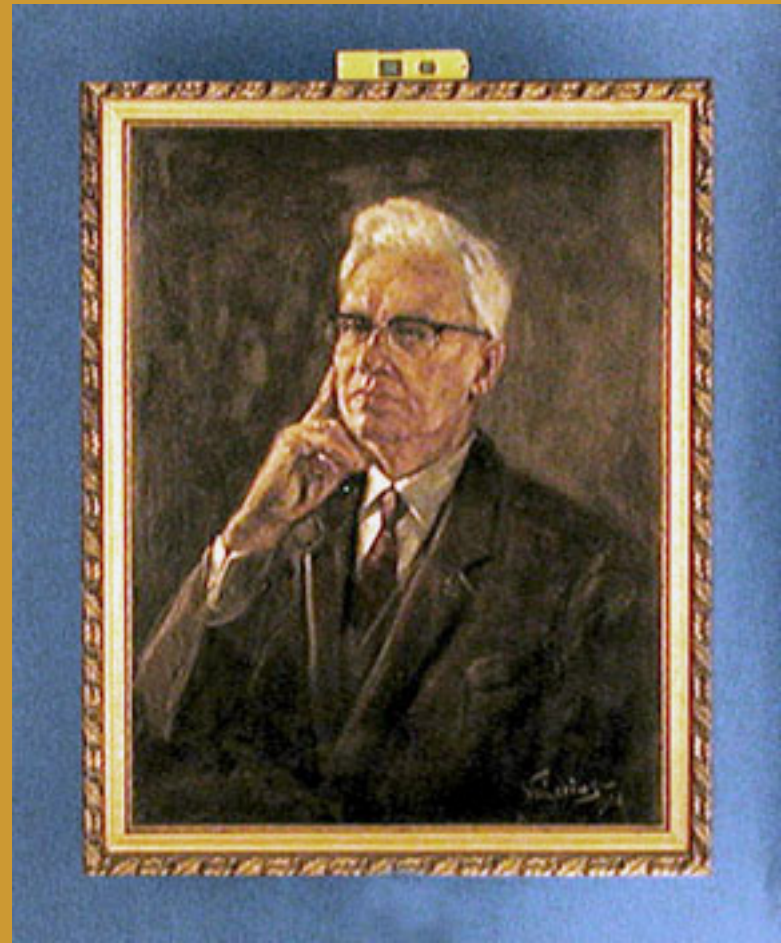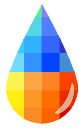# FLAAR Reports

Nicholas Hellmuth

MAY 2003

Options for Photographing Paintings

To reproduce as Giclee Prints

CONTENTS

Caption for cover page: FLAAR facilities at Universidad Francisco Marroquin Dr. Luis Beltranena Sinibaldi 1966 portrait by Valerius

Introduction

Making and selling giclee prints has turned into a million dollar business. Printing giclees is only the final result. The first step is to get the painting or other item of art into digital format.

At Universidad Francisco Marroquin, Guatemala, there was interest in providing giclee services to the growing market of painters. Guatemala is a beautiful country and everything from landscapes to exotic tropical flora and fauna are attractive subjects. The local costumes of the Maya people provide still more avenue for expression as giclee prints.

Printing fine art giclee at Francisco Marroquin University

This new enterprise quickly ran smack into the problems of reality. The first learning curve was how to reproduce, faithfully, the original colors of the scene (if a photograph) or of the artwork (if a painting). This entails color management. That involves investment in color tools, gathering experience, then training.

Second aspect of reality was how to digitize the original. We had problems at first but now have found several solutions (reported here as Appendix B).

We invested quite a lot of effort and hours in preparing this report. Fortunately we had a facility at the Malta Centre for Restoration, University of Malta. Naturally oil paintings were a focus of restoration there, so photography was crucial first step.

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Photographing fine art giclee at Malta Center for Restoration

Acknowledgements

Gary Kerr's atelier

Options to digitize the input with which to create a giclee as output

When you seek to digitize your original artwork in order to reproduce it as fine art giclee prints, you have the following options. We speak mainly from our own experience. There may be other options out there.

1st: you can scan a negative or transparency. This we will cover in a future course on scanning. However the pertinent facts are already in the scanner report within this Giclee SERIES of FLAAR Reports.
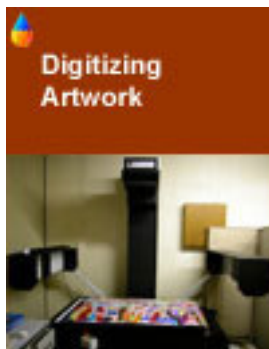
2nd: you can scan the actual image on a flatbed scanner. This presumes the painting (or other object) is small enough to fit onto a tabloid-sized flatbed. But again, this is a scanning operation, and that is covered in a separate report.

3rd: you can photograph the original artwork on a reprographic stand. FLAAR has two complete such systems: Kaiser repro stand with

tri-linear scan back and a dedicated Cruse digital camera system. The FLAAR course on digital photography offers two learning units on this kind of photography of fine art for subsequent giclee reproduction.

4th: you can attempt to photograph your painting on the wall by using a camera set on a tripod (see Appendix A). Of course you are practically bound to fail, that is, you can't get parallel to the painting so the resultant image will be skewed.

5th: you can give up and send your painting to a commercial photographer who will charge an arm and a leg. Besides, he or she may simply put it on the wall and photograph it by using eyeball technique (not ideal and bound to produce minor distortion).

6th: you can decide you want only a flawless result, completely aligned and parallel. This requires using a Cruse, or a Zig-Align. The latter option is reasonably priced and is covered in detail by Martha Martinez in Appendix A.

This BGSU+FLAAR course will discuss options 3 and 4. In effect this also helps you learn what the photographer of Option 5 will have to go through to produce a good image. Of course he/she may attempt Option 4, so you need to know about this in advance.

Lets start with Option 4

I have tried this; you have probably tried this. Everyone naturally assumes you can take your camera, on a tripod, and simply photograph the art work hanging on the wall.

Only hours or days later do you see the unfortunate results in your large format print. First of all you probably have too much light on one side and not enough in the middle. So you have two lighting problems. More light on one side than the other; and no matter what light you have on the sides, not enough reaches the middle.

David Frank Bujega lines up the Zig Align system in the FLAAR studio at Malta Centre for Restoration

But even if you solve that lighting headache, you still end up with another more serious problem. One edge of your image is not parallel to the other edge. Plus, even more distortions, one side is slightly out of focus. The focus headache will be more severe with a digital camera than with a traditional camera.

I have spoken with photographers who have sworn they have worked out a system to align everything, and probably they get close enough so they don't notice the unalignment. But there is equipment which will assist you to becoming less out of alignment, namely Zig-Align.

I have been a photographer for over 30 years, and never heard of Zig-Align, nor of their products, until Robin Myers (robin@betterlight.com) told me about this innovative system. Gary Kerr showed me the system at work in his atelier earlier this year. Then at PMA 2003 Larry Guyer showed me its features.

Since we did not have any Zig-Align products until we set up a studio at the Malta Centre for Restora-

tion, I could not provide a testimonial previously, but we sure can now (see Appendix B).

Option 3

If your painting is small enough to fit on a reprographic table, and if the object is a flat painting rather than a curvaceous 3-D object, then you can use a reprographic (copy) stand. Most digital copy stands can handle objects up to 2 inches thick easily; and up to 4 inches thick if you don't mind a shallow depth of field (which depends on which resolution; the higher the resolution the more shallow the depth of field).

The following reprographic stands are available:

Cheap stands, intended as copy stands for 35mm cameras. Not usually adequate to hold the weight of a digital scan back system.

Kaiser Repro Stand, DRUPA tradeshow

Cambo copy stand is the bare minimum we would even consider. However I don't have this stand, so I can't say much about it.

Kaiser Fototechnik, Germany, makes a motorized "rePRO" stand. We like this. Indeed this is the model offered by Better-Light. The quality is nice. Only downside is the size limitation of the base plate.

Then come the various component systems such as ZBE Satellite, other comparable copy stands from Colex, and so on. Trouble is that these companies designed these years ago; there are few upgrades or accessories; and somehow you get the impression that some of these companies, such as Colex, just don't have their heart into the copy stand business.

If you can't find their booth at Photo Expo East, PMA or Photokina, or if you go to the booth and no one there knows how to operate the equipment, it's a good sign to avoid that brand.

Cruse digital copy stand, BGSU

One product where the booth people definitely know how to run the equipment is the repro stand of TTI, Tarsia Technical Industries. Usually Mr Joe Tarsia is in the tradeshow booth personally. The tti stand is in some respects a custom-built high-end improvement on the Kaiser rePRO system. The Tarsia is larger and consequently correspondingly multiplied in price. You can obtain this stand from Parrot Digigraphic, e-mail jlorusso@parrotcolor.com.

The Ferrari and Rolls Royce of digital copy stands is the Cruse. The FLAAR facility at Bowling Green State University is one of the first universities to recognize the potential of this turnkey system. We have an entire system including book cradle and suction table.

### Equipment list for Option 4 (and option 6 with Zig-Align)

- Lighting that is not too hot
- Lighting with enough umph for digital sensor
- Light stands
- Circular polarizing filter for lens
- Polarizing sheets for lights
- Manner of holding polarizing sheets in front of lights
- Easel or means to hold the painting securely
- Carpenter's line level
- Zig-align system
- Adequate camera
- Pertinent lens

Bibliography

COLLINS, Sheldan
  1992 How to Photograph Works of Art. Amphoto/Watson-Guptil, New York.

Has an index, helpful list of suggested reading. This book has everything but a glossary. The author must have photographed thousands of works of art, of ever size and shape imaginable. So the book speaks from experience. The basic equipment is clearly pictured and described. Hundreds of situations are described. If you ever need to photograph works of art, especially archaeological works of art, this is a great book to have. Although it is out of print, surely you can find used copies somewhere.
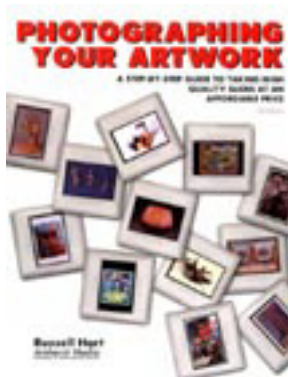
HART
        Photographing your Artwork. Amherst Media.

I am guessing that this book is an entry level discussion of how to photograph art of all sizes and shapes but primarily paintings and drawings. Hence it might be useful for garnering tips on photographing fine art.

Appendix A

One Way to Take Pictures of Oil Paintings

Eduardo Sacayon,
FLAAR at Universidad Francisco Marroquin

Edited and with Introduction and Commentary by Nicholas Hellmuth

FLAAR Reports

Introduction

The following is a description of the traditional manner of photographing a work of art which is too large for a scanner or even a reprographic copy stand. This setup was at the university in Guatemala, before we had the Zig-Align system.

Equipment

- Backdrop material
- Light stands and pole to hold backdrop material
- 1 tripod to hold the painting
- 2 light stands for lights
- 1 Manfrotto tripod head
- 4x5 camera Cambo Ultima II
- 4x5 camera viewer
- BetterLight Super 6K tri-linear scanning back camera
- Camera lens (180mm Schneider)
- Digital infrared filter (indoors)
- 2 Lights (Lowel Total Lights, tungsten)
- Macintosh Power Book G3 with SCSI connection
- Adobe Photoshop version 6 or later
- View Finder 5.2.2 software for BetterLight
- Bubble levels
- Gaffer tape (special photography tape)
- Macbeth Colorchecker Chart
- Better Light focusing card

Setup

Prepare a backdrop[1] with absolutely no flaws in it because any unevenness and crease will come out on the photo, and will be difficult to retouch in Adobe Photoshop.

The Kaiser RePRO stand couldn't be used because of the size of the painting. Since it was too big for the base of the repro stand, a solution would be

[1] It is unlikely that you will see any backdrop in the final photo. The function of a backdrop is to keep off any unwanted reflections from the wall, furniture or anything else. A neutral gray backdrop is best.

[2] Editors note: it would be better to have the painting on an easel but one was not available, so the crew improvised.

This image shows reflection of light in the painting, using Lowel Dp lights, the final picture was taken without the white cloths using Lowel Tota Tungsten lights.

using the base bolted to a wall so we could get a higher focal length, or maybe trying a different aperture lens or different camera with the stand.

The painting was hanged on a light stand,[2] in front of the backdrop, in a vertical position. It is important to have the art in a flat position so the illumination doesn't bounce off the surface producing a flare in the photograph. Hence we recommend using the bubble levels. Two Lowel Tota tungsten lights were set both sides about 60 – 75 degrees from the painting[3]. Due to the lack of space we had to set them really close to the painting at the same height.

The Lowel Dp were tried and had to use the white cloths so really the image was getting two areas of more brightness causing the painting to look bad as in the picture

We also tried using videssence fluorescent lights with domke balloon white cloths to eliminate brightness, giving an image with a lot of noise.

So the best results were obtained with the Lowel Tota Lights without any cloths (direct light) as described above.

The camera was mounted on a Gitzo tripod head, and was positioned about 1.5 m from the painting. All gear was levelled.

We used a 180 mm Schneider lens with an aperture of F/22 with an infrared filter which is required by the CCD sensor.

The scan back is inserted in the camera and a prescan is made using a small resolution of pre-scan of 12%

A Macbeth ColorChecker was set below the painting and colors were balanced using the ViewFinder software. The settings for the tone curve were selected for the black to a value of 25, the middle gray to 120, and the white to 240 using the method described by the manual.

[3] Sheldan Collins.1992. **How to Photographs Works of Art**, pp 140 Fig.11.2

Conclusions

The surface of an oil painting, even the texture of an artist's canvas, may tend to generate too many highlights (from the lighting) if you do not employ a polarizing filter. In most cases you would also need to employ polarizing sheets over the lighting itself.

Red arrows showing Highlights

As you can appreciate not all corners are focused, as this image shows the corners are slightly out of focus.

Appendix B

How to Photograph a Painting using the Zig-Align System

Martha Martinez

FLAAR at Universidad Francisco Marroquin

Based on work of Martha Martinez and David Frank Bujega (Malta Center for Restoration)

Introduction and editing by Nicholas Hellmuth

II Accessories

Bubble levels
Rubber band
Focusing card
Lens shade
Extra battery for laptop computer

III Setup

In this demonstration, the canvas was fixed to the easel[1]. We recommend you use a backdrop material of a neutral color to make retouching in Adobe Photoshop easier.
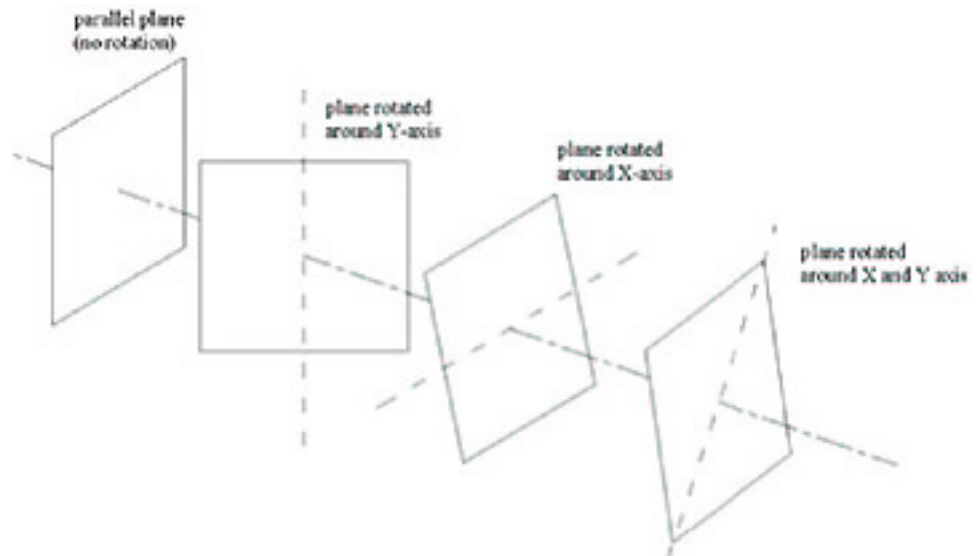

Lens, camera standard, bellow, bubble level, & Zig-align Mirror system

The tripod was positioned 1.5 meters away from the subject[2]. The tripod head and the Cambo 4x5 were fixed to the tripod. The height and side shifting of the camera was adjusted until it reached the central part of the canvas[3].

The fluorescent lights were both set at an angle of approximately 30° at each side of the subject[4]; at a distance of 2.5 meters away from the subject; and at a height that corresponds to the height of the central part of the subject.

Optical distortions were removed by aligning the camera to the plane corresponding to the canvas's surface. Considering that the photographical camera utilized for this experiment is a large format camera, it was necessary to align its back and front standards[5] too.

parallel plane (no rotation)

plane rotated around Y-axis

plane rotated around X-axis

plane rotated around X and Y axis

---

[1] The backward and forward tilting of the canvas was adjusted by the use of the easel. The tilt was checked repeatedly by a small 2-directional bubble level.
[2] The distance of 1.5meters was determined specifically for the size of the canvas and focal length of the lens. The canvas was viewed from the camera back while (the camera was) set at different distances away from the canvas-until the canvas was seen to fit well into the photographable area. Furthermore, the term 'subject' refers to the photographed canvas.
[3] The central part of the canvas was found and marked. The vertical distance from the central part of the canvas to the ground was matched with the height of the camera lens. During the horizontal shifting of the camera, the canvas was viewed from the camera back (that includes a gridline). The moving adjustments were done until the center of the gridlines matched with the marked central part of the camera.
[4] The lights were set at different angles and distances away from the subject, until reaching an even lighting-that was neither too strong (resulting in overexposure), nor too weak (resulting in underexposure).
[5] The term standard/s refer to the back and frontal part of the camera. They are both attached to the bellows.

Parallelism of two (or more) planes, involves in rotating the plane/s around the Y-axis; X-axis; and XY-axis.

David, Nicholas, and one of the many staff of MCR, Malta.

Alignment of the two camera standards were done by the Zig-Align mirror system. With the use of this system, it was possible to obtain the two planes set parallel to each other. This assured that no 3-D planar distortions of the subject will be present in the photograph.

Zig-Align mirror system & lensboard

IV Aligning the camera standards with the Zig-Align

The first step consisted of adjusting the front and back standard to be set at the same height and X-axis shift. The subject was then focused by attaching the bellows and the lens. Focusing was done by altering the distance between the two standards.

The bellows and the lens then had to be removed. The rectangular mirror, having the same measurements of the negative film, was inserted into the back standard of the camera. The circular mirror was then attached to the lensboard holder. The reflective surfaces of both mirrors were positioned facing the inner side of the camera.

The circular mirror features a small hole from which the operator could see through. By doing so, the rectangular mirror (placed on the other side) could be seen. This observation makes it possible to see

Circular mirror attached to the lensboard

a reflected image of the circular mirror on the rectangular mirror. This reflection is manifested with a circle-that corresponds to the circular border of the mirror.

The distance in between the two mirrors is seen as being doubled by an optical illusion of depth. This causes the circular border to seem smaller than it actually is. Because of this property, each time the circle outline is reflected from one mirror to another, the circle optically doubles the actual distance, appearing smaller and smaller, until reaching an infinite distance (in which the circular border appears as a single dot). In doing so, the reflected images of circles that diminish in their size, provides visual information to whether or not the two planes (of the mirrors) are in a parallel position with each other.

This checking is done by observing if each circular reflective image has its respective diminishing image located flanking its inner border.

Aligning the camera standards with the Zig-Align

If the diminishing images of the circular shapes are not directed towards the central part of the biggest reflective image (first reflection of the circular mirror), then the two planes are not set parallel.

For this reason, the front standard needs to be tilted along the X-axis; Y-axis; and XY-axis until the reflected images are observed to be perfectly centred.

V Aligning the subject's flat surface with the two camera standards

The Zig-Align system and the gridline (present in the viewfinder of the camera) were utilized for the alignment of the camera standards with the subject's flat surface.

Firstly, the rectangular mirror was hanged with the use of the nylon string attached to it. The reflective surface was set facing the photographic camera. Positioning of the mirror was done in such a way that its central part corresponded with that of the subject.

It was made sure that the whole (non-reflective) surface of the mirror was in contact with the subject's surface. This was done to ensure that the mirror and the subject's surfaces are set on the same plane.

Rectangular mirror being hanged with the use of the nylon string attached to it.

Both the lens and the viewfinder were removed from the standards of the camera. The circular mirror was attached to the back standard of the camera and the mirror-to-mirror reflections were again observed through its hole. The same system utilized (for the alignment of the two standards) were again utilized for the planar alignment of the canvas surface with the standards. This method is an improvised alteration of the Zig-Align. For this second alignment, it was necessary to align the standards with the subject only with the use of the tripod head. This was done in order to alter the positioning of both standards contemporarily. By doing so, the previous alignment of the standards was maintained.

Mirror-to-mirror reflections being again observed through its hole.

VI Procedure for taking a photo

1. Remove the mirrors from the subject and camera after the three planes are aligned.

2. Insert the lens and attach the square infrared filter to the back of the lens with a rubber band or Gaffer tape. It is absolutely necessary to use the infrared filter with most kinds of lights.

3. Manually focus on the subject. You will first have to set the camera dials to zero. Then start moving them while looking through the viewfinder of the camera until the image is focused. If you are photographing a three-dimensional scene, try to focus on an area 1/3 into the object. That way depth of field results in the front and halfway to the back to be in focus in most instances.

4. Connect the BetterLight digital system with a SCSI cable to the computer.

5. Insert the scan back.

6. Turn on the BetterLight system.

The green light indicates, that you are connected to the main external power. The yellow light means that your battery is still charging, but you can use the system. The system is turned on fully when the red light is on.

7. Turn on the computer.

8. Turn off the memory of the computer, and restart.
To turn off the memory open the *Control panels* and select *Memory*
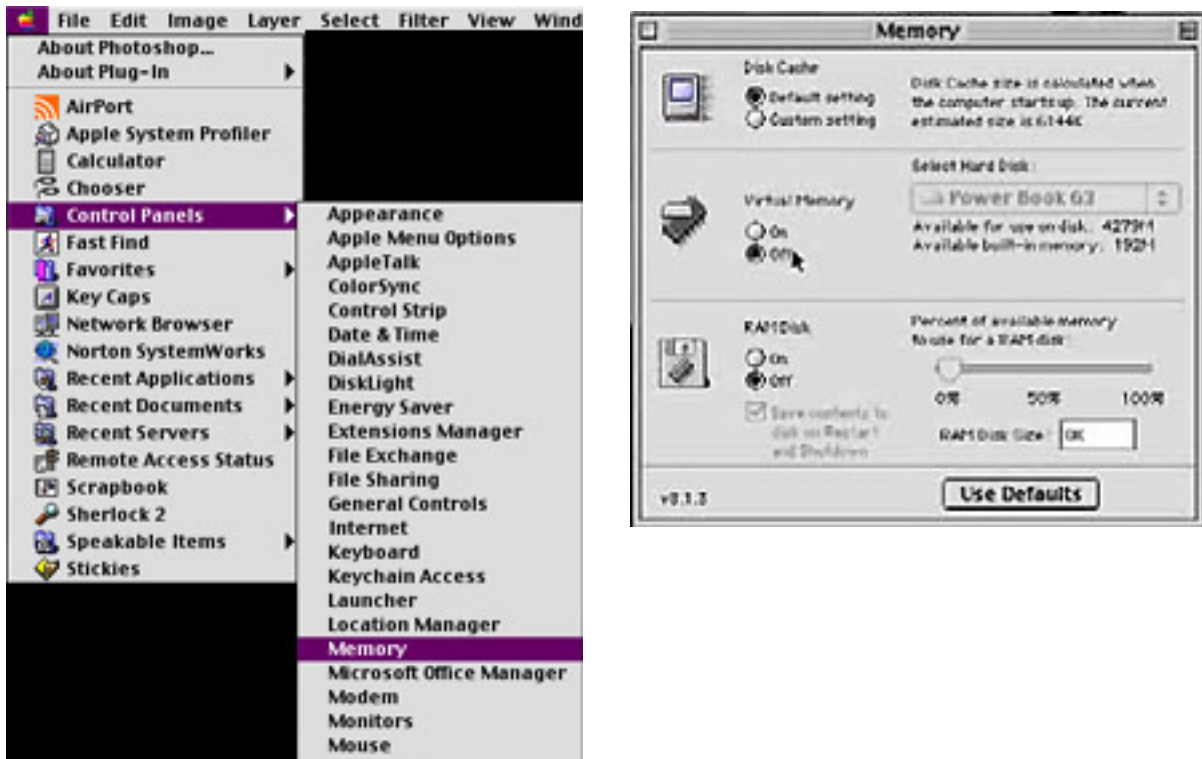

9. Open the ViewFinder software by clicking on the icon.
We are using the ViewFinder 5.2.2 software.

10. Choose a low resolution for the Prescan (12%).

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11. Choose a line time and ISO.
The line time is the digital equivalent of the shutter time. The line time and aperture of the lens determine the exposure. Under *Preferences* you can choose how it operates (exact, 60Hz, 50Hz[6]).
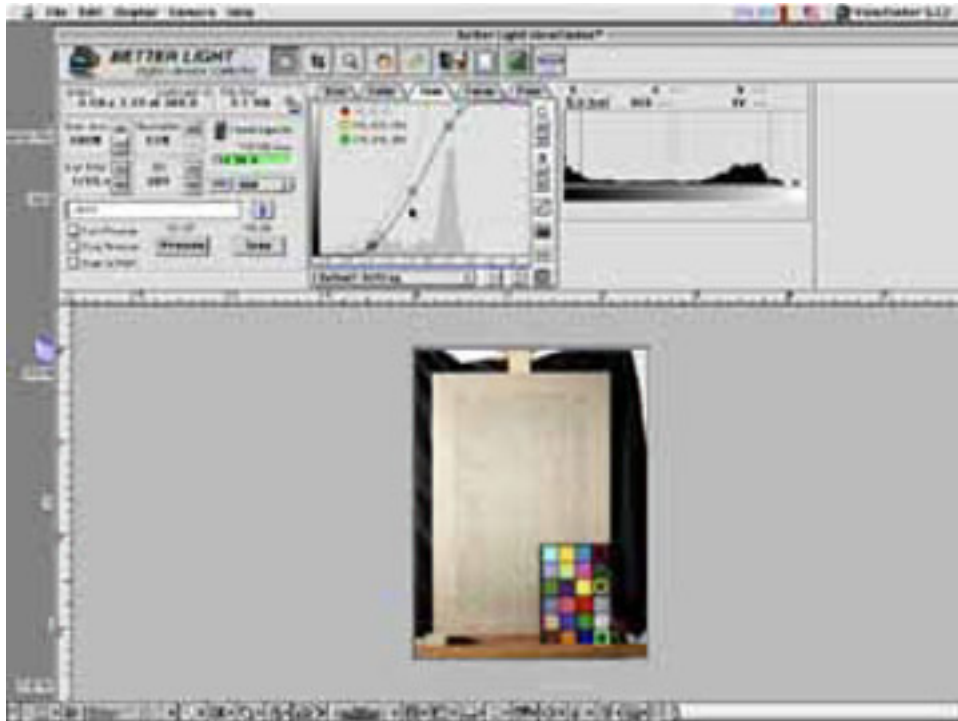
The longer the line time (e.g. 1/8s, 1/15s), the more light can be absorbed by the CCD. But a longer line time also increases the scan time and the dark current noise.
ISO determines the sensitivity of the camera. With a higher ISO the shadow noise increases.
A faster line time needs a higher ISO. You can synchronize the two settings by clicking on the small button next to the ISO field.
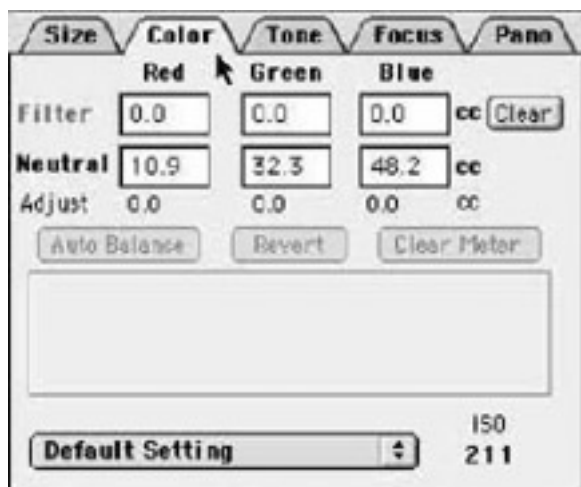Also, adjust the aperture of the camera if your prescan appears to be over- or underexposed.

12. Turn off any ceiling or other additional lights.
13. Take a prescan.
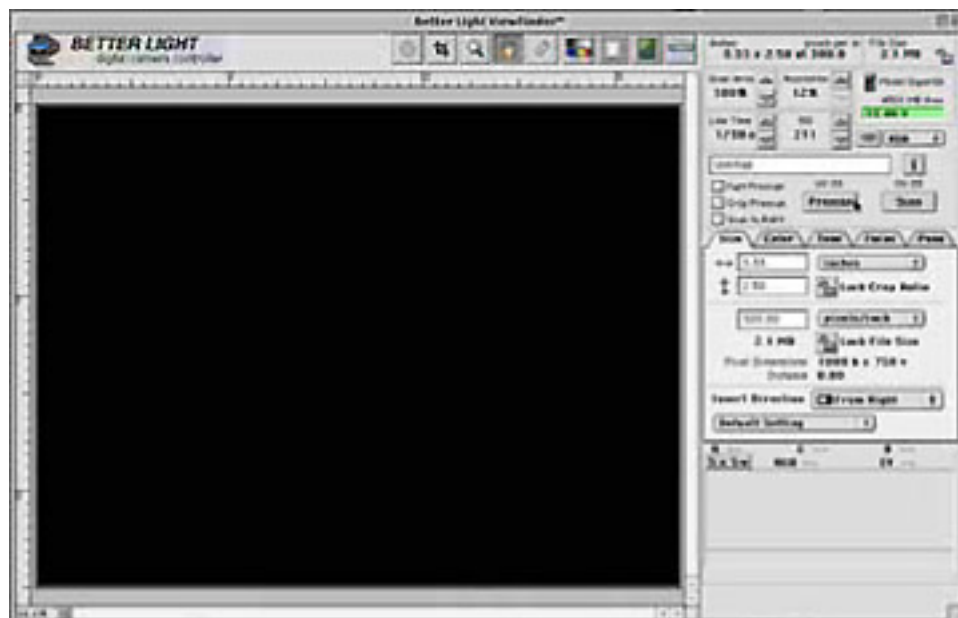
[6] 50 vs. 60 Hz have to do with the electrical line frequency. Comments will follow once we have gained some experience with this.

14. Balance grays with a Gretag MacBeth ColorChecker.

Color panel

Put the ColorChecker within the scan area and prescan. Then open the *Color* panel, and select a gray with the *Spot Meter* tool.

Spot meter

It is important that the three readings for each gray are equal. Click on *Auto Balance*. Observe changes to the histogram and the preview image. *Revert* and *Clear Meter* until you get a satisfying histogram. A good histogram has an even distribution of peaks over the whole width of the graph.

You might have to choose different shades of gray to balance the overall color. The program allows for four shades of gray to be chosen at the same time.

For better contrast, and to capture details in shadows and highlights, you might want to choose the black, middle gray, and white fields. Click on *Auto Balance*, and then adjust the readings for the black to about 25 by changing the line time and ISO settings.

The gray balance is important because it corrects the colors of an image to produce a color realistic photo. Gray is a neutral color that posses all wavelengths of light in equal amounts. Thus, by balancing the grays, i.e. eliminating any irregularities in its wavelengths, all other colors will be balanced as well.

The histogram should peak roughly in the middle of the chart. Both piedmonts of the histogram hill should be well inside the chart. If any edge of the base of the hill is touching either edge of the chart then you are either underexposed (far to the left) or overexposed (far to the right).

The more corrections you make in the camera software, the less you will have to correct the image in Adobe Photoshop later on.

You can make changes to the contrast range with the tone panel. The panels on the right of the graph

have the following functions:

     i. Increase/decrease brightness
     ii. Increase/decrease contrast
     iii.   Choose between 5 or 7 control points
     iv.   Negative

The three buttons at the bottom of the graph control the range of manual adjustment allowed for the curve control points.

If you have selected a black, middle gray and white, you will first have to move the circles into the middle of the colored fields. When you are using 5 handles, use the middle 3 circles. For 7 handles, use the 2nd, 4th and 6th circle.

Then click on the Vertical Move button to locate the exact output density, and to keep the circle inside the square.

Drag the square corresponding to the black to a value of 25, the middle gray to 120, and the white to 240.
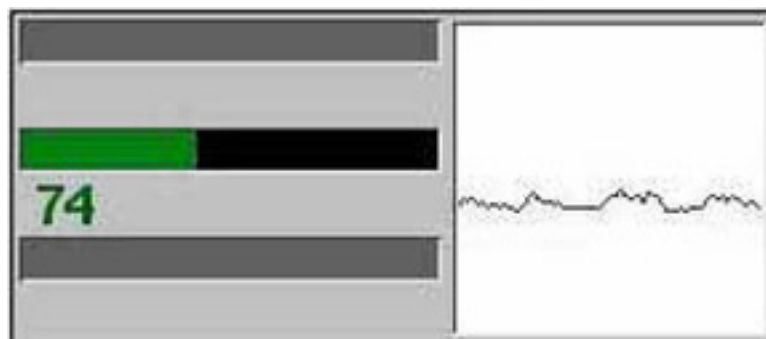
15. Focus.
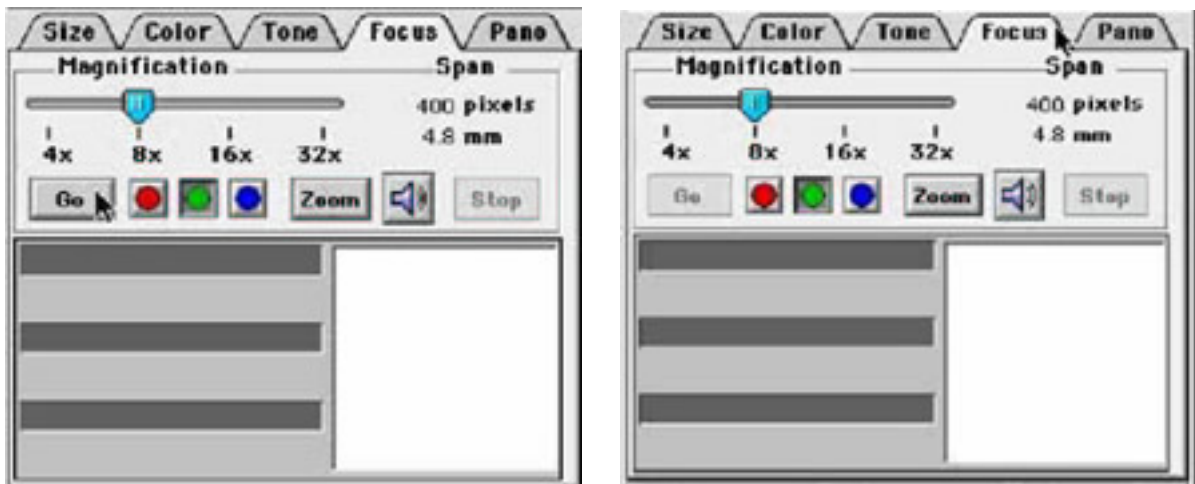
Open the *Focus* panel.

Select the area of the image where you want to accomplish better focus and click on *Go* (digital focus on non-flat objects is also best done at about 1/3 into the object, and not at the center).

A horizontal bar and a number will come up.

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Turn the dials on the camera until you have reached the highest number. There is no ideal number. Then click on *Stop*.
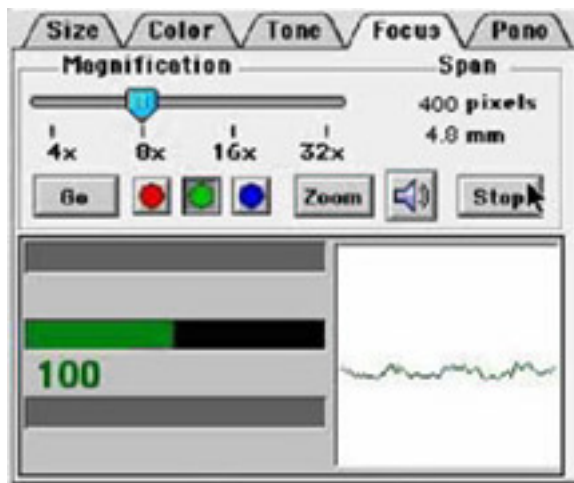
It is usual to focus only on the green channel. If you can't get a proper focus you might have to manually focus again. Keep in mind that inserting the scan back or changing the aperture might change the focus slightly due to camera movements.

16. Prescan until you get a satisfying result.
It might be helpful to take notes of the final settings for future reference. You can do that under *File*, *Save Settings*.

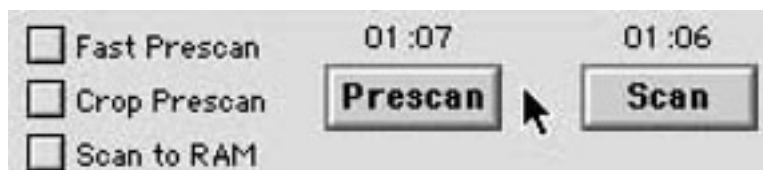17. Choose 12% resolution for the scan[7].
Choose the resolution according to the purpose of the photograph.

18. Choose a name for the photograph
You can also add additional information by clicking on the "i" icon next to the scan option.
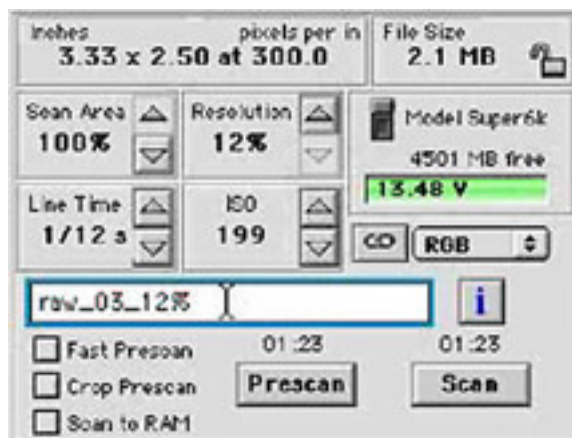
19. Scan.

[7] Do not take photographs larger than you need. Dye sub and digital imagers need about 300 dpi. Piezo printers with 1440 dpi may want 250 to 300 dpi. Most thermal inkjet printers, such as Encad, HP, and ColorSpan only need 150 dpi. Sometimes 120 dpi might be enough for a thermal printer.

20. Open the *File Manager*, and retrieve the image.
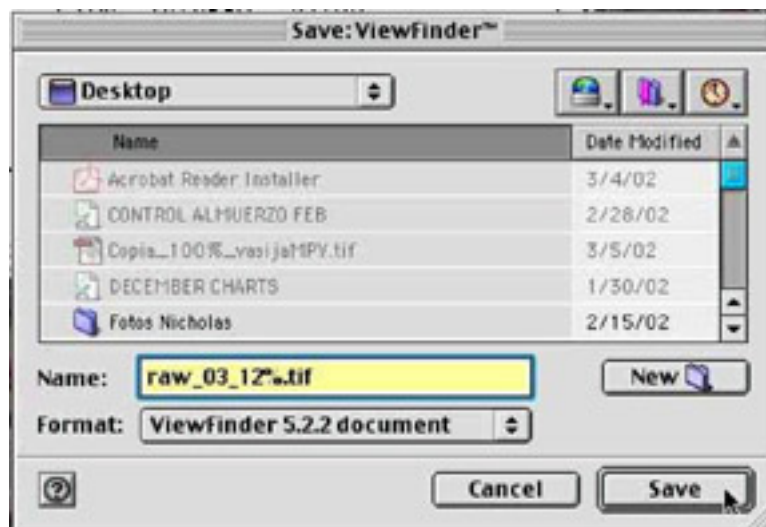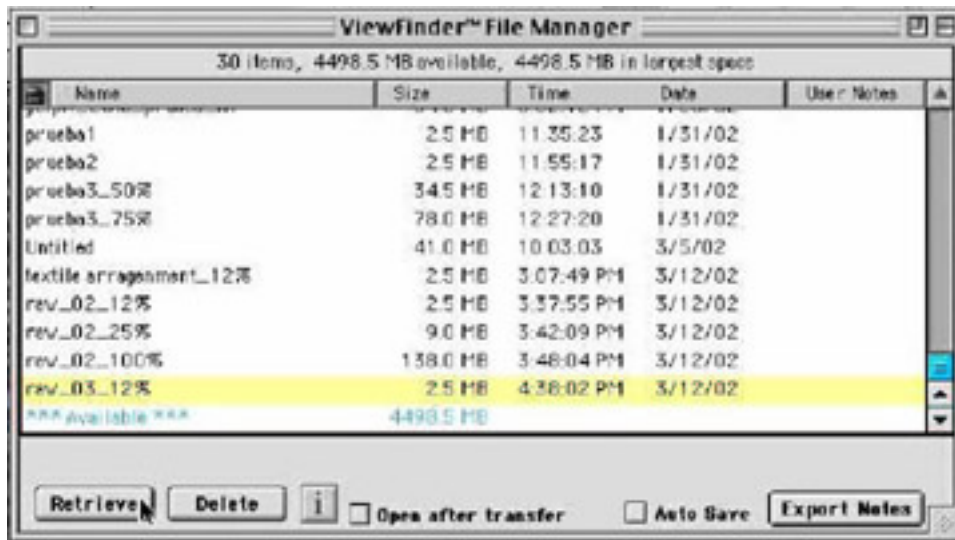
21. Open the picture in Adobe Photoshop.
22. If you wish to take another shot of the same object, be sure to change the name of the file to prevent erasing one of the shots by mistake.

VII Precautions

1. The lux level of both light sources may need to be maintained constant with the use of an electricity stabiliser. Depending on the situation in your area, stabalization may be fundamental during the shooting of the photographs since gaps of colour and definition errors could result by luminosity fluctuations.

2. Repeated checks were done to ensure that the alignment was correct. This was done by repeated observations of the mirror reflections.

3. After that each planar alignment was done, careful attention was given during attachment and removal of lens, digital scanning back, bellows, (etc.), in order not to accidentally alter the positioning of the standards and that of the subject.

Appendix C
Actual-Factual Comments on Use of Zig-Align
in a Giclee Studio

Gary T. Kerr

Fine Art Impressions
100 Cummings Center, Suite 325G
Beverly, MA 01915

Introduction and Photographs by Nicholas Hellmuth

Introduction

I visited the atelier of Gary Kerr last year. He successfully uses the BetterLight Super 6K digital scanning back with a 4x5 camera. His prints are accomplished with an Epson 10000 from Parrot Digigraphic. Color management is using Monaco software combined with ErgoSoft RIP.

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Experience of Gary Kerr, Fine Art Impressions

The Ziegler's Zig-align system was an ingenious invention to address the concerns of parallelism for photographing paintings for fine art reproduction. Once you have the process down, it is possible to eliminate all concerns for distortion and soft-focused issues.

The purpose of using the Zig-align system is to achieve parallelism between the subject plane, lens plane, and film plane. If any of these are compromised, you will introduce distortion to the image – even if undetectable on the ground glass. Our studio prefers a horizontal copy arrangement using a large format view camera and digital scanning back.

Different size paintings will require that you move your camera to compose the image properly on the ground glass. Therefore, you normally need to re-Zig-align with any movement of the camera stand, or tripod. The Zig-align process must be the final step prior to photographing the painting. This is to prevent anything from moving after the Zig-aligment is completed which is imperative to maintain parallelism between the three planes. Fixed or rigid copy set-ups do not have this drawback, however, they have other drawbacks our studio would not accept.

We Zig-align our view camera to a custom-built, wall-mounted magnetic copy board by aligning the film plane (rear standard) to the copy board first. We then align the lens plane (front standard) to the film plane resulting in three parallel planes. After completing the Zig-alignment, we take down the mirror, and re-mount the artwork.

Since this process is time consuming and requires mounting the artwork twice (once to compose on the ground glass, and once to allow the mounting of the Zig-align mirror), we added fixed lasers to our camera stand enabling us to re-Zig-align our system *periodically*, instead of with every new painting we photograph. Hence, our horizontal system with fixed lasers now enables us to hang paintings once, compose on the ground glass, and re-Zig-align the whole system in five seconds without having to remount the artwork. This is achieved by using our custom lasers set up as guides to re-establish fixed points of the camera alignment previously established by the Zig-align system.

Whatever set up or process you use, achieving absolute parallelism cannot be compromised if you want to create convincing fine art reproductions. If you only occasionally photograph paintings, the fixed laser set up is not necessary, but if you photograph paintings
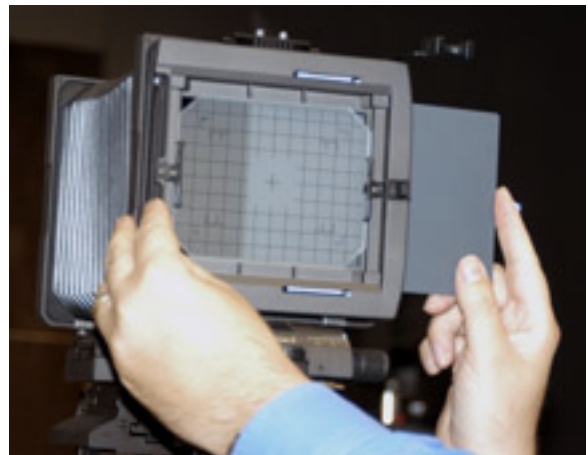
all day long, the Zig-align system with the added lasers provides a platform for consistently achieving parallelism without compromising productivity – especially for horizontal copy set-ups. The laser set up we use is not sold with the Zig-align kit, we developed the system of fixed laser for use with the standard three-mirror Zig-align system. The Zig-align is available in a version with LEDs, but this does not eliminate the step of mounting the mirror on the subject plane which is what distinguishes our fixed laser set up.

Gary Kerr is founder of Fine Art Impressions, a fine art printmaker in the Boston area specializing in photographing and reproducing oil paintings. His photography and printmaking standards are among the highest in the industry. Fine Art Impressions serves the fine art trade and museums internationally and can be reached at www.FineArtGiclee.com. Tel, (978) 927-2722, eFax (208) 246-7620.

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