

KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

Volume 67 January 1993

Teaching is a Learning Experience

The most exasperating thing a teacher can experience is that his ideas and plans aren't getting through to the student.

The problem is usually with the teacher and not the student.

In teaching the Dye Transfer process, it is not enough to just teach how the process works mechanically, but the **method** of completing a print must be explained with accuracy.

Most publications that claim to know the Dye Transfer process, and try to teach it, get most of their information from previously printed books or pamphlets. Even Kodak has fallen into the same trap.

The printers of the past 50 years have made their prints based on a similar method with some little variations.

During the early years of color photography, some books were written by educated color theorists about the theory of color and how masking was to be used. However, none of these authors ever made a professional print of any kind.

In the early days of Carbro I learned how to make professional prints from the best printers of their day, Evans and Peterson.

They taught me the importance of **balance**.

Just what does that word mean.

To them it meant that the three separation negatives that were *supplied to them* had to have a similar contrast, and a similar density. The rest was up to them.

They made sure that when they made the necessary bromides, that they were in balance to each other.

This meant that all grey areas had the same density and that the level of density was correct for the print. This is where the "art" of the printer was developed. The eye was the most important instrument used by the Carbro printer.

This specific technique was used by all of the Carbro printers in New York.

The accuracy of the separation negatives was most important. However, this area of the separation negatives rarely fell to the printer.

The photographer was the culprit that shot the images, either through separate exposures through separation filters using color sensitive black and white plates, or they would use a "one shot" color camera that exposed all three images at the same time on three sheets of glass plates or film.

Were the color photographers *really* qualified to make these very important images? Rarely.

The job of the printer was to invent new ways of improving the contrast levels or the density differences.

Thus the new printer was born.

When the **Dye Transfer process** was thrust upon the photographic field, the need for methodology was also born.

This meant that for the first time, the color printer had to understand how to make accurate separation negatives from transparencies. This was never done before.

Packed with the new box of Kodak matrix film was a 16 page booklet describing the "method" for making prints. I don't know who actually wrote it, but the information contained in it detailed the masking system, as well as the separation system, including the kind of film to be used, and the exact exposures and developing times for each step.

Also included was a detailed method for plotting curves. This was the only usable information that made sense.

The entire world of Dye Transfer printers used this book as a bible. Then as troubles would occur, (and they did) each lab began to experiment with different

ideas about how to improve the quality of the print.

Within a few years, the labs that were able to improve their output began to improve their income.

Ideas about registration spawned companies like Condit Mfg. and the need for speed generated new automatic Kodak and Pako processors that enabled labs to turn out separation negatives with much more speed and accuracy.

Accuracy. This is the key word.

During all of this time, the accuracy of the printing method was actually bogged down.

The "method" was being followed by most of the labs. Just what did the method consist of.

Basically, it was this.

Make 25% masks from your transparency, then add them back to the transparency when making the separation negatives. Variations of this simple basic step were always present, but the basic step was always there. Highlight masks were employed, as well, as color correction ideas, but again, the basic step was always there.

Some of the more enterprising labs began to experiment with adjusting the contrast of

the final negatives by changing the developing times to match specific "gamma's."

This system had its own following, including the author, but the system was faulty.

I couldn't put my finger on the problem, but I knew it existed.

Then one day, when I was experimenting with Cibachrome, (in the mid 1970's) I discovered something that had been escaping me for years.

Obviously, the method for making separation negatives was not as accurate as it could be.

Whenever I made adjustments in gamma to make the separation negatives fit the requirements for the print, I called the technique "playing the accordion."

The fact that the masks were almost always made to the same contrast (25%) forced me to change the contrast of the final negatives. This changing of the negatives contrast also led to the constant changing of the color saturation.

I realized that the negatives, once a specific gamma was chosen, had to remain constant in order for the color saturation to also remain constant.

Where else could I change the contrast?

The obvious answer was in the masking stage.

When making masks for Cibachrome, I could make the masks fit the requirement of the enlarging system. The developing time of the process could not be changed thereby screwing up the color saturation and the color balance.

Some labs have tried to use alternate chemistry to affect the contrast of the Ciba print, but the same loss of color saturation was present. By controlling the contrast of the mask I was able to make the Cibachrome print fit the range that would please the eye and make for an exciting rendition of a scene.

Why not use the same technique for the Dye Transfer process.

This meant that I had to re-invent a system for a process that had been around for almost 30 years.

I decided to work backwards.

I had to know what kind of contrast the matrix film would produce when exposed and processed "normally."

If I knew this degree of contrast, then I could make separation negatives fit this range.

I decided to use a 21 step film grey scale as my initial instrument.

I mounted this step tablet into an opaque sheet of film. Then enlarged it to fit comfortably on a sheet of 8x10 matrix film. I stopped the lens down to $f11$ and made a series of different exposures.

I processed the sheet of matrix film in the normal A & B tanning developer, stopped it and fixed it, then washed it down, dried it, and then dyed it for 5 minutes in Cyan dye, then transferred it. I examined this transferred print through a red (29) filter, chose the best exposed one and tried to find the areas where detail just began to show at the light and dark ends. I then marked them.

I then removed the step tablet from the enlarger carrier, and using a densitometer read the identical high and low areas and determined a density range. This density range reflected the **actual range** that I would require whenever I had an image that needed details in both of these areas.

Now, the problem was quite clear.

How do I put all of the elements together and arrive at a satisfactory conclusion? Working backwards, I knew that if I knew the requirements for a good negative (let us assume a range of 1.20) how would I get there?

If my negatives were to be processed to a specific gamma, then this would be my **immovable point**.

I had to choose a specific gamma. How does one arrive at a figure.

This was simple. When using Kodak's Super XX film I discovered long ago that the blue filter negative (which prints yellow) needed much more development than did the red and green filter negatives, in order to reach the same degree of contrast (gamma). I made a test. I exposed a series of sheets of the 21 step grey scale through the blue filter and developed them at different times. When I found the sheet that began to decrease in contrast even though it was processed for a longer time, it told me that I had reached a "point of no return."

I dropped back a bit and discovered that a Gamma of .75 would be adequate. So I decided to process all of my separation negatives to a gamma of .75.

Now I had the two important bits of information that I needed.

I knew the requirement for the enlarger, and I knew the limits of my gamma.

The rest is simple math.

Here is a sample.

A transparency has a density range of 2.10
The enlarger requirement is 1.20
The difference is90

If we divide the difference (.90) by the original density range of 2.10 the answer is .42

This means that if we made a set of masks to a gamma of .42 (commonly called 42%) and added these masks back to the transparency and after exposing them, processed them to a gamma of .75. we would have a density range of 1.20
Just what the doctor ordered.

What has occurred here is that a different system of making separations is now possible. **Changing the mask contrast and not the negatives contrast** has a better chance of retaining the color saturation that is needed to make a viable print.

This is just a simplified explanation of the system that I have used for almost 20 years.

All of the other steps and "inventions" that have been developed by myself and others are still being used, but the method of establish-

ing the correct contrast has been defined accurately. We will still need highlight masks, and specular highlight masks, color correction masks, and in some instances, shadow masks, but on the whole, the major method is accurate.

The method used to make the masks are outlined in my books, but the simplified explanation is that you must know what the exposure and developing times are for mask gamma's from 10% to 45%. This takes time to make a few charts, but once they have been made, you will never work "in the dark" again.

Obvioulsy, it will take more than this newsletter to present an accurate method of making separation negatives, but just realizing what is involved will give you an idea of the system and it's complexities.

This brings me to the newest color processes being promoted today.

With all of the steps involved in producing accurate separation negatives and then with the announcement of the new scanners, and work stations, and now even fine detailed film recorders, one wonders why bother with all of the work?

Well, if you wonder, let me tell you of a gentleman that has conquered the art of

Carbro. Without the expense of scanners and all of the other wonderful tools that are being invented almost daily, Rene Pauli has found his niche.

Working in a small space in his San Francisco apartment, he makes his own enlarged separation negatives, using a 4x5 enlarger, with all of the necessary Condit registration equipment

The film he prefers is Kodak's Separation # 1 . Apparently his system is pretty well established as he makes his masks by contact and places them into the enlarger carrier, on pins, before enlarging the image to the correct size, (reversed) and proceeds to process them one negative at a time.

I asked him why one at a time. Space is the reason. He has little room.

He makes his own pigments from tubes of Winsdor Newton colors and has built his own coating machine.

It isn't too difficult to coat your own materials. Check out Luis Nadeau's book on "Modern Carbon Printing." It is available from Light Impressions, Inc. Rochester N.Y.

His light source is an Ultra Violet street lamp which he has converted. He also built his own light intergrator as well.

I examined two of his "re-jects" and they looked great. The third dimensional effect was quite pronounced. The image consisted of little flowers against a back-ground of fine leaves and twigs. Simply great.

He coats all of his colors (just three) on a stable base, which he then punches in order to have a complete registration system from beginning to end.

However, after he coats the blank sheets, they are dried on screens.

They have not yet been sensitized.

He will sensitize them just before exposure and assembly. In this way he can maintain a certain amount of accuracy as the sensitivity may change if left unused for too long a period.

He was reluctant to disclose his secret formula for the sensitizer. I don't blame him.

The main thing that he has going for him is the complete control of the image right from the beginning.

How does his image compare with the images being produced by Charles Berger and Bill Nordstrom?

It is hard to say without actually having the same image being printed by both pigment systems, however, after seeing the images printed by Nordstrom, I believe that Bill Nordstrom's images are more precise.

It could be because the negatives are generated by a computer and will show much more detail in the high and low ends than anything I have ever seen, however, the cost of producing a set of screened separation negatives is quite high for a 500 line screen.

It is really a matter of choice. Unless you have some kind of comparison, it is impossible to determine which system is better.

All I know is this.

The years that I have spent making Dye Transfer prints have been rewarding for me. The amount of control after the matrices have been produced is still astounding.

No other process in the world can compete with this complete ability to change the overall look of an image in almost any direction while running the print. The fine tuning effects are simply great.

As far as the digitized systems are concerned, there is room for the fine art field as well.

I recently received a Christmas card from Dean Rhoads, a friend who loves art photography and is in touch with the newest methods for producing fine prints. The image he sent me was of a standing bear and was printed on water color paper using the new Iris print

system, which is primarily used for proofing screened images before sending them out to the printer.

Making these Iris prints with water colors on water color paper looks unreal. I don't know about the longevity, but the image looked as if it were almost a water color image.

Graham Nash, of the famous Crosby, Stills, and Nash musical group is a collector of fine photographic art and owns a company in Los Angeles called Nash Editions, which specializes in making rather large images using an Iris printer. I hear that the work looks fantastic. Again, I don't know about longevity.

Scitex, long known for it's remarkable high end scanners, has just released a new scanner called a" Leaf 45" which will scan a 4x5 or smaller image with remarkable ability. The results that I have seen are truly amazing. Where do we go from here?

It seems like the "art" of printing may be in for a shock. The computers are duplicating in such a short time, the tricks that took years to develop and control.

There is no problem for the work stations to change the curve shape in any way that can be imagined.

For those of you who would like to get started in making Carbro prints using the Charles Berger's UltraStable pigment process, or your own concoction, and need to know what to buy, here is some information for you. The room needed is not to critical. The layout on the right indicates a simple layout, if all you need is the exposing end of the Carbon process.

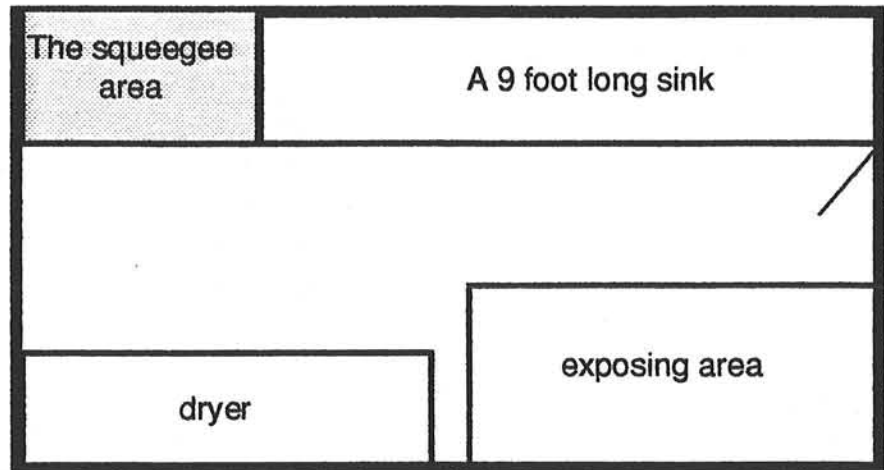
The sink must have a hot water system and the squeegee area must be flat. The exposing area can contain a platemaker with it's own built in light source. These can be purchased through a magazine called "the Horsetrader" P.O. Box 11712, Santa Ana, CA 92711.

The prices are relatively low. There are some available for as low as \$900 for a 30x40 flip top machine.

A light source alone, for \$200 and all kinds of vacuum frames are available for very low prices.

Consider this. It is a cheap way to get into making your own prints of your own images without going to the poor house.

A quality enlarger can cost a few thousand dollars, but if you can get your image scanned properly, you won't need an enlarger, you can make your own prints and if necessary, feed a gallery with your own images.



The kind of space I am talking about can easily fit into a corner of your garage or basement.

If you are really handy and are not afraid to mount your own work, consider purchasing a mat cutter and tip in your own prints so that they are ready for viewing without having to have your prints finished by some one else.

Joe Holmes, the great photographer and Ciba printer finishes all of his own work, as does Vern Clevenger, Claude fiddler, and Steve Solinsky, and many others.

The best thing to do if you aren't handy is to find the best finisher possible and make sure that your work is presented with professionalism.

Visit any quality photographic gallery and take notice of what, and how prints are presented, and what kind of impression the exhibit makes on you.

I am a student of the history of photography.

In the beginning, when it took plenty of guts to be a scenic photogtrapher, you had to be able to coat your own glass plates and process your own images using a darkroom tent.

When I grew up as a youngster, we didn't own a camera. This was considered a plaything for the wealthy. However, our next door neighbor did own a camera, and thanks to him we have some records of our early days.

However, in those days, the pictures that were taken were primarally considered "professional." Whether they were portraits or commercial images used in advertising. Not too many hardy individuals were around shooting great landscapes.

Thankfully, there were a few strong men that wanted to capture the grand outdoors and it is to these individuals that we should be grateful to.

In the 1920's when people like Steiglitz and others were trying to convince the world that photography was another art form, they were considered by some to be quacks.

As far as the world in general was concerned, photography was just a great tool for copying things.

Compare yesterday with today.

Billions of images are being exposed each year. Some of them by true artists with cameras.

Different photographic magazines have contests each year and collect thousands of images that could be turned into great prints for hanging on walls.

Unfortunately, up until the 1950's it was almost impossible to have a print made that could be considered professional, because the only quality print medium present was the Carbro process.

Transparencies didn't really exist until the early 1950's. Making prints from transparencies didn't become a popular activity at all. This end of the business became the sole job of the Dye Transfer labs.

Then along came Type C. Now anyone with a camera, large or small, can get a Type C print made with little cost and with comparative ease.

Interest in color prints grew and grew until it became the predominant force in color photography.

Some of the prints made by individual photographers were great. Unfortunately, most of the Type C business was relegated to the wedding and portrait field.

How has this affected the field of quality color printing? Visit any photographic gallery and squirm when you see some of the "art" being proposed by these galleries. Thanks for the galleries that do specialize in showing fine art.

When the Ciba print was perfected it opened up a new world to the print field. This medium did not require the task of acquiring separation knowledge or special skills, but also opened the world to the gallery field.

Today, galleries would like to show prints that have some lasting value. As a result, Cibachrome prints, Dye Transfer prints, and the new Carbon prints are being shown more often.

This brings me to my point. Does the quality photographic field have to be concerned with the new scanners and digitized images? Not really.

The computerized world is interested in the advertising community, and it should be. The world of fine art still belongs in the hands of

artistic souls that love to make images that will move you.

What kind of lab equipment does it take, in order to get into this great field of "fine art?"

Let us first decide on the kind of print you wish to make.

If it is to be a Ciba print, and you specialize in using a 35mm to a 4x5 camera, then the choices are fairly simple.

The room should be at least an 8x10 ft.in size.

The room should have plenty of ventilation. However, if you have a ceiling vent for cool or heated air, make sure that you don't place the enlarger under it. You will need two important items to begin with.

1. The enlarger.
2. The processor.

Let us begin with the first item, the enlarger.

Cibachrome material is very low in sensitivity and requires more light or time than does the average color material. The size of the enlarger depends on whether you plan to use different size materials as you progress with the print processes.

Any good 4x5 enlarger will do the job, but you must remember this, the slow speed of the material will be a hindrance when printing large images.

If you use a 4x5 enlarger with variable condensers, it will be easier to change the size of the original transparency, and the fact that condensers are being used, you will gain 2 stops in speed as compared to a diffusion enlarger.

However, if you do decide to use a condenser enlarger, what about dust and dirt specks showing up on the print?

A very legitimate question. The average exposure from a decent 35mm original to a 16x20 print could be as long as 4 minutes when using a diffusion system and as little as 45 seconds when using a condenser.

The answer is to find some way to eliminate the dust and dirt.

What about the use of filters? Isn't it easier to use a color head rather than drop in filters? Of course it is. But the drop in filter system works well. The choice is convenience or quality. Do you plan to mask the original transparencies in order to make quality prints? If the answer is yes, then the speed of the system is not just to be faster, but also to allow you the convenience of being able to adjust the *f* stop.

If convenience were the only answer, then why not purchase the Minolta color head? You would be in for a shock when you began to

burn out the expensive color bulbs because of the long exposures.

However, if you can stand the long exposures usually associated with diffusion enlargers, that's fine.

Here is what I would do if I were to get set up again, and just wanted to make Ciba prints.

I would scour the magazine called "Shutterbug" and try to locate an old 4x5 Omega D2. Then I would also try to find a set of variable condensers to go with it.

I would then contact Condit Mfg. and purchase a 4x5 diagonal punch, a 4x5 registration carrier (made for Ciba) and mount the enlarger on a strong narrow shelf, with the top of the enlarger tied to the back wall.

The reason for the narrow shelf is so that I can build a drop a table and make it possible make larger prints, if necessary.

6" drop in filters are available from Ilford and are very inexpensive.

The rest of the exposing items that would be needed are as follows:

A 4x5 contact frame, complete with matching pins, a light source used exclusively for making masks.

An easel meter. The Wallace Fisher is a gem.

A calculator. (TI 30)

The processing equipment is rather simple.

A Jobo is inexpensive, repeatable, and simple to use. It is a "one shot system."

A Fujimoto costs a bit more, but is replenishable.

Ilford's ICP 42 is not too expensive but is limited to 16x20.

Making the prints with any of the aforementioned machines will be simple. As it should be. The processing of any print should not be a problem.

I would also make sure that the illumination in the lab be color correct. Use Macbeth fluorescent tubes to light the work area.

The finishing of the print is the last step. If your space is limited, use an outside source.

A small investment like this can get you into the real world of quality color printing.

The pleasure of seeing your work hanging in a exhibit can be very rewarding.

This is the reason I write this newsletter. If I can help any individual become more interested in quality art work then I have accomplished my purpose.

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