor images into usable artifact illustrations.

Important new features of Adobe Photoshop CS2 software (Version 9.0) are the Bridge browsing tool, Metadata log and information window, and RAW (CDR) workflow functions that allow bulk processing of images. Adobe Bridge is an excellent medium for viewing and sorting images since, along with folder and directory information, a Metadata window lists thumbnail image, file name, date, location and 32 additional pieces of information concerning each image. The RAW workflow function is also criti-

cal, for Camera Raw files contain the actual data captured by the camera's sensor. In a sense, these are digital negatives of the recorded images in which no camera filtering has been used to affect the image.

The Photograph and Its Manipulation

For purposes of illustration, a photograph of a conserved leather shoe was used. The Texas Historical Commission recovered the shoe during the excavation of La Salle's vessel *La Belle*, which sank off the coast of Texas in 1686. The challenge was to remove a textured blue background from the photograph. Scanned at 1200 dots per inch (dpi), the image was appropriate for archival purposes, but, at this resolution, the image file size was very large and inappropriate for use in a journal article. When rendered as a gray-scale photograph for publication, the background appeared dark, resulting in a lack of contrast and the loss of the shoe's edge detail. Generally, the image was bland and lacked the crispness needed to highlight the shoe's diagnostic features (Figure 1). To enhance the photograph and render it useful for publication, five steps were followed.

Step One: Create New Image with White Background

Because the image density of the background and the artifact were similar, the most effective approach to improving the photograph was to remove the background. Use the Magnetic Lasso tool (go to Window>Show Tools) to select the outline edge of the image. After completely tracing the edge of the artifact with the Lasso tool, copy the image (go to Edit-Copy or type Ctrl+C) into a new document (go to File-New or type Ctrl+N) (Figure 2). Save the image, which was sized automatically to fit, to the Windows Clipboard. Open a new image document and use the Paste command (go to Edit-Paste or type Ctrl+V) to insert the Clipboard image. Unless the default settings have been altered, the image will be pasted into the new document with a white background.



Figure 1. Gray-scale conversion of a photograph of the conserved shoe (Figure by author).

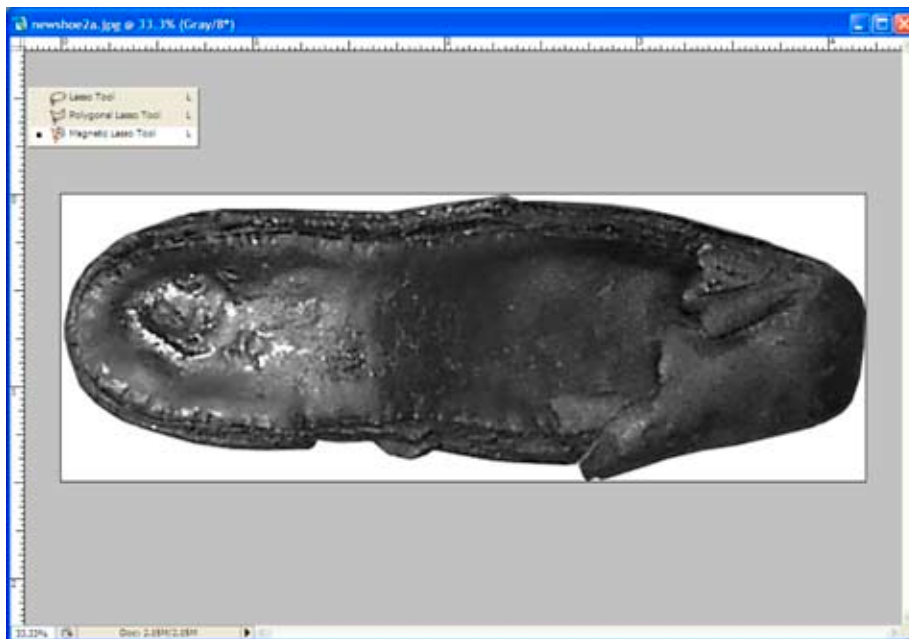


Figure 2. The image was selected using the Magnetic Lasso tool (*top*) and then pasted into a new document with a white background (*bottom*) (Figure by author).

Step Two: Adjust Input Levels

With the image fixed onto a white background, adjust the input levels to enhance the surface texture and details. Adjusting the input level (go to Image-Adjust-Levels) until the features are visible. Adjustment values differ with each image, and adjustments should be made to enhance the visual impact of the details of the artifact. In the case of this photograph, the values used were 0, 1.11, 255 (Figure 3).

Step Three: Make a New Transparent Background

The decision was made to combine images of the top and bottom of the shoe into one image for purposes of comparison. The best photograph of the bottom of the shoe was taken using a white background. This simplified the process of placing the image of the bottom of the shoe into a new composite image.

Select the background using the Magic Wand tool. Next, export the image into a new file in which the selected background was transparent. Use the Export Transparent Image command located in the Help directory. A message box appears. Select the second option, "I have selected the

area to be made transparent" (Figure 4). After selecting the Next option, a dialogue box appears giving the options to save the new image as either an Online Image or a Print Image. The Print Image allows multiple options for file formats when saving the new image. The Online Image gives only the choice of GIF or PNG file format. Both of these formats are geared for electronic publications and are appropriate for PowerPoint presentations and Web pages.

Step Four: Make a Composite Image

The composite image is created in three stages. First, create a new image using the width and height boxes to create a palate size that could accommodate the all images used for the composite. Open the first image and, using the Select -All command, copy it into the new document. Open the next image and, again using the Select-All command, select and paste it as a layer into the new document. Other layers can be added. A scale taken from another photograph can be imported into the document. After arranging the layered images, use the Flatten Image command, found in the Layer directory toolbar, to complete this phase of image enhancement (Figure 5).

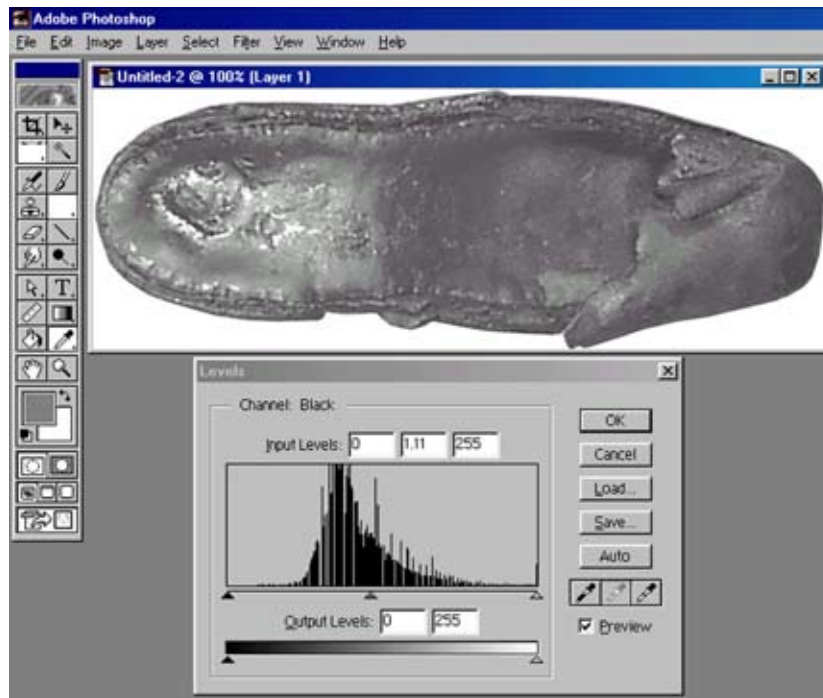


Figure 3. Overall details of the shoe are more visible (top) as the input levels are adjusted (bottom) (Figure by author).

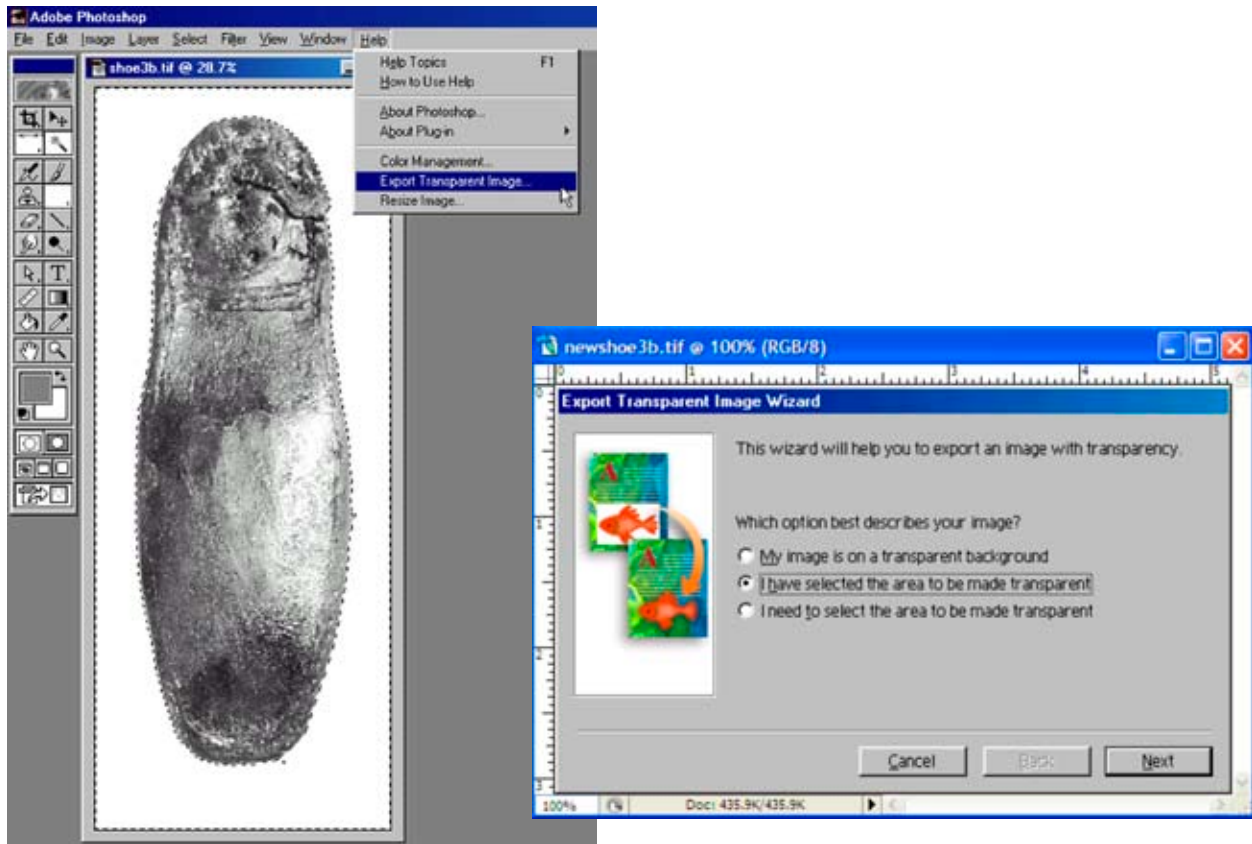


Figure 4. Export Transparent Image selection in Photoshop (left) and options for export (right) (Figure by author).



Figure 5. Flattening the image (Figure by author).



Figure 6. The completed composite image of the shoe (Figure by author).

Step Five: Add Text

The final step in completing this illustration was to add appropriate text (Figure 6). Font size and the amount of text are important considerations. Font size must be sufficiently large to account for any adjustments made by the publisher. If text is added to the image as a new layer, it is necessary to flatten the image once all labeling is complete. It is advisable to keep imbedded text to a minimum as any size adjustments made during the publishing layout process may result in distortion.

Conclusions

Adobe Photoshop CS2 software (Version 9.0) includes new tools and upgrades of long-standard tools that warrant serious consideration for use in specimen recording

and illustration. With practice, the Adobe Bridge browsing tool and associated metadata file make it easy to archive images with imbedded data that are permanently linked with each image. This useful aspect of Adobe's data storage system eliminates hours of transcription and the potential introduction of errors in data entry. Equally important, and as demonstrated here, Adobe Photoshop can be instrumental in converting poor artifact images into publication-quality figures through enhancement techniques and through the integration and manipulation of multiple images.

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