

# KEEPING PACE

A Monthly Newsletter Devoted to the Darkroom Arts

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## The Dye Transfer Problem is Almost Solved

The most recent news about the Dye Transfer rejuvenation.

Dr. Jay Patterson has formed an organization called the Dye Transfer Company. There is no opposition from Kodak.

Dr. Jay Patterson has informed me that Kodak has released a sample of the gelatin that has been used in the manufacture of the matrix film. Kodak claimed that a special gelatin was used from a specific and rare animal source and was hard to find. Dr. Patterson has found a source that can duplicate the formula and fits the bill and Kilborn Photo in Iowa is currently producing a short run of matrix film and will send a batch to Dr. Patterson to test. I will also get a small batch to examine.

The Dyes are almost completed.

The Cyan dye tests are finished. It is ready for manufacturing.

The Magenta dye is also finished. Two samples are being tested and are also considered fine.

The Yellow is still not completely finished. There are six different dyes being tested.

The Kodak yellow has a decided fading factor and Dr. Patterson is making sure that the yellow we finally use will last.

A Dye Transfer technician, Dennis Ivy, is making tests of the dyes for the possibility of any retouching.

The ability to retouch the Dye prints was once the main reason for the Dye Transfer process being used in the advertising field.

This is not the case any longer, but the retouching of the prints is still a major factor in the portrait field.

In the meantime, the Carbon Pigment process is still rolling along.

The sales of fine prints is improving for Rene' Pauli.

Rene' Pauli, one of the finest color pigment printers in the world has experienced a gain in popularity and acceptance. His sales have increased dramatically and he has been busy producing more prints.

His prints differ in method from the original "Carbro" print of the early 1900's. The original Carbro prints were made by first producing a set of three color separation negatives, either in a camera directly (one shot or as individual exposures) or in the later years, by the conventional means, such as employed by masking and contact systems from transparencies.

The actual color image was formed by making three

black and white prints called "bromides."

The early forms of photographic paper were either silver chloride or silver bromide. The chloride material was slow and used for contact prints only. Azo prints are exposed on a chloride material.

The faster bromide material was used when making enlargements.

Hence, the name "bromide" was born.

These three black and white "bromides" could be so produced so that any neutral area on one sheet of paper could be compared with the same neutral area on the other two sheets of paper. Exposures could be adjusted so that all of the grey or neutral areas matched or looked alike. This is how the color balance was usually determined.

After you made at least one hundred Carbro prints, and gained experience, you would then become more accurate in choosing the correct densities and exposures in the bromides.

This is one reason it was considered an art.

The individual who made the print had to be aware of the pitfalls if he chose the wrong exposure or density.

Early in the 1860's it was discovered that if any gelatin emulsion that contained silver came in contact with

the chemical Ammonium Dichromate, it would harden the gelatin.

This is the basis for how the Carbro process works.

These three wet black and white images that represented the three colors, Cyan, Magenta and Yellow, were combined with the appropriate color pigment sheet, which just before the combining, was placed into a chemical bath that initiated the sensitivity of the pigment.

This pre-sensitizing bath was available in two forms. One of which allowed for some variation in contrast between the three different colors. The other did not allow for such manipulation.

These sandwiches of bromides and color pigments were left combined for 10 minutes, during which time the hardening effect took place and the silver image was totally bleached.

At the end of the waiting period, the Cyan sandwich was peeled apart, the "bromide" was discarded, and the cyan pigment was placed into a tray of very cold water.

The Cyan pigment was then placed face down on a waxed celluloid sheet, rolled tightly and squeegeed to remove any air or water.

This was also done with the Magenta and Yellow sheets. After a 10 minute waiting time, the celluloid sheet

containing the Cyan pigment was placed into a tray containing very hot water. (110°) and after a short time, color would begin to ooze out from the edge of the pigment sheet.

With a smooth rocking motion, the edge of the pigment sheet could be very slowly removed from the celluloid sheet revealing just a large blob of cyan color still attached to the celluloid sheet. The spent pigment sheet was discarded at this time.

The rocking action in the tray filled with hot water continued until all of the unhardened pigment dissolved and left only a photographic pigment relief image on the sheet of celluloid.

The same thing was done to the other two color pigments. When you were through, you had three sheets of celluloid with the three colors fixed to the surface of the sheets.

The next procedure was to use a sheet of temporary support paper (a gelatin coated paper with a very low dissolving temperature.) This paper was soaked in very cold water and then squeegeed over the cyan pigment on the celluloid. All of the water was removed and the back was dried with a cloth.

Then the sheet of celluloid was placed into a warm dryer. Eventually, the paper

containing the image would "pop off" as if it were ferro-typed.

The cyan image was now imbedded in the temporary sheet.

Then this same sheet of temporary paper was soaked again and placed over the magenta image. Registration was accomplished by hand and by eye. The celluloid was usually bent and held into a semi circle so that the image could be seen through the back and it made the moving of the image into position a little easier.

Remember, this image was on a sheet of this single weight temporary support paper and could also be stretched, with ease.

Once this registration of the first two colors was done, the temporary sheet was again "popped off" and the third color was also assembled by hand and eye. Again, with the same system of drying and allowing the paper to "pop off" the celluloid.

When all three images were finally on this temporary support paper, it was placed again in very cold water. A sheet of final support paper (a photographic double weight paper without any silver) was also soaked in very cold water. After a while (ten minutes) allowing for the final support paper to reach it's maximum size, the thin sheet of temporary

support paper containing the image was placed over the thick final support, emulsion to emulsion, and squeegeed into position.

Any moisture was wiped off with a cloth.

This sandwich was then placed on a flat surface, covered with large blotters, and weighted down with anything heavy found in a lab.

After 30 minutes, the sandwich was removed and placed into a tray of very hot water, and after a little time the temporary support would begin to dissolve. Eventually, the entire thin sheet was peeled off and the final print was in evidence attached to the final support paper.

Remember, at this specific time in history, there was no other way to make a color print.

The work involved in producing a Carbro print was tremendous. You were facing all kinds of obstacles.

The registration could go "out" if you didn't allow enough time for the images to set properly. And at the time of the final transfer, if any area of the image contained a "sudden black" it could frill off the final sheet and float down the sink and disappear down the drain.

However, if all went well, at this point we should be through with the production of a Carbro print.

A comparison between the old and new methods of Pigment printing is interesting.

With today's method, there are no "bromides" necessary. The individual color image is produced by simply exposing by contact, the separation negative (enlarged to the size of the print) using an ultra violet light source such as those found in Lithographers platemaker equipment. The pigment has been sensitized beforehand, is coated on a sheet of polyester, and is used in a dry state.

Once the images have been exposed, on register pins, the first individual sheet of color (yellow) is transferred to a receiver sheet, in register, and washed off in hot water, dried and readied for the exposure and the next transfer of the second color, (magenta) also in register, and it too is washed off in hot water. The same procedure applies to the Cyan.

**You are through.**

The method used by Rene' is also quite simple by comparison to the original Carbro method.

He produces his own enlarged separation negatives. He makes them to the size of the print. He built his own ultra violet light source and vacuum system.

However, the necessary light source can be bought from any used lithographic supply

company for under \$500. Some platemakers come equipped with the necessary vacuum frame. After the main contact exposure, he transfers the pigment to the receiver sheet (fixed out photographic paper or possibly a sheet of polyester) in register. Using the same procedure as just mentioned, he washes off the unhardened image and dries it. He does this same procedure with the other two colors and he is then through.

The difficult part of the process is:

**1. How does he determine the correct exposure for the correct density?**

**2. How does he determine the correct color balance?**

**3. How does he determine the correct contrast range required for the final image?**

Good luck Rene'.

One of my former students, Gerard Aniere and his partner Malcom Meyer. of the Dye Print Company, in London, England is producing Dye Transfer prints in an unusual fashion.

The Dye Print company is placing images on wood, glass, water color paper, canvas, steel, brass, aluminum, marble, and slate, as well as the conventional dye transfer paper.

The fact that Kodak has refused to give out some information about the mordanting procedures has not stopped this inventive company from making their own emulsions and their own substrate bases that can adhere to these different final supports.

A show at the prestigious Zelda Cheatle Gallery in London was warmly received.

Gerard visited my teaching facility in Victorville, CA a few years ago and not only learned quite a bit about the idiosyncrasies of the Dye Transfer process, but also cooked for me and my wife, Mary. He is a real French chef and a delightful gentleman.

Since Kodak has seen fit to discontinue the Dye Transfer process they have also stopped production of some other items sometimes used in the making of the masks and separation negatives. One of the items is the color guide and grey scale called the Q-6C. This three step scale had been used to determine the gamma and exposures times for different films, including Pan Masking film, Pan Kodalith, Super XX and others.

It is quite simple to replace the three steps of the grey scale.

Take any sheet of 4x5 film, such as Kodak's Tri X, and

make a series of strip exposures across the film using an enlarger as the light source.

Process the film.

Using a densitometer, find three steps that read .5, -1.5, -2.5. Cut these three steps out and use them instead if the original Q-6C.

The original film that I used to recommend for making highlight masks, **Kodalith Pan**, has been out of production for a few years. The replacement film offered by Kodak does not work too well. I now recommend using **Agfa's P 911** or **Fuji's 100 Pan litho films**. Both of these films work as well or better than the former Kodak film.

If you have my book on the subject of masking, or on Dye Transfer or Cibachrome, use the same procedures to find the aim points as I have described them.

Are you having trouble finding a densitometer that won't bankrupt you?

The new Photronix Delta DX black and white transmission densitometer that reads as high as 4.0 with an accuracy of + or - .01. from Photronix Marketing 151 S. Pingsten Rd. A Deerfield IL 60015 708-291-4488.

Give them a call. The little machine is a black and white model, but will work with any of the masking procedures

that I have described in my newsletters or books.

A recently had a conversation with **Charles Berger**.

The UltraStable company now has teaching labs in different parts of the country. They are able to make prints using Dye Transfer paper as well as other papers. Some photographers prefer the paper look instead of the polyester look. However, polyester affords the longevity desired by galleries and museums.

If black and white printing is your main love affair, try using the new black carbon pigment provided by Charles Berger. If you have an enlarger and want to make your own very stable prints with a range that exceeds any normal black and white photographic emulsion, call Charles at 408-335-2169 and he will explain the process thoroughly.

The Maine Photographic Workshop has three one week classes in the UltraStable process with David Schrader as the instructor. David was formerly with the Brooks Institute at Santa Barbara in California, as an instructor in the color processes. He was also my very first student at my Victorville CA. lab and turned out one of the very finest Dye Transfer prints.

**Bill Nordstrom of EverColor** is also scheduled to be an instructor at the Maine Photographic Workshop. He will be talking about the production of the separation negatives used in his EverColor process as well as the negatives used in the UltraStable system.

The Evercolor Company has had a great article published about their process in the **June 1944 issue of Outdoor Photography written by Galen Rowell**.

He describes in detail how the prints look and why he thinks they are the best in the world.

He was concerned about the three problems he has struggled with for years. **Permanence, marginal quality, and the incompatibility with digitizing systems.**

The Cibachrome process bothered him because of the over-brilliance of the colors. (I would dispute this concern. I just don't think he used the proper lab.)

He feels that he is now getting the full range of the image in his prints and that Bill Nordstrom is a master printer and can produce the kind of quality that he is looking for.

**He acknowledges that both the Dye Transfer process and the EverColor process deliver quality that is not matched by any other**

process.

Longevity is the deciding factor on which his decisions will be made in the future.

A great tribute was afforded to the **Frog Prince Lab in San Francisco** and about their Dye Transfer work. The principals in the Frog Prince company, Haunt Rama and Tom Rankin are among the finest Dye Transfer printers anywhere.

EverColor is getting rave reviews about their work. A number of shows are in the works at this time. **If you ever want to see an example of their work, call 916-939-9300 and ask for Dave.**

Their list of clients is growing every day. The fact that they can now work with any client through the color management program I described in my last issue makes it simpler to achieve the results you may be after.

**Did you know** that EverColor is now offering their clients a lower priced color print, whereby the same digitized separation negatives are used to produce contact prints on Fuji color paper. The results are simply great.

One of the latest advances in the field of digitized imaging is Agfa's experimenting with Raster printing. In this process, the actual grain of

the film is used instead of a screen. This is continuous tone reproduction with the advantage of once the original transparency is scanned, having a straight line reproduction of the original.

Another company is experimenting with the possibility of producing an 8,000 line screen for separation negatives for use in pigment printing or even Dye Transfer.

How can one keep up with the rapid advances in the world of computers and reproduction?

How are the Dye Transfer labs faring with the competition from the digitized sources?

A few of my former colleagues have joined the fray. They have purchased some sort of "package" available from different sources. The commercial field has almost totally converted part or most of their lab space to the new computer generated imaging systems.

When you can see what has been done, you too may be a candidate for the same conversion.

The "hands on" group, of which I am a strong advocate, has been struggling with the fact that the computer is here to stay. Even my old family, Frog Prince Labs in San Francisco is considering getting into the digitized field.

They have to. Their clients may have an image for them to work on, but rather than supply a transparency or a color negative, they will supply them with disc and say "It's in there. Find it and use it."

Frog Prince has a good two year supply of matrix film and paper in their warehouse, so the fine art field is not in any danger of losing their source of fine print material. A few other labs have done the same thing. I have even received a few calls from individuals who have a supply of the Dye Transfer paper and want to sell it. Their price mark-up is almost immoral.

**In the last issue, I printed a number to call to get information, or a video on the LaserMaster process. The number was wrong. The correct number is 1-800-988-8342.**

Sorry about that.

I often wondered about this possibility. What would happen if all of the computers went out of control and we had to rely on the old "hands on" methods of yesteryear? Would we be able to hack it?

In the latest issue of "Outdoor Photography," Galen Rowell writes about his experience with the prints he has received from EverColor. His rave reviews will

not harm the EverColor name. His mention of the lab Frog Prince also has his blessings.

Both methods of printmaking are still available

There are a number of photographers that work only with the camera. Period.

Where do these individuals get their prints made? When I was in the business, many of the most famous names came to our lab.

Why?

It was because we put ourselves in their shoes and made sure that we did all that was possible to produce what the client had in his imagination. What he captured on a sheet of film was only the beginning. Our skill was to interpret what the artist was trying to say.

**Phillip Halsman** once told me a story about how he captured the great image of Edward Steichen for an ad for Polaroid.

Apparently, Halsman knew that Steichen was a difficult model, so he planned to trick him.

He used his own 4x5 twin lens reflex camera to shoot many images of Steichen. After a long grueling session he announced that he was through.

They both sat down on a couch and had a drink. Then Phillip said that he wanted to show him a new

camera that was able to not only produce a great black and white print, but also delivered a very fine grained negative at the same time.

He pulled out the camera, and let Steichen examine it. Then he said "Let me show you what I mean."

The setting was pre-arranged. The lights were strobes.

He aimed the camera at Steichen who was primarily interested in what the camera would do, and not trying to pose.

The result was spontaneous and perfect. One shot. That is all it took.

The resultant image was great. The expression and curiosity that was etched on Steichen's face was fabulous.

The ad was very successful and I am sure that it helped sell many Polaroid cameras. Halsman said to me that you have to get into the soul of the model and the same thing is true about making a print. The printer has to get into the "soul" of the image. I have never forgotten this incident or his sage advice.

A wrote about the possibility of getting my article about the restoration of an old 8x10 out-take image of Marilyn Monroe published by a photographic magazine. It is possible that Camera and Darkroom may run the article.

They will attempt to do digitally in a few hours what took me two days to do using Matrix film as my material in the reconstruction. I have seen tests of their efforts and concluded that my finished result looked better. I don't know. We will find out. Keep tuned to this station.

Building a darkroom can be a rewarding experience. I have built many in my lifetime. However, in the September 1993 issue of Camera and Darkroom, there are a number of interesting displays of darkroom ingenuity. Some of the equipment is placed in interesting positions.

In my lab in Victorville, CA I used a small but very efficient layout for a room that was only 12x18 ft.

I could have used more room, but this became a very interesting space. I could teach three students at a time in this amount of room.

The water was filtered, the chemistry was delivered to the place of need with accurate temperature controls and the fact that it was a small space, the air conditioning had to be efficient. The room never had the strong smell of acetic acid or hypo.

The system I used to contain the strong acetic acid odor was thought out very care-

fully. To me, the idea of continuity was important. I didn't want to roam all over the area in order to get work done.

I arranged the equipment in the proper order so that steps were kept to a minimum, regardless of the space that I had.

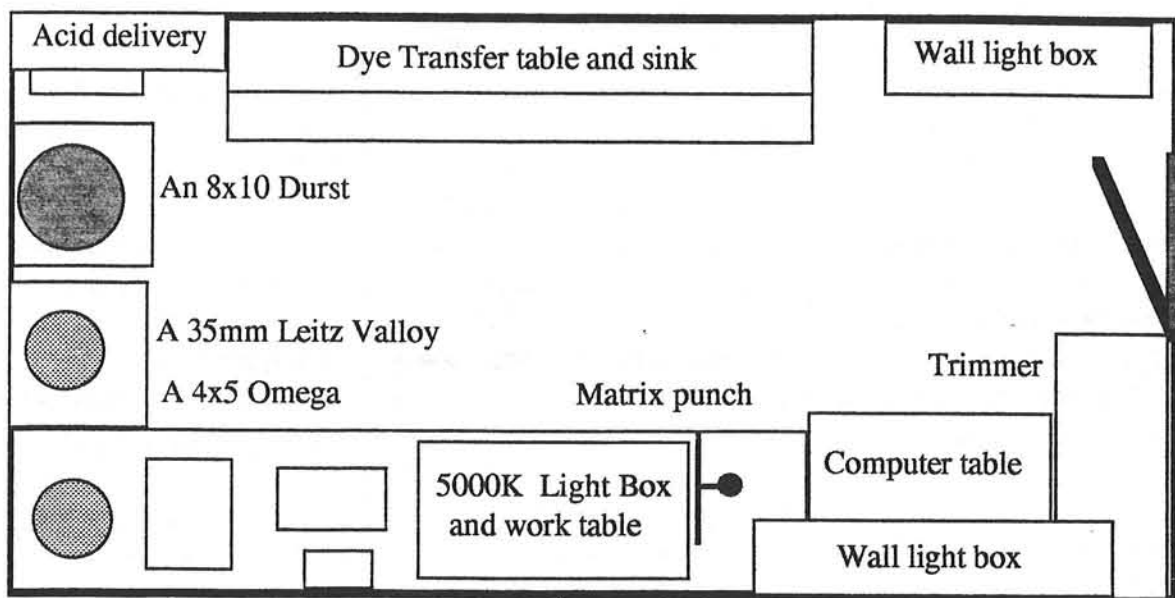
In my Los Angeles lab, I had over 6000 sq. ft of space. Every item was placed so that the next step was truly a step away.

I had 8 8x10 darkrooms, seven of which equipped with 8x10 Elwood enlargers and one with a Condenser Durst Laborator. They were all along one wall, with a sliding door between them to allow more than one enlarger at a time to be used. Each had its own vacuum switch and it's own vacuum easel, a registered carrier, a matrix punch and it's own table top light box as well as it's own film supply drawer. The rooms were all air conditioned, and each room consisted of a dust removing electronic system.

The lights in the room could be put on with a simple raising of the any from any position.

I was determined that the lab would be so efficient that maximimun output would be possible.

Some people thought that I was a fanatic about this part of my lab experience.



The drawing above illustrates what I have been talking about. All of the equipment is in easy reach and in the correct order beginning with the computer table and working around in a clock wise fashion.

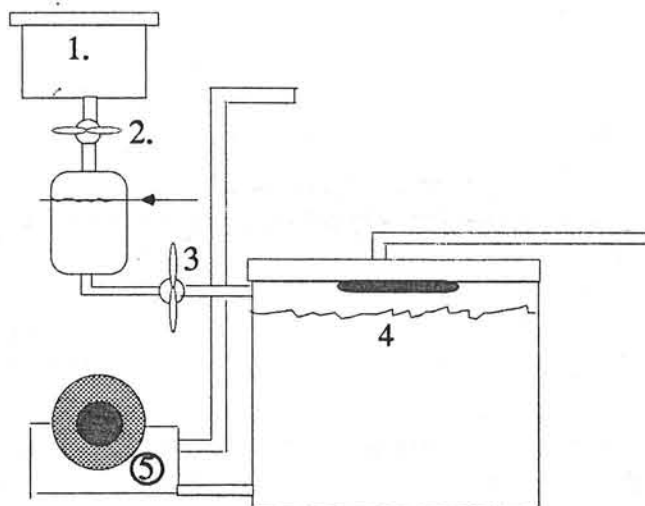
My dislike of the aroma of Acetic Acid led me to this device.

I wanted to make sure that no one would be offended by the strong smell of acid. I decided to completely seal off any possible aroma except for the 1% final mixture. With proper ventilation and air movement, the smell could almost disappear.

I remember once visiting a Dye Lab in Los Angeles. I was only told that it was in a basement of a large office building. There were many other businesses in the basement, but my nose led me right to the door. There was no name on the door, but I knew I was at the right spot.

The system worked as follows.

1. I had to pour the glacial acid into the tank at the upper left. Then it was covered tightly.
2. The valve at the bottom of the tank allowed me to fill the bottle below it to an exact amount. Then I shut it off.



3. The valve below the bottle allowed me to drain it into the large 60 gallon tank, then it too was shut off.
4. The large tank was filled with a shut off valve situated in the cover. When it was full I would shut off the supply.
5. A re-circulating pump mixed the liquid in the tank and the use of a two way valve either delivered the liquid to the upper pipe for use in the trays or re-circulated the mixture before use. It worked. Try it.

**Bob Pace**  
**2823 Amaryllis Ct.**  
**Green Valley NV 89014**