



Which is better?

To attempt to print giclee yourself?

Or to start off by having someone print them for you?





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Introduction

Giclee, the printing of artistic works on inkjet media, is getting more popular (and profitable). In other FLAAR Reports we describe what giclee actually means and how it is simultaneously similar to, yet different than fine art photography and décor. But for the purposes of getting started in giclee printing, we include the following:

- Giclee prints of oil paintings
- Watercolor paintings
- Acrylic
- Charcoal
- Other paintings and sketches of any medium
- Mixed media
- Digital art (computer generated art)
- Historical posters, old maps
- Reproducing drawings from old books

Every day, actually every few hours, we get questions about “what printer does FLAAR recommend for printing giclee?”

But for about half these inquiries, it might be more practical to ask “where do you recommend that we send our art to be printed as giclee until we are prepared to do it on our own?”

In other words, learn the basics of giclee printing by having a capable experienced individual print them for you. Once you learn how the pros achieve museum-quality giclee that you can sell for a profit, then you can start your own giclee company. The biggest mistake artists make is to buy a printer and believe that the printer will turn them into a successful giclee atelier. Take advantage of years of experience from FLAAR, who has been printing giclee for artists in Ohio from our Bowling Green State University facility, and has simultaneously been printing giclee for artists in Guatemala from Universidad Francisco Marroquin.

Some colors print beautifully. But many reds, some cyan and blue, you can’t reproduce on a Roland. Two Roland dealers told us this deficiency. Some yellows do poorly on an Epson (why? It has to do with reducing metamerism; we have an entire FLAAR Series on piezo printheads and their quirks; this is our “Survival Series.”).

Metallic colors may reproduce poorly on any kind of inkjet printer.

So before you buy a costly printing system yourself, consider testing your own artwork or photographs by having an experienced giclee print master handle them.



How to identify a place to avoid?

If the print shop speaks primarily about what printer they have, what inks, and media, this should be your first yellow flag of warning. The quality of a giclee print is primarily a result of how the print is digitized (photographed or scanned). If you have a cheap scan or photo from an entry level camera the reproduction will simply reproduce the deficiencies of the digitization.

If the print shop speaks primarily about longevity, ask yourself: “but what is being preserved for a century? What if the digital file itself is flawed because the photo or scan was cheap?” In other words, a thousand years of longevity is not much help if your painting is poorly digitized; digital errors in the scanned file will merely be painfully evident to viewers for centuries? In this case, better to use fast fade ink so no one will see how inexpertly the photograph or scan of the painting was. The better your painting or art is, the more important it is to have a high quality professional digital photograph of the oil, watercolor, acrylic, charcoal, or other art.

Other factors to watch for are:

- If the shop is still using film instead of high end digital, it is unlikely you will get the final result your artwork is worthy of receiving.
- Be wary if the place you take your painting turns around and sends the painting out to someone else.

How can you recognize a poor scan or a poor photograph of a painting?

- If shot with a point-and-shoot camera, sorry, forget it.
- Check to make sure the scan or digital capture is not using interpolated data due to inadequacies of capture or camera. Telltale marks will be blurred image, pixilated edges, etc.
- If shot with a 35mm camera, check each corner of the image. Yes, look at all four corners at 200% enlargement in Adobe Photoshop. If ALL FOUR corner areas are totally in focus, you have a potential giclee.
- Most professional giclee ateliers will use a BetterLight, Cruse, or at least a medium format such as Sinar or Leaf Valeo 22. Yes, you can use a 35mm SLR (if properly aligned), but 10 megapixels is the entry level for acceptable quality.

But even if the print shop has the best equipment in the world, if it is run by minimum-wage employees, they won't care about your picture. What you need is an owner/operator who has personal standards of quality.

Look at the histogram of the image. If your white point and black point are good, If the white areas are over-exposed and the dark areas are without detail, you need a pro who specifically has experience with giclee. Even if the photographer is a dear friend, even if it is Ansel Adams resurrected from the grave, if the color balance is off, any corner is out of absolute focus, or if the white / black points are obliterated, trying to make a print of such a poor job is throwing good money after bad.

How to identify a place worthy of your trust?

1. Can they produce references from known artists?
2. Has any outside independent source inspected their facility? (FLAAR would be a valid reference in this respect).
3. Have they been in business long enough to have learned from experience?
4. Do they do the digitizing themselves, in house?
5. Who does the digitizing? A pro, or an hourly-wage employee or intern.
6. Is there a Macbeth ColorChecker in the scene as reference?
7. Are all four corners focused, color balance neutral, and white / black points flawless on the histogram, you have a photographer to cherish.
8. Is the scan or photograph alive with a three-dimensional feeling; can you see the brush strokes?
9. Do you receive a written guarantee of satisfaction.
10. Does the artist have the opportunity to interact with the photographer and master printmaker, or are you stuck with the counter person or other employee?
11. What lighting are they using?

Although we have strobe, we do not recommend it. Tungsten is great for illumination but is too hot. HMI is too expensive, and also a tad hot as well. Digital fluorescent lighting is one option; CD technology is the other. Most traditional photographers would either not be familiar with either of these technologies, or

would not have them. In the FLAAR labs, and at site-visit case studies, we have tested each and every kind of studio lighting for giclee.

If the giclee version of an oil painting looks so three-dimensional that you want to touch it to feel the brush strokes and the raised gobs of oil paint, then you have come to the right place.

For most professional purposes a 35mm slide is usable only if you want a print not much bigger than legal size; you can go to tabloid size if on canvas or watercolor paper because their rough surface will hide any pixellation. The 11-megapixels of a Canon 1Ds is okay for a good basic digitization. But the 8-megapixels of a Sony F828 would be unacceptable not on megapixel count but because that resulting photos from this Sony chip have serious electronic and physical flaws. A 6-megapixel Nikon 35mm SLR would be better quality than the 8 megapixels but overall would not be considered a professional recording. Notice that it is not the megapixel count that makes one camera better than another. The pixels have to be clean: Sony pixels, in the F828, are lousy. The FLAAR course on digital photography can explain why.

Medium format is acceptable if a Zig-Align system is used to make the painting flawlessly parallel with the plane of the sensor. If the corners are in total focus, and if you don't have distortion of the edges, you have a professional shot no matter what size or brand of camera. A good photographer can produce a usable shot even with modest equipment as long as the check-off list here is taken care of.

If your sense of style and pride in your paintings demand only a fully professional studio, then expect that they have a BetterLight or Cruse tri-linear scanning camera. Sinar would be okay for medium format in multi-shot mode. We have also produced high quality from a single-shot Leaf Valeo 22 (medium format).

Remember, the photography of the painting is more important than the printing. Anyone can have an Epson printer nowadays. But few printshops have a BetterLight or a Cruse, and not everyone with such equipment has the accumulated years of experience to know how to use them to record paintings properly.

So if you want to set up a giclee print shop yourself, you need to figure out how you, or your clients, intend to digitize the printings (or whatever works of art you will reproduce).

What about the Printer?

What about a Roland printer? Well, a Roland uses the identical printheads and the identical ink as an Agfa, Mimaki or Mutoh. Indeed Epson sells the printheads for each of these printers; same printhead. Since an Epson costs about half of what a Roland sells for, most giclee printshops use Epson, rather than Rolands.¹

We have an Iris 3947G giclee printer, all \$110,000 of it. This printer (the Ixia upgrade) has been gathering dust for several months. Although an Iris or Ixia can produce awesomely beautiful images (when it decides it wants to function), they are not archival (they fade because they can only get dye ink through their ink delivery and jetting system). If you keep an Iris print out of spotlights, in a room with absolutely no window that lets in one single beam of sunlight, then an Iris print will last many years, but it is not archival and it will fade before its time. But if the client requires an Iris print, then only an Iris or Ixia printer can produce one. However the era when an Iris was required to produce giclee quality has long ago passed. As Gary Kerr points out, “



¹ Mimaki and Mutoh printers are perfectly capable of printing giclee, but they are seldom advertised for this purpose. It has to do partially with licensing agreements with Epson. Epson wishes to hold the photo, proofing, and giclee markets for itself; so any company that needs Epson printheads is encouraged not to enter the photo, proofing, or giclee markets. This situation exists because Agfa, Mimaki, Mutoh, and Roland have no printhead technology of their own. These companies would be pushed out of business if they could not obtain printheads from Epson. So there are political as well as other reasons why Epson has become the de facto printer for giclee prints among those printers which use piezo printheads. Of course once you own a Roland, Mimaki or Mutoh you can print whatever you wish to, and many Roland owners are in the giclee business. However officially Roland is a sign printing company. So far Epson has stayed out of the sign market and does not even (yet) make a printer over 44" in width.



“Buying a wide format printer isn’t going to make you a master printmaker any-more than buying a grand piano will make you a concert pianist.”

HP and ColorSpan are perfectly capable of producing museum quality giclee prints if on watercolor paper or canvas. On the rough surface of these media you can’t see the benefits of the smaller picoliter Epson dot pattern so the smaller Epson dot structure is minimal advantage. We use HP printers at two universities to produce exhibit giclees for the artists in our communities. Yes, we also use Epson printers if the client is willing to pay the higher cost of ink and for the slower production. For fine art photography, if on photo paper, the newer HP 30 and HP 130 would be an excellent choice because of their precise detail, much better than any previous HP printer. Our lab tests demonstrate that in some instances the new HP 30 and HP 130 produce better detail than the Epson 7600 or Epson 9600, especially for small text fonts.

In theory a Canon printer has the quality necessary to produce a giclee print but few if any people actually use one for this purpose. Encad is probably the only printer whose resolution and dot pattern is not acceptable for photographic giclees. However Encad is okay for producing décor on canvas or watercolor paper. But I would be dubious of a print shop claiming to be a master giclee printer if all they had was an Encad.

All digital printers “out of the box” are not suitable for museum-quality giclee printmaking, in fact, they must be linearized, custom profiled and tweaked by a person experienced with color management digital printmaking skills.

The screening function of these printers are not optimized for giclee printmaking. In order to achieve near-continuous tone printing, you will need to make a considerable investment of time and money in a good RIP capable of driving your printer. Good RIPs enable the printmaker to customize the screening pattern (stochastic vs halftone) and optimize the ink density control and linearization from 0% to 100% on a per-media, per-resolution basis. Without this being the heart of your print making system, you will unlikely be printing giclees of the quality found at top galleries and art shows.

The media brand that is used is not as crucial as the camera, printer, and ink. No, this is not heresy. Notice I said brand, not the kind of media. The reason the brand is not crucial is that few media companies actually make their own inkjet materials. Some canvas companies buy raw canvas from India or Pakistan. Coating takes place in Europe or the US. There are only three or four places that coat canvas. But dozens of canvas brand names exist; most of them are buying the identical canvas as their competitors; they are just putting a different brand name and logo on it.

Same with watercolor paper. Yes, of course there are some prestige European watercolor paper brand names, such as Hahnemuehle (Germany) and Arches (France). But the same paper pops up also under other brand names.

It is the appearance that counts, more than the brand name. And the appearance is a result of the quality of the original scan or digital photograph, and the color management.

What other costs are involved?

Canvas needs to be top-coated. This means applying a special coat of protective liquid to minimize damage from abrasion, handling, or water drops. You need a print shop with experience; you should never use film to laminate canvas. Canvas should only be covered with a liquid clear coat, by spray, roll-on, or liquid laminator.

Watercolor paper can have its edges deckled. You need to find a place that knows how to deckle the page edges.

Anyone can frame your opus, but be sure to tell them it is an inkjet print so they don’t damage it.

What is a profile of a reliable giclee print establishment?

Yes, there are high quality giclee print masters that use an Iris. But the print results is more important than the printer. A flawless digital photograph will reproduce better on an Epson or HP than a mediocre scan will reproduce on an Iris.

Let’s check out a rising star in the world of giclee printers, Gary Kerr of Fine Art Impressions. I first visited

this facility when it was located outside Boston. They have now moved to slightly larger quarters outside Charlotte. The geographical location is immaterial since you can send your painting by FedEx anywhere. Their website is www.FineArtGiclee.com.



Here is an overview of the work area at Fine Art Impressions. Kerr has two Epson printers, the 10000 and a 9600. His RIP is from ErgoSoft (from Switzerland). The studio stand at the right holds a Cambo Ultima 4x5 camera to hold the BetterLight tri-linear scanning back. This is precisely the identical equipment that the FLAAR giclee studio has. Kerr also uses the Manfrotto tripod head, the same head we have used at FLAAR for the last decade. We like them so much we have several of them.

The lights are from Buhl. These are “ceramic discharge” technology, a little known relative of HMI (the lights used for movie sets). The CD version are cooler and the lamps (bulbs) don’t cost \$3,000 to replace). Kerr has customized the Buhl lights for giclee photography. So even if a rival print shop uses the Kerr studio as a model, a rival shop won’t get the custom version of the lights.

As Gary Kerr points out:

Interpretively lighting fine art on an individual basis is necessary to capture the life and structure of the paint and substrate of the original. If the nuance of the paint structure and detail is missing, blown out, or blurred, your reproduction will not be convincing or worthy of being sold as “fine art.”

How to Move Forward to get your first giclee prints

We recommend the following steps to get started.

Have a wide range of your work photographed, at least three to five completely different ranges of color, highlights, dark shadow areas, and surface texture.

If your medium is photography, they can be printed on

- Fine art watercolor paper; ask for deckled edges
- Artist’s canvas, yes, your photo can be printed directly onto canvas
- Matte photo paper
- Satin photo paper
- Try a glossy too
- If your medium is an oil painting, then obviously reproduce it on canvas
- If your medium is watercolor, then use watercolor media for the giclee print

If the original is a historical map, historical poster, etc.

- experiment with any rough textured surface, can be canvas, watercolor paper, or matte photo material.

We can understand that a first preference may be to use a local photographer. But the first question is do they have a tri-linear scanning back or a Cruse system. A Sinar or 22 megapixel Leaf Valeo, Phase One, or Imacon would also be acceptable as long as they have a secure alignment system. If your local photographer is working just in 35mm, sorry, that is not what you really want.

The next question is, does your local photographer use strobes only? Sorry, that is not the lighting you want.

As you move down the more complete list of questions you quickly find that no matter how professional your local photographer is, he or she unlikely has experience with photographing for giclee.



Here are a variety of giclee prints, on canvas and on watercolor paper.



This is the final exam, the ultimate test for quality in a giclee print shop. Is the print almost identical in color and density to the original. Here Kerr has his brush underneath a proofing strip. That is the original painting underneath; the strip of canvas is what the giclee will look like (namely identical).



Fine Art Impressions also has an 11-megapixel Canon 1Ds for when clients want a budget photo of their work. Yes, you can indeed print a handsome giclee from such an image; your main limitation is size: a BetterLight image will enlarge to a bigger size.



That's Nicholas (on the left), holding his newly acquired medium format Leaf Valeo 22 megapixel back on a Mamiya 645 AFD camera. Nicholas also has a BetterLight and a Cruse too, but since Gary Kerr already has a BetterLight there was no need to bring one for this meeting.

That's Gary on the right, holding his BetterLight. You can see the 48-megapixel scanning area. Its sensor covers about 7 x 9 centimeters, which is larger than medium format and just a tad smaller than large format (which would be 9 x 12 centimeters; 4 x 5 inches).

If your local giclee printer can lay a giclee proofing strip over the original, and have it match the color and texture as good as this, then you don't have to bother getting to know a master printer such as Gary Kerr.

Obviously there are some colors that no inkjet ink can reproduce. So the reproduction of some paintings will normally be a compromise. But if one print shop gets closer than another, then obviously the best place to send your painting for digitization and proofing is to the print shop that knows how to photograph art.



The Screen drum scanner is in case clients want to use transparencies they already have.

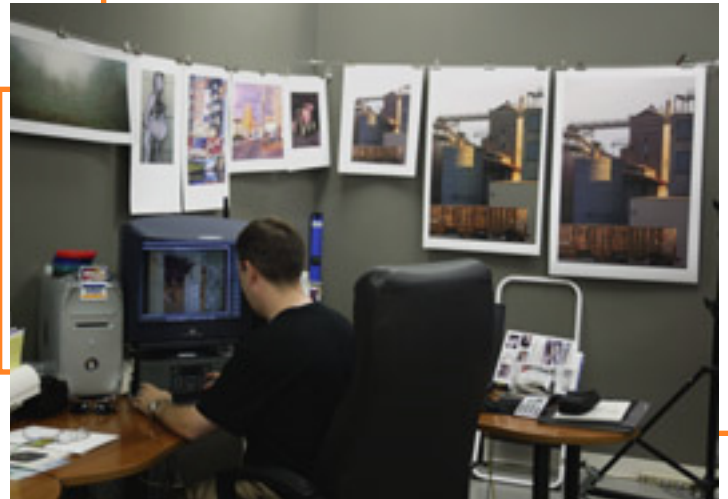
Most artists and people who want to have their giclees printed come with the paintings already photographed. In most cases these photographs are, to be blunt, are inadequate. Usually at least one corner is out of focus because the shots were taken without alignment other than eyeball, guesswork, or some jerry-rigged system. We did a test at the Malta Centre for Restoration. They had been photographing all the island's valuable historical paintings based on using a best-estimate system. We found that the shots they had been using were not in fact parallel; they were distorted a few millimeters. You will be able to see this in the final print.

Once again, having top equipment is only part of the process. Being skilled in operating sophisticated equipment is just as important as the equipment itself. Drum scanners are very complex machines and have fallen out of favor because of the cost and skill required.

The other typical inadequacy of having other people photograph your giclee is that the lighting ends up uneven, or you get hot spots, or you get too much glare (reflection). An experienced giclee photographer will eliminate each one of these problems so your painting's digitized TIFF file looks as close to the original as humanly and technologically possible.

This is a long way of saying, the photos you already have of your paintings probably should be retaken. Indeed if you take your snapshots to somewhere else, and they accept them and don't fuss about it; that is an instant giveaway that where you took your shots will take anything that walks in the door.

Notice that Kerr uses a drum scanner. This is not a Microtek, not a Umax. Indeed it is not a flatbed at all. The only flatbed scanner we would accept would be Fuji Lanovia C550 or Fuji FineScan 5000, Screen Cezanne, Creo EverSmart (Supreme, Select, Pro, or Pro II), an earlier Scitex, or Heidelberg.



Kerr works with both Mac and PC. Image capture and color management are done on a Mac. RIPing is accomplished on a PC, using ErgoSoft, considered one of the more sophisticated raster image processors, as you would expect for a product made in Switzerland.



These three shots reveal how large you can blow-up an image from the 11 megapixel Canon 1Ds.

To contact Gary Kerr, here is the information:

Location/Shipping Address:
 Fine Art Impressions, 228 Caldwell Lane Suite C,
 Davidson, NC 28036

Toll Free: (800) 419-4442
Business: (704) 655-9883
Email: info@FineArtGiclee.com



This is the FLAAR giclee photo studio at Francisco Marroquin University using a BetterLight.
 If you intend to print commercial-quality giclee, you need a wide format camera such as the BetterLight or a Cruse reprographic camera. Trying to photograph a painting using a zoom-lens camera brings in too much distortion. You could use medium format if you have a Zig-Align system. A Canon 1Ds would be acceptable if properly aligned, for decor reproduction. Decor is not as demanding as is giclee.

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www.cameras-scanners-flaar.org

www.fineartgicleeprinters.org

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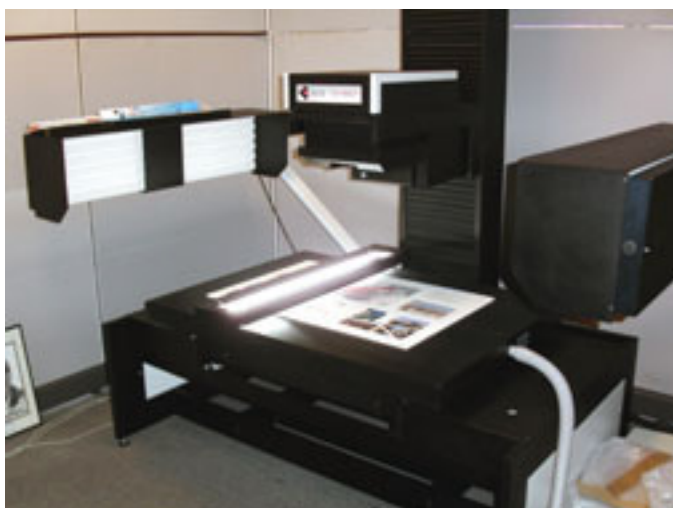
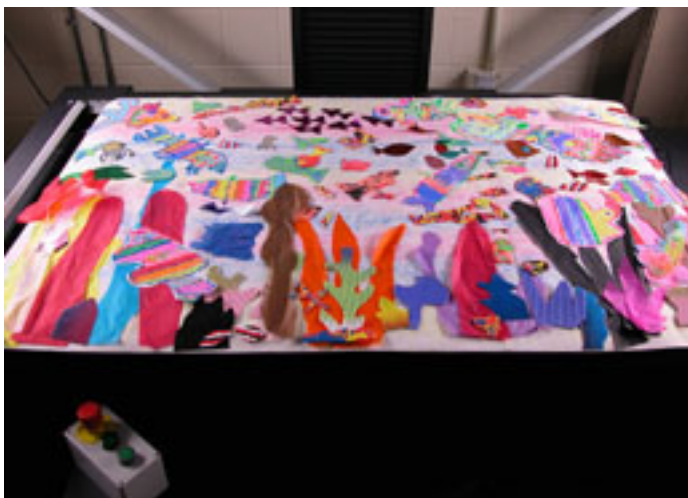
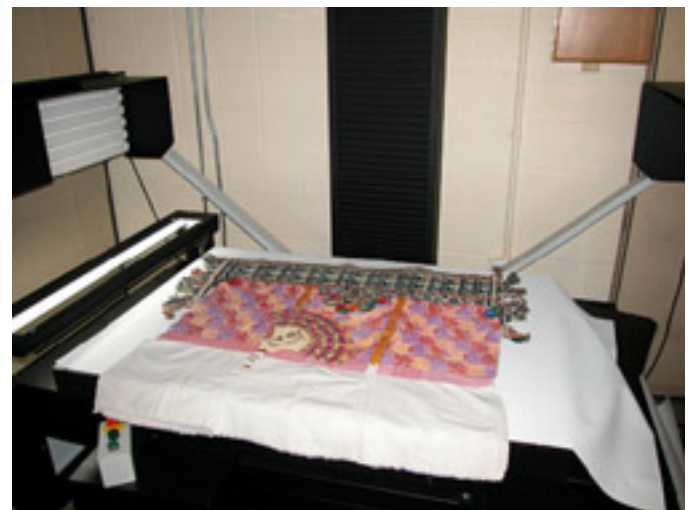
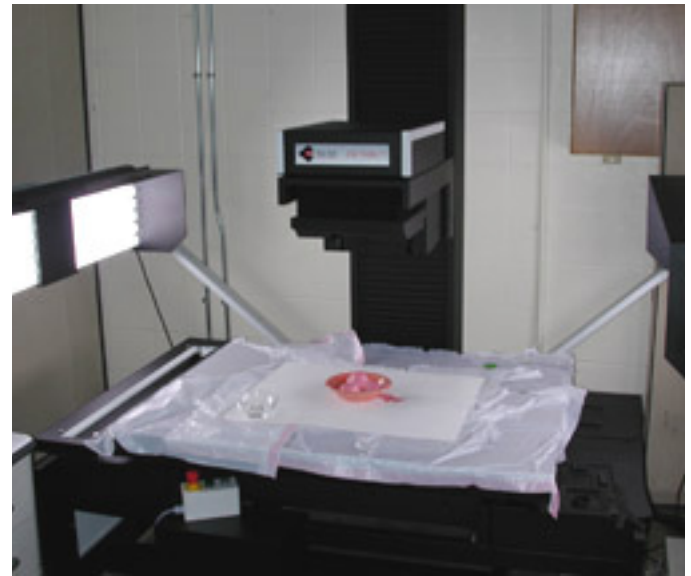
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 PDF files are intended to be read on your computer monitor. Naturally you can print them if you wish, but if the photographic images within the reports were high enough dpi for a 1200 dpi laser printer it would not be possible to download them. So the images are intended to be at monitor resolution, naturally in full color. FLAAR itself makes the files available only in PDF format because that is the international standard. We have no mechanism to print them out and mail them. Obviously if you have downloading problems we will try to help, but please realize that we assume you have a 56K modem (or better) and capabilities to handle a basic PDF file.



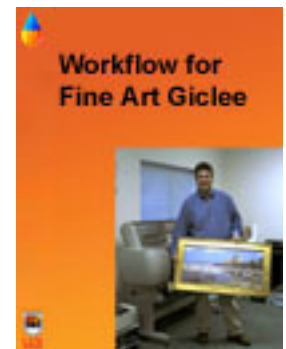
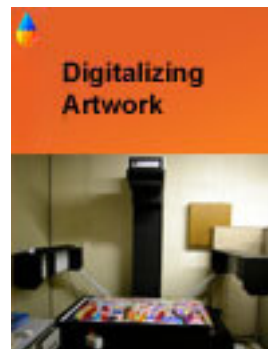
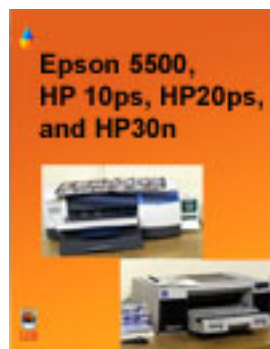
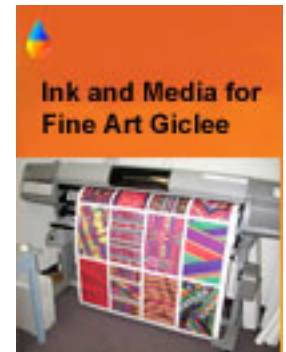
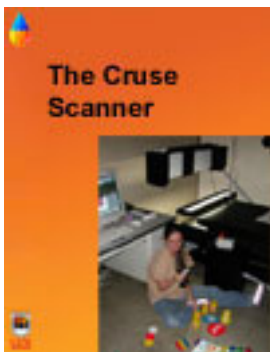
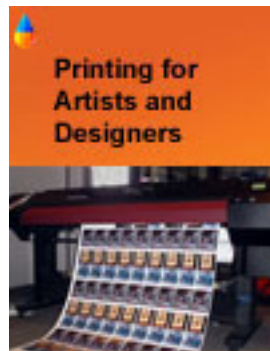
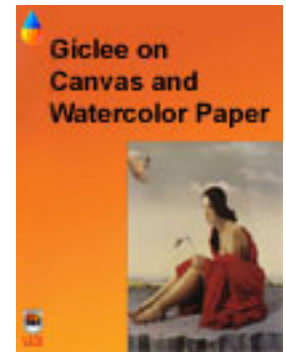
Giclee photography with the Cruse scanner. We now have the CS 155ST at FLAAR; the trade show photo (top left) shows the larger model CS 185ST. FLAAR+BGSU does giclee scanning and printing for artists across the country as well as local artists in Ohio. However we recommend you consider a local photographer if they also have a Cruse or a BetterLight. If you prefer the individualized (customized) lighting style of Gary Kerr, we recommend you consider his services

To contact FLAAR at BGSU, the Fax is 419 372 8283. This fax is only for FLAAR photography services or for hiring FLAAR as a consultant. This is not a fax to obtain general information about scanning, digital photography, or wide format inkjet printers. For that information, please use the Inquiry Form / Survey Form that is on all websites



Gary Kerr uses the Zig Align system with a BetterLight tri-linear scanning back and a Cambo Ultima 4x5 camera (we cover all of these factors in our FLAAR course on digital photography). One advantage of Gary Kerr's photography of your paintings, maps, historical posters or other art is that he uses variable customized lighting. He can light each individual painting based on his personal analysis of what is optimum. A reprographic stand system is a turnkey design and hence does not allow changeable lighting to the same degree. Both approaches have their benefits.

Giclee Series Reports



DP 101 : Achieving Quality in Digital Photography

SLR 35mm
Digital Cameras



Aperture
and
Shutter Speed



Nikon D100
Digital Camera



Evaluation & Review
of the
Canon Digital Rebel



Sigma SD9
Foveon



Lens Reduction
Factors: Chart



Hybrid Digital
Cameras to hold
Medium Format
Digital Backs



Lenses and
Filters



Professional
Results from
Budget-Priced
Cameras



Practice &
Critique



Pros and Cons of
Digital and Film
Photography



CCD and CMOS
Image Sensors



History and
Timeline of Digital
Photography



Composition The Key
to Prizewinning
Photography



Nature
Photography



Portrait
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Digital Cameras



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with digital
cameras



Lighting Digital
Photography



Quicktime
Virtual Object
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Shooting on
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Digital Camera
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How to Organize
an Exhibit of Your
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Camera and
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Storing Digital
Files



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Software for
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File Formats for
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Tradeshows
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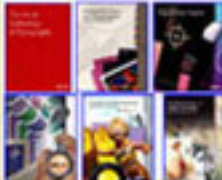
Digital Cameras at
the Photokina
Tradeshow in
Germany, 2004



New Photography
Equipment at the
PhotoPlus Tradeshow
in New York, 2004



FLAAR Reviews:
Photo & Camera
Magazines



DP 201 : Taking Digital Photography to the Next Level

Digital Image Resolution



Pros and Cons of Digital vs Film Photography (Medium and Large Format)



Digital Backs for Medium Format Cameras



Cameras to hold Medium Format Digital Backs



Recommended Equipment for Creating a Digital Studio



Lighting Modifiers for Portrait Photography



Lighting for Profitable Portrait Photography



Nature Photography with Medium and Large Format Cameras



Landscape Photography with Medium and Large Format Cameras



Panoramic Photography for Digital Cameras



Digital Panoramic Cameras



Architectural Photography with Medium and Large Format Cameras



Product Photography with Professional Digital Cameras



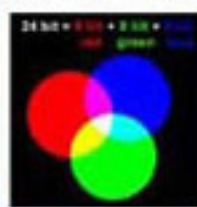
Computer Workstations for Digital Photography



Color Management for Digital Photography



Bit Depth and Dynamic Range



Workflow Summary for Medium and Large Format Digital Photography



Glossary of Digital Photography Terms



History of Panorama Photography: Circa 1840-1980



Photography of Art: Sculptures, Artifacts & other 3-Dimensional Works of Art



Taking Photographs with a Reprographic Copy Stand



History of Rollout Photography



Lighting for Product Photography



Gray Balance for Professional Digital Photography



Shooting On-location with Medium and Large Format Cameras



Portability: Which Digital Camera is best for Out on Location?



Professional Software for Working with RAW File Formats



FLAAR Book Reviews: Adobe Photoshop



FLAAR Book Reviews: Medium and Large Format Cameras



Trade Shows for New Camera and Printing Technologies

