A PHOTODOCUMENATION METHOD:
taking the negative image of a daguerreotype

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INTRODUCTION

A daguerreotype has an intriguing physical property. It can be a positive or a negative image, depending on how it is illuminated and viewed. For a healthy daguerreotype, there is a perfect correlation between the positive and negative view at every point in the image. A dark point in the positive image will appear light in the negative image, and vice versa. Any surface damage on a daguerreotype will negate the positive/negative correlation. For example, the tarnish patterns still remain dark in both the positive and negative views of this daguerreotype shown in Figure 1 and Figure 2.

Figure 1. Positive image of a daguerreotype

Figure 2. Negative image of the daguerreotype in figure 1.

COMMON SPECULAR ILLUMINATION

The negative image of a daguerreotype can be viewed best through specular reflection. The most common specular illumination is illustrated in Figure 3, an axial specular illumination. The white card diffuses the light source and bounces the light to illuminate the subject. However, this setup creates a problem. Because of the highly reflective daguerreotype surface, the illuminated white card makes the daguerreotype an excellent mirror, which reflects the camera right above, as seen in Figure 4. The camera lens was recorded.
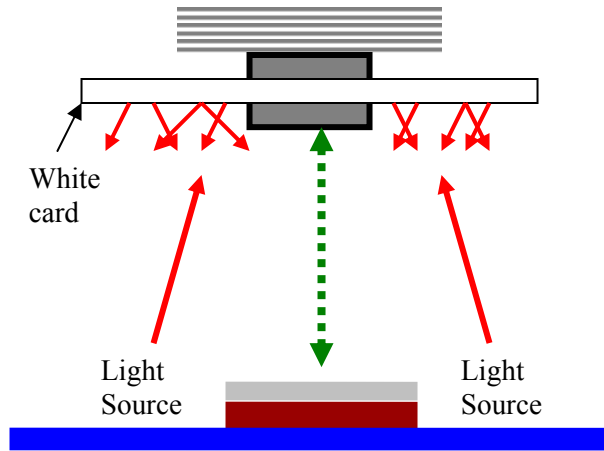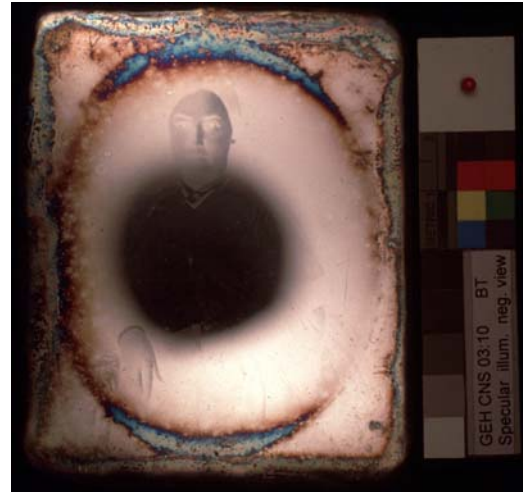
Figure 3. Common setup for specular illustration

Figure 4. Negative image of a daguerreotype taken with the method illustrated in Figure 3.

OBLIQUE SPECULAR ILLUMINATION

Another common method is to tilt the daguerreotype towards a light source, for instance a light box, as illustrated in Figure 5. The negative image taken in this way is quite strong but distorted, seen in Figure 6.
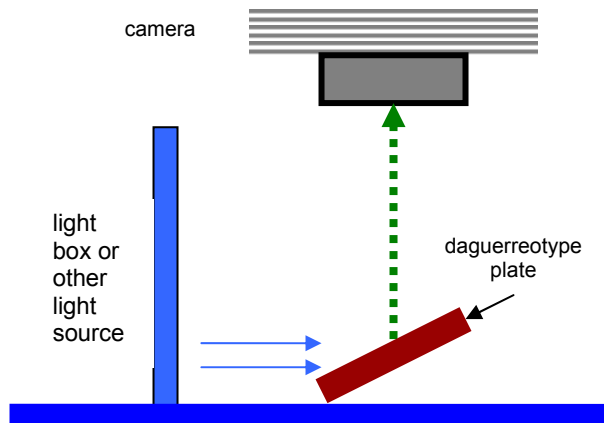

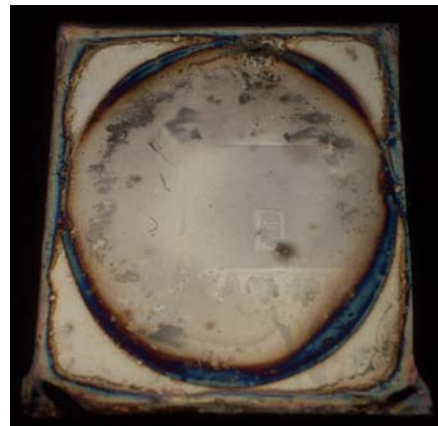Figure 5. Specular Illumination with plate tilted

Figure 6. Negative image of a daguerreotype taken with the method illustrated in Figure 5.

SPECULAR ILLUMINATION, GLASS METHOD

It is advantageous to record the negative image of a daguerreotype without distortion so that both the positive and negative image can be overlapped precisely. One can use computer software, such as *Scion Image*, to remove images and just leave the tarnish or deterioration. This could be a useful method for quantitative documentation. The following paragraphs will describe this new method of taking a negative image of a daguerreotype in detail.

As illustrated in Figure 8, a light box placed on one side supplies the ideal diffuse illumination. A piece of clean glass is positioned between the camera lens and the

daguerreotype at approximately a 45 degree angle towards the light box.   Light comes in and bounces off from the glass, creating an axial specular illumination. The clear glass reflects the camera image away, at the same time, allowing the camera to see the daguerreotype.   Sometimes, one needs to tilt the glass at different angles to find the image of maximum clarity.

The image taken through a piece of glass may have a greenish tint. Or if the color temperature of the light box is not balanced, the color in the final image will be incorrect. The color shift can be easily corrected in Photoshop if a gray scale is included in the photo document.
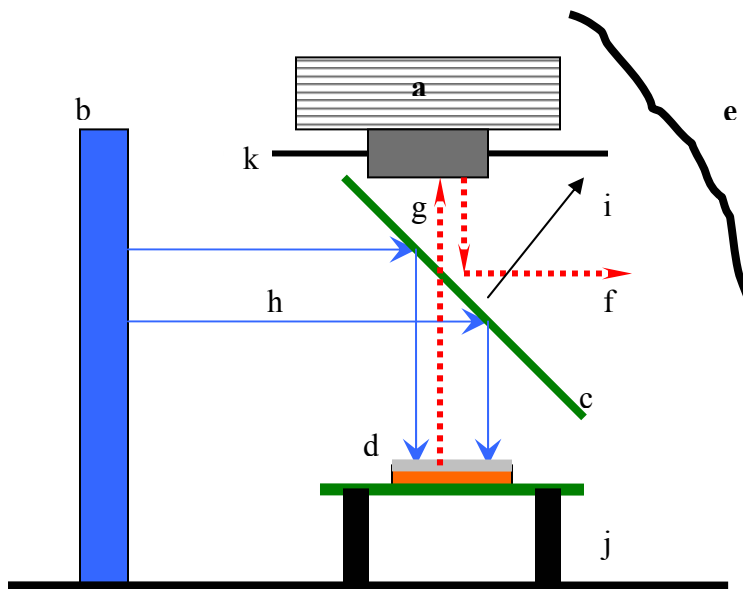
SETUP

Figure 7. Setup for taking a negative image of a daguerreotype

a. Camera
A piece of black paper (**k**) with a cut out to fit the lens can be used to prevent any reflection from the camera body or anything above. The size of the paper has to be large enough to cover the entire plate. The cut out can be just slightly smaller than the diameter of the lens, so the paper can fit snugly to the lens without extra support.
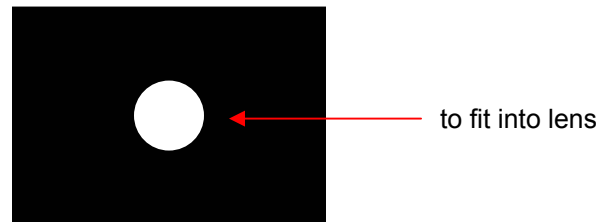

Figure 8. Mask to fit into camera lens

b. Light Box
Even illumination is critical for a good negative image of a daguerreotype. If you can see the light bulb in the light box, it is not an ideal illuminant for this method.   The size of the light

box has to be big enough, so the daguerreotype will not "see" the edges of the light box. The intensity of illumination is dependent on the distance of the light box to the object and the output of the light box. The closer the light box to the object, the higher the intensity, which is preferred.

c. Clean, clear glass
The glass reflects the diffuse light source (seen as solid blue lines **h**) to illuminate the object. It also reflects the camera image away (seen as the red dotted line **f**) but still allows the camera to record the image of the object (seen as dotted red line **g**).

The quality of glass affects the clarity of the final negative image. Choose glass with little tint or, even better, use anti-reflection glass. The position of the glass also determines how much light reflects onto the object. One needs to tilt the glass to find the best angle for illumination. It is usually around a 45° angle. The size of the glass is not critical, as long as it can cover the entire daguerreotype when viewed through the viewfinder of the camera lens.

d. object
The daguerreotype plate can be elevated away from the table top with a piece of clear glass and two black blocks (seen as **j**). This helps the angled glass (**c**) to collect light from the light box, and the shadow of the plate can be cast away to the table top.

e. black cloth or paper covering
If the area perpendicular to the plane of the glass (arrow **i**) is not black, a black covering can help to prevent reflection from that area.

EXPOSURE
The camera can be set on auto with brackets of plus and minus 2/3 stop. Figure 2 shows a negative image taken with the glass method.

REFERENCE
Arney, J. S. and J. M. Mauere. 1994. Image Analysis and the Documentation of the Condition of Daguerreotype. *Journal of Imaging Science and Technology* 38(2): 145-153.

Scion Image is free to download from the following web address
http://www.scioncorp.com/frames/fr_scion_products.htm