

KEEPING PACE

A Monthly Newsletter Devoted to the Darkroom Arts

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The Re-birth of the Dye Transfer Process

The Dye Transfer Process is Reborn.

The Dye Transfer process is alive and very well, thanks to the extraordinary efforts of **Dr. Jay Patterson, of Houston, Texas.** the process has been reinvented almost from scratch.

After Kodak pulled the plug on this most fascinating of all color print processes, a cry of despair went up all around the world. I received many calls from concerned and irate Dye Transfer enthusiasts from all most every country in the world, wanting to know from me whether or not this news item was accurate. I was devastated. Not only was this great process being laid to rest, it reminded me of the years myself and most of my competitors spent making the color prints for the largest advertising agencies in the world and also for the most prestigious photographers as well.

The process had it's many victories and was considered to be the finest color process ever invented by the mind of man. Kodak had little to do with the process except produce the materials needed. However, they were not ashamed to claim responsibility for the great success of the product. Lab technicians made this process work after they discovered the many avenues of print making that they never before dreamed of.

Dr. Patterson tried to get the matrix formula from Kodak and found the answers to his inquiries almost impossible to work with. He was told that the gelatin was prepared from the bones and hides of rare animals from the mountains of South America and were almost impossible to duplicate. It took more than a year for the good Doctor and a company called **Kilborn**

Photo of Cedar Rapids, Iowa to finally get a handle on things to do with the matrix coatings.

The latest success came when they eliminated the very thin amount of gelatin that wouldn't wash off and which contributed to a "fog" level that was considered a detriment. I wrote to the CEO of Kodak, Mr. Geo.... Fisher and received faxes stating that it would be almost impossible for any one to produce the matrix. They were dead wrong. However it took almost 1 1/2 years to accomplish this fact. The financial burden has been carried by Dr.. Patterson. The dyes are also a major accomplishment. Not only are we going to have dyes that match the color range of the previous Kodak dyes, but an improved magenta and a much needed archival yellow that will allow the prints to finally be considered "Archival."

The receiver sheet is also finalized and is ready to go. In fact, if any one of my readers need any magenta dye Contact Dr. Patterson. He has a batch ready to go. These dyes will also bleach and work with contrast reducing and contrast increasing chemicals as did the former dyes.

Why was Dye Transfer process the only color print process being used by the very people that needed the best interpretation of their product ? It was because these great prints allowed the ability of the printer to make hundreds of minute alterations in the production of the final print that no other process before, and I must say even now, comes close to the Dye Transfer process. The ability to alter the contrast of any dye in any direction was a major need for any serious printer. These changes were usually made at the time of the making of the separation negatives . Only the Dye Transfer process allowed these minute changes after all of the printing parts were made. Why then, did it earn enough displeasure to be dropped by Kodak? After all, they once said that this process was their "pride and joy." The reason was offered by Kodak that the process was too difficult to produce and that their profit margin was off and they didn't need this process any longer.

The real truth is that the digitized world had caught up to all photographic manufacturers and that the hand's on processes, no matter how fantastic they were, had to be dropped. The age of the computer is here, and here to stay.

This is one claim that I will not dispute. I have seen the coming of the electronic age and see no reason to stop it. However, there is no process out there that can match the effect that a great Dye transfer has on the viewer. The depth in the shadow areas and the brilliance of the mid tones and highlight areas will be difficult, if not impossible, to beat.

In other words, the market place has changed. No longer do we need to cater to the whims of an art director but only to ourselves, especially if we make our own prints.

However, there is more to this.

The new digitized processes require funds to purchase the scanners, the work stations, the removable discs, and the final step, either producing a new transparency, or color negative, or if you have the money, the screened separation negatives that can be used to make a pigment print.

I must take my hat off to such great innovations as has been introduced by **Charles Berger's**

UltraStable process and the **EverColor** company and their great labs that produce marvelous images using color pigments. The prints are outstanding. The pigment sheets produced by Charles Berger can be purchased and used to make fabulous pigment prints. The only requirement you have is the need for a contact system (such as a plate maker) and some trays filled with hot water. The money needed for this operation is slight. If you can make enlarged separations, you can make a great print using the UltraStable process. This is a great way to get introduced to their pigment systems. Screened negatives are not necessary all the time.

But one fact remains. Is it possible to alter the contrast of the colors in any direction once the image has been exposed and processed? I don't think so. This is the one area that the Dye Transfer process has the edge.

Does the pigment system require a set of screened separation negatives? Not really, but it does make a difference unless you know what the pigments can produce. The screen negative system produce a very fine screen that allows one to hold the delicate details in the highlight areas without the fading factor taking place. The pros and cons

about which version is better is of no importance to me. All of the systems are great. However, this story is about the Dye Transfer process. It has come back from the dead.

Soon, a news release will be announced to the world press. The many factors that hastened it's demise will now affect us all. Is there enough interest in the revival of the process to make it worthwhile?

I think there is. So does Dr. Patterson.

We are preparing a questionnaire which will be sent out to a few thousand color print enthusiasts in which you will be asked if you would like to join a new organization called "The Dye Transfer Association" and if the answer is in the affirmative, how many prints a years will you be making, etc. so that we can ascertain what kind of matrix film run will be required by Kilborn Photo. We must have some kind of idea as to the size of the run, the amount of dyes to be produced and what kind of receiver sheets will be needed.

If the answers are in the right column, Dr. Patterson will personally order the materials and warehouse them and ship them from his own property.

I am awaiting a correction to a sample questionare that I sent to Dr. Patterson. When we produce the final set, we will make sure that everyone

interested in quality color printing will receive a letter.

The galleries are the first to be interested in this development. If you have enough prints in your portfolio to show to an interested gallery owner, then you may have the chance to exhibit your art. This is the new audience now. The art photographer and the gallery that represents him or her.

It is an ever growing audience. The gallery walls have been filled with Type C prints that have a limited life as well as a limited color spectrum and brilliance. The ever popular Cibachrome print is a great competitive product especially when it is a print made by someone who knows what the joys of masking is all about The great bonus that you, the Dye Transfer printer will have, is the knowledge of how to manipulate any print in order to achieve the most spectacular result in "any" print process.

Knowing how the Dye Transfer process works will enable the Dye Transfer technician to transfer his ideas to any other process.

It is more than knowing the lithographic field;d. It is knowing how the selection of colors in any area affect the eyes and the emotions of the viewer. This is a difficult idea to project and for you to understand. Perhaps I am not well enough educated to

explain this thought. I see color first as a tool to make an image interesting. To me, every image must have an emotional impact or it is boring.

A simple portrait by Karsh when compared to almost any one else will explain more than I can with words. The beauty of an Ansel Adams print when compared to almost everyone else's version of the same image will say more than I can.

Beauty is undefined. Some gruesome images may disturb some people, but the beauty of the image, is whether or not it moves you in the right direction. It is almost impossible to visit a gallery and not see images that are not up to par (in your opinion) but, there they are, hanging in full view of an audience.

This fact was never so thoroughly brought to my attention when one year my wife had an image that to me was a real winner. It was of a glider plane in flight and had just entered the area where the sunlight hit part of the lens and caused a flare that looked as if an angel had paced it there. It was an outstanding image. She entered it in a PPofA contest and it won an honorable mention. However, the first place prize went to a shot of a Los Angeles victim of racial violence. It was a black and white effort and was rather gruesome, but

had no composition, or any other redeeming factor except one of violence and tragedy. I thought Mary's image was one of hope and beauty.

So, let this be a lesson to you all. The image must move you.

As you all must know, the production of a great set of separation negatives is paramount so that the entire contrast range of the original transparency is captured in order to produce as print with all of the details. With digitized methods, the image is scanned in such a way as to produce a straight line reproduction of the original transparency. This is a major improvement in the making of any kind of print. When making a set of negatives for the Dye Transfer process, enough masking is used to produce a similar effect. It is not as accurate as the digitized systems but it does work.

However, for those of you who simply want to make prints for your own enjoyment but really don't want to bother with darkrooms and the eternal odor of developer and fixer chemicals, there is another way to go, Purchase a reasonably inexpensive computer with a CD Rom player and a color printer, and you can produce all of the images you want without getting your hands wet.

Take your special images to

a service company and for as little as \$3. ea. you can get your favorite slide copied and placed onto a CD disc. The disc can then be activated in your own home using a computer and once the image is brought up on the screen, it can be manipulated enough and then printed on one of many color print machines and get a reasonable print that will be better than a drug store version of your negative or positive. The options are many. Here is an idea of systems, beginning at the highest level and working our way down to the bottom most prices of all.

You can begin at the top and for a mere million dollars get a great scanner by Cytex or Hell and then get a great work station such as the Sun system, or Crosfield, or even Kodak's Premier system and at the tail end of the production line, either of the following. A Film, recorder, to make a new transparency, or color negative. Or you can produce a set of screened separation negatives, or you can connect your computer to a host of color printers such as Textronic, Fotoprint, LazerMaster, and even Kodak's dye subliminal printers. The range of equipment is so great that it boggles the mind and jingles the pocket book.

The beauty of these digitized systems is that you can become creative with the image on the screen. You

can add type, color it, make special borders and produce a work of graphic art that boggles the mind. Open any page of the new photo industry's magazines. 99% of them are geared to using computers. Does this surprise you? After all, for almost 100 years we have had it our way. Turning out original images with great beauty and composition. I believe our art is forever. Even the once great RIT school of photography in Rochester N.Y. is contributing to the computer race. They offer classes in electronic imaging. This is really the realm of mechanized photography geared to the needs of the advertising community and the drug store customers.

We are outnumbered. But the galleries have not let us down. The fine work being produced by fine artists is on the rise. I don't believe I have ever seen a show that centered on the digitized art. However, I must confess. Years ago I owned a gallery which was situated next to my lab in Los Angeles. On day a young man showed me some work on 35mm slides that he had copied from some of his own images he created using a computer. They were truly artistic. I made a series of prints for him. Some as large as 30x40. These were Cibachrome's made directly

from his own copy slides. I liked them so much that I offered to have a showing of his work. I did such a thing. The show was such a success that we had traffic outside our front window slowing cars down and causing a traffic jam. His name is David Em. His work was amazing. The images were created with color, and great composition, and the electricity they generated was overpowering. I have lost track of this artist. He was one of a kind. And this was a rare departure for me. I was raised in the monastery of fine art, and I should have known better.

For those of you who are interested in doing your own work in your own darkroom, there is plenty of help. The enlargers are available in almost any size imaginable. I have received calls from fellow inmates, that want to purchase an old 8x10 Saltzman enlarger. For those of you who have never heard of a Saltzman enlarger, let me explain what made it so fabulous.

It was a giant of a machine. The head was usually a cold light source developed by Mr. Saltzman himself. It was called a Cooper-Hewitt light source. It was the smoothest light source I have ever worked with. The prints produced with this light source were open and detailed. I loved working with it. It was a tall machine. You would probably have to cut a

hole in the ceiling to get it to fit.

It takes around 6 big football players to get it to move. However, the controls were right in front of the easel. With ease, you could focus and size image rather quickly. The slides built into the head allowed you to crop off any possibility of unwanted flare.

An Omega Color head can be adjusted to fit the enlarger making it easy to handle and print. These dinosaurs can be purchased for a paltry sum. If you find one, first find the football players to install it.

A tip for the wise.

Since the advent of the computer, many labs have sold their equipment for a very low price. So have many lithographic companies. The old equipment such as 8x10 enlargers, densitometers, and filter systems, screens, and many other interesting items like these can be found in magazines such as "Horse Trader" mailed from Anaheim, in Southern California. Give them a try and you will be amazed at what great "finds" you will discover.

So many of my old friends and competitors have closed their labs, much to my dismay, and yet, some of my old fellow workers in N.Y. are still going strong. They have all joined the electronic fray. The last ten years have been an awakening of new

things and thoughts. I still miss the action of the day, when a print had to be delivered and the quality of the print had to be the best thing I had ever done. This happened every day for almost 50 years.

Have you ever used a black and white developer that had **Pyro** in it's formula? Some of you may have, but I would venture a guess and say that over 95% of never have.

What is Pyro? Its actual name is Pyrogallic Acid. Another form of Pyro is also available (pyrocatechin) but its use is not important here. This developing agent has been in use for over 150 years, yet most of us do not know much about it. Its main claim to fame was its very smooth results when used properly. The agent has an added feature of hardening the emulsion of the film and made it almost scratch proof.

However, its main feature was the detail it allowed to be captured in the highlight areas. This made it possible to produce very smooth negatives that had detail in every inch of the film.

The motion picture people used it during the 1930's. George Hurrell used it to develop his extraordinary images of the film stars in the same era.

The developer was mixed with the separate chemicals and each one dissolved first

before adding the next one. I remember using this developer when I was a rookie darkroom worker in New York City. I had no idea of what I was doing, but I just followed instructions from my lab chief. (A German immigrant who was in his late 70's)

This lab chief was a tough teacher. However, what he lacked in knowledge he made up with effort. He had no idea what Pyro would do except that it was in his formula.

It was difficult to obtain. The local chemical supply store would have to order it from somewhere else.

What does it look like? If it is a new batch it is as white as snow, and as it gets more and more oxidized it turns to a light brown, (which is still usable) then eventually to a dirty brown. (Dump it.)

The developer causes a slight yellow stain that effectively blocks the actinic blue light of any light source when processing the negative, and therefore produces a print with better detail in the highlights, as they will not burn out.

A typical Pyro negative looks flat when compared to a normal negative developed with today's T-Max or D-76. The Pyro developer has a tanning action which works in this way. Once a highlight portion of a negative has received a portion of the developer, the emulsion hardens and allows even

less of the developer to act on the silver grains in the highlight area. What a boon. A self stopping action at the top of the scale. This allows great detail in the entire image without the highlights going through the roof.

Another added attraction is the fact that the action of the developer is mainly on the surface of the film and chemical halation is not present. As a result, the image prints sharper. It's almost as if the base of the film were made quite thinner. As a result, the negative has an accutance that produces a sharper image.

The problem with this Pyro developer is its life. It oxidizes rather quickly. As a result, timing was inadequate. Instead, the use of a dim green safe light was used so that development by inspection was begun. For my money, inspection development was only used as a last resort. (like someone stole the timer and the thermometer.)

This brings me to the **Matrix A** developer used in the Dye Transfer process. It is true that almost any developer can be used in developing matrix film. I have used Dektol and D-76 with ease. However, in order to produce a gelatin relief image, a tanning bleach had to be employed. (such as the ones used in the Wash Off Relief Process)

But when Bob Speck and Louis Condez (two private individuals who made color prints for a living) decided to investigate the possibility of producing a tanning developer they stumbled onto Pyro. They eventually came up with a formula that consisted of :

MATRIX DEVELOPER A
Elon, 16 grams
Sodium Sulfite, 8 grams
Potassium Bromide, 16 grams
Pyro, 18 grams
Citric acid, 4 grams

MATRIX DEVELOPER B
9 1/2 lbs. of Potassium
Carbonate

These chemicals were mixed and dissolved in order to make a clean and smooth two part developer. The very action they wanted was the smooth and sharper image plus the fact that hardening of the emulsion has taken place. The silver parts of the image only were hardened. As a result, and after fixing with a non hardening and non acid fixer, a bath in hot water removed all of the unwanted image by dissolving it in hot water and washing it down the drain. What remained was the image in silver and in relief gelatin. Kodak knew of this and bought the formula from the two gentle men. They were both given jobs by Kodak. Bob Speck was with the company for many years

until his retirement, as was Louis Condez.

The formula is simple and once mixed, has a very short life. But the life is accurate and repeatable. This revolutionary processing technique made the Dye Transfer process a joy with which to work.

The citric acid was used as a tool to increase contrast, but was later discarded in favor of using the developer in two different amounts to adjust the contrast levels between the three sheets of matrix film.

The second solution used in the developer (part B) is simply Potassium Carbonate. I would buy this by the 100 lb size.

However, a word of caution. If the B solution (9 1/2 lbs. to 5 gallons of water) even when it was mixed and totally dissolved, if ever the temperature went below 56° it would "freeze" and it would be impossible to get it back into solution again. It must be dumped.

The Pyro chemical is very expensive. I used to buy it by the 2 pound packages. Bob DeSantis purchased it by the 25 pound size and saved money.

At one time in the 1970's the Matrix A developer was packaged in a can. When the can was opened, it should reveal a snow white color in the open chemistry. If it looked tan, we knew we

would be in trouble. After all, this was a secret formula. Lo and behold. Trouble with a capital T hit the market. I couldn't make a print without the print looking as if a grey fog was everywhere. The prints looked muddy. I was desperate. I didn't know what to do. Kodak was no help at all, suggesting that our water supply may be the reason for our dilemma. I decided to call a person at the Kodak Co. that I knew quite well.

He told me to keep this under my hat. He gave me the formula, because Kodak was also trying to find out what the trouble was caused by. (They already knew.) The fresh chemicals for the formula were obtained quickly and my trouble disappeared. The Pyro was contaminated and Kodak didn't ever say a word about it. They just packaged the product in a bag and said it was a new packaging scheme.

I called by best competitor and friend and gave him the formula. We both got our work out on time. Similar formulas were around at the time and were being used to process film in a "one shot" manner. The thing that really bothered me was the fact that no one was conscious about the H&D curve shapes that determined the proper gamma of development.

To me the idea of processing film by time and temperature was the only way to go.

Trying to process film or glass plates by inspection was a joke. In a very dark room with just enough green light to see the sink, you were supposed to see what kind of density you were getting on the emulsion. It doesn't work. Contrast and density are the reasons why.

Let's assume that you think you see the density where it belongs, what makes you so sure that the contrast is accurate? Forget about processing by inspection. I remember watching an experienced darkroom technician processing a set of glass plates shot in a "one shot" camera and he was doing it by inspection. No way could this performance be considered professional. The processing of glass plates in a tank using hangers was not easy. First of all, a set of test images had to be exposed. A large grey scale was constructed and placed in the shot. After processing, the only thing the lab technician had to discern was the accuracy of the contrast, because the density was governed by the exposure and the filter's factors used in the camera. The filters were permanent and the exposure was the same for all three sheets.

The only thing the lab technician could suggest was to either expose the image for more or less time.

Processing was the only tool he had to work with.

Remember, this is something I did at the beginning of my color printing experience. I worked for a large photographic studio that employed over 90 people. Color printing in the Dye Transfer process was still not perfected.

The studio would build a set for a photo that was to be used in ads for Armstrong Congoleum. The models were dressed and brought in and lights were set up in the same way they would be placed on a movie set. The camera was a "National One Shot Camera" 5x7 that used glass plates called "Super Panchro Press Plates" manufactured by Kodak.

They were loaded in special holders and placed into the camera. The camera view finder was a simple little eye piece viewer such as those found on many simple cameras.

The lights were strong, and sometimes strobes were used instead of fixed lights. A test shot or two which included the extra large grey scales were made and handed to me.

I processed them to a predetermined developing time for each different color plate. When this was done, I examined the results by reading the grey scales. **If the density ranges were close, so be it,** I didn't worry about the overall density

which I could not change. Using a very rudimentary calculation system, I would then either make changes in my processing times, or I would go with what I had.

Any further corrections had to be made at the time of assembling the bromides and the combining of the pigments. It's a wonder how we ever made such beautiful prints.

The point being, that one's own intuition and ability to sense color and it's impact is the main reason for the fact that so many great photographic images were made before the advent of the scanner and the computer.

Getting back to processing by inspection. It is difficult enough to examine separation negatives in regular room light against a brilliant light box without the aid of a densitometer, although, this was the case in the 1940's. How in the world did our employers think we could determine the accuracy of processing while in a darkroom with a very dim green light that we were supposed to examine our results through, and this included looking through the anti halation backing on the glass plate? Like idiots, we all followed the actions of those before us. For those of you who have mastered the use of a densitometer, remember

those early days (through my eyes) and compare the relative accuracy that is now afforded to all of us in the printing business.

I do subscribe to a few different kinds of photographic magazines. Included are "Outdoor photography," because I enjoy the skills of the contributing photographers. I also enjoy reading "Darkroom and Creative Camera," because it is devoted to those of us that are interested in the "hand's on" approach to the art of photography. And I also subscribe to 2 Digital Darkroom magazines so that I can remain abreast of the current ideas and rapid changes in the electronic age.

I must admit that I am fascinated by the things that can be done with electronics, especially the cleanliness of the final product, but I am fortified by the fact that I haven't seen anything yet that compares with the exhilaration that comes with the production of your own image. Maybe I am getting old.

Thanks again,

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