

KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

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Understanding the Separation Process

The importance of understanding the separation process is fairly critical. If all you ever learn about how to make separation negatives are the necessary physical steps, then you will only be able to make inadequate negatives, to say the least.

It takes much more knowledge about what can and what can't be done with the film's curve shapes than ordinarily meets the eye.

The average Dye Transfer beginner first wants to learn the physical steps. This is a natural understanding. It is much like learning to drive a car with a stick shift transmission. Going through the steps of clutch and stick and from first, through second, into third and even fourth gears can be complicated at first, but as the

driver gets more experience and learns the necessary muscle memory, he begins to understand some of the idiosyncrasies of driving.

A race car driver is an experienced driver and a professional.

An educated Dye Transfer technician can become a professional quality printer. What is needed is both the physical and educational knowledge that will guarantee such a final goal.

Incidentally, learning about Dye Transfer is much like learning music. You never finish learning.

But, what does a somewhat experienced Dye Transfer printer know about his craft that a raw beginner doesn't know?

From experience, he realizes that too much negative

contrast will make his final print look very hard, and at the same time, a soft negative will make his final print look mushy.

When he learns what the controls can do, then he begins to correct the hard or soft negatives by adding Acetic acid or Triethanolamine to the dyes to make contrast changes.

And if he is too light or too dark on his proof print, special tricks can be used to increase density, (slightly) or adding liquid sodium acetate to the first rinse can make the prints lighter. And the same chemical can be used to make the color balance changes.

Even a simple chemistry such as Sodium Hexametaphosphate (Calgon) can make whites whiter than you can imagine.

However, with proper education about "how" the process really works, he will be better armed for combat.

Once you understand the limits of the contrast levels required by your environment, enlarger, materials and other variables, you are ready for the first improvements in your print-making. Understanding that color balance can change a scene from spring to fall with just simple corrections in the contrast and saturation of the dyes will make you more aware of the possibilities. Learning **how** to do it is simple. Learning **when** to do it is a bit more difficult.

In other words, education is the key element.

How can one get this important education?

This is the toughest question to answer. Naturally. I favor my system, because it has been a proven method. My early years were spent learning the first phase of the process.

Fortunately, I had some art experience and I believe it taught me to look at "art" in a special way.

The first color prints that I made were atrocious. I had trouble getting the color image in register. I wasn't worried about anything else except register.

The register problems were solved by my superiors in

purchasing the 2nd ever produced Matrix Punch system manufactured by Condit. This was in 1948.

Then slowly I began to learn how to apply the different controls that helped make a better print. The prints that were made in this period began to look better and better.

But, whenever a great print was made, we were as surprised as anyone. We didn't know what we did that made it work, but we used the same system again on the next job.

This "hit and miss" method was used by all the printers in New York City.

It wasn't until later that I began to question every move I made. I made a conscious attempt to isolate the different problems associated with Dye Transfer.

I made headway.

I made it my aim to be in complete control of this product.

It begins with the very first step.

What kind of contrast is my enlarger capable of producing in normal circumstances?

I didn't know.

How could I find out?

I came up with a simple solution. Place a 21 step grey scale in my enlarger carrier and make a series of exposures on a sheet of

"final material."

What constitutes "final material?"

Matrix film. What else?

With every thing else equal, I discovered that only a specific degree of contrast was able to be produced by my 4x5 condenser Omega.

I made tests with my 4x5 diffusion system, the degree of contrast was totally different.

Why?

I discovered that a condenser produces a light source that travels through the condensers in a straight line and holds it's edges more accurately, and a diffusion system allows for more flare and less concentration of the light source.

This made a great difference in the degree of contrast.

What about other enlargers?

I made tests on ten different kinds of enlargers. All of the degrees of contrast were different.

Then I decided to test the different waters. Tap water vs. distilled. The differences were also there.

The color of the bulb made a difference, and so on.

Understanding the variables was the key to solving the volatile nature of the Dye Transfer process.

Like the flower girl in "My Fair Lady" by Jove, I got it.

I plotted curves until I understood what was happening to the H&D curve shapes of the Matrix films as well as the other films used in the preparation of the separation negatives.

It looked in vain for a conformation of my "discovery." Nowhere was there to be found anything like what I discovered.

So I used this new "technology" for many years with great success.

I soon discovered that I was able to look at a transparency and then close my eyes and see the final print, with all of the necessary corrections that I deemed necessary.

I could predict in advance what kind of effect I wanted. If I wanted a snappy appearance in the final print, I knew just how far to go with the contrast masks.

I also knew that the highlight areas need not be bald, but, instead, full of delicate details.

The shadows were the one thing that drove me mad. Then I awakened to the fact that shadows in Cibachrome do not flare and disappear but stay full of details. Because dark areas do not flare.

The flare factor became an important part of my process.

I have written about making separation negatives to the

size of the print, and using a simple vacuum frame with register pins and an overhead light source to expose the matrices.

This system successfully eliminated most of the problems associated with flare in the shadow portions of negatives.

I tried in vain to see if anything about this phenomenon was ever printed, and much to my lack of surprise, I didn't find anything.

I soon discovered that I had "invented" a different way to visualize the making of a Dye Transfer print.

This is why I wrote the book and made the video. The process was never explained in this way.

So for the enthusiast who wants to learn about the Dye Transfer process, unfortunately, there are very few books and pamphlets about the process. I hope mine is examined.

Here is why.

Every transparency is different. Some are lighter and some are darker and all need special attention to the contrast curve shape that we must be conscious of before we make a move.

The ability to determine the contrast level, density level and the color balance before you begin the task of making all of the preliminary built-in

contrast and highlight masks is critical.

Remember, we are out of the beginning stage and past the second stage and are now ready to make the best possible prints according to our own individual taste.

I remember making a set of mats in my early days. It was a shot of a garden community street in a suburb. The proof print looked as if the photo was shot in February. So did the transparency. (This was in the days when a light box was a luxury.)

After looking at the image for a while, I decided to add some contrast to the magenta and yellow, and to remove just a bit of the cyan from the print. Suddenly, I had a print that resembled June or July.

The client wanted a print that looked more like May. Ten prints later we had it.

Kodak's information regarding the addition of concentrated dyes to the already mixed dyes (replenishment) was lacking in accuracy as the system dealt in the size of the print, whether or not there was any density in that particular color in the print. For instance, a red rose against a red background would exhibit matrices that were very light in the cyan and very dark in both the magenta and yellow

matrices. Equal replenishment doesn't work. Almost nothing works but pure instinct.

You could go through the trouble of purchasing a Ph meter and a Spectrometer or Colorimeter.

This would allow one to administer the addition of the dyes to the trays with more accuracy.

But the cost of such equipment will soon rule out that method.

The use of one's imagination and much experience will soon allow one to make calculated judgements about this phase of the print making ceremony.

Slight adjustments in contrast and color balance can change the entire mood of the image. Your experience and imagination will work for you if you let it.

The importance of choosing the correct film to make the final separations and to realize how the color acceptance of the film makes an important difference. (Super XX vs T-Max.)

The color acceptability of the Super XX film compared to T-Max film is outstanding, yet, either film will work beautifully.

The name "Kodak" is associated with the Dye Transfer process. It began with their introduction and materials.

Soon, however, it became clear that the only Kodak materials necessary for the process were the dyes and the matrix film.

The separation negatives could be produced with anyone's panchromatic films, provided they had a wide enough range. Litho films could not produce a graduated continuous tone image, so simple continuous film was used to make the images.

At first, we used Kodak's Super Panchro Press glass plates. The masks were made by exposing Kodak's 33 Glass plates to the glass negatives after they were made.

The instructions that accompanied the matrix film and the dyes, were the "state of the art" information in the early days. We all used the pamphlet as a bible.

Now, after all these years, the flaws in the pamphlet just jump out at you.

One glaring error is the statement that "highlight negatives are not that necessary, except for occasional needs."

This is the worst statement of all.

The shape of the curves of the separation negatives and the matrix films demand that the curve shape be straightened out somehow. The highlight areas are the first to suffer when making a

print from a conventionally made separation negative. If a highlight mask is made, some of the detail is saved. Not all, but some.

Highlight masks are necessary 99% of the time? What do they do?

They restore the curve shape and allow the highlight areas to print more normally. However, if contrast masks are used before making the negatives, the highlight areas suffer even more as they are the first areas to get flattened out by the mask.

The two remedies are to either build the highlight-mask into the making of the separation negatives, or make a subsequent set and use them as post masks.

Have you ever read about specular highlight negatives?

These little gems are simply, highlights of your highlights. This mask is made from the best formed highlight mask of the set, and reproduced by making a contact exposure of the mask onto Kodak's LPD 4 (or 7.)

What occurs with this film is that a duplicate highlight mask is made with less coverage but with much blacker details.

This will make really sparkling objects like "diamond glitter" come alive.

Why are specular highlight masks necessary more often than you think?

The next time you drive on your freeway, dim your eyes and look at the cars in front of you, and notice the brilliant glimmer from the chrome and glass. Preserving some of this "glitter" adds realism to your printed image.

How did Josef Karsh use highlights to his advantage when photographing men? If you ever studied his photographic books, they have one thing in common. All of his men have interesting highlights in their skin. This is a method that he has used for many years. His black and white negatives are usually shot on orthochromatic film (color blind) and the negatives are deliberately underexposed in order for the highlight structure to remain intact. He wasn't interested in sweat, but in the details that make the image "come alive."

The choice of using natural daylight in a studio environment rather than strobes and incandescent light sources.

If you are a studio photographer that likes to make interesting "set-ups" then this may be of benefit to you. John Rawlings, one of the most inventive and articulate photographers in the fashion

field made his fame and fortune using controlled daylight. The images he captured on 8x10 Ektachrome film were the most beautiful I have ever seen. The lighting contained an almost magic quality. His studio was a simple cube with the ceiling constructed with water proof windows. There were no visible electrical lights of any kind. He placed various kinds of window shades across the ceiling and could control them by pulling on the appropriate strings whenever he needed a special effect. He also used many different kinds of reflectors and mirrors and was able to place them at the correct position with ease.

He became such a master at this kind of lighting that he was the envy of most photographers that wanted to work in fashion.

Most other photographers opted to work with strobes and were also quite good at their kind of work.

Richard Avedon used all kinds of lighting to his advantage, but I doubt if he ever used plain daylight. Horst, another great image creator also used daylight to a great advantage.

The name of John Rawlings has never been acclaimed the same way others have been, but, since I worked closely with this gentle person, I knew first hand of

the quality he was able to produce.

The field of art photography demands that the photographer be the complete artist. This means first making the image on a sheet of film and then working to produce a print. This sounds rather simple, but it is not quite that accurate.

Photojournalists that roam the world, such as the likes of Robert Capa or Eisenstadt, had the world of "art" wrapped up in their 35mm images. They were convinced that the image was all that they had to worry about. Some one else who may be more in tune with darkroom work would be the better choice for producing a print.

Thousands of scenic photographers have their work printed by quality labs and are satisfied with this arrangement.

Today's scenic photographers like Galen Rowell feel the same way, except that they know what kind of image they want and make sure it is delivered that way. In other words, once the image has been captured on film, the photographer is finished. He has done his job.

The Life magazine darkroom crew used to make the final images that appeared in the magazines pages. They had to be good.

However, I wonder how many of the magazines photographers were completely happy with the results.

The first Life cover shot on 35mm Kodachrome film was reproduced from a Dye Transfer print that I had made for Philippe Halsman in 1950. He was in my lab overseeing the print-making procedure. He got exactly what he wanted.

I still have a framed print of this image hanging in my home since it was first produced. It still looks new and fresh after 43 years. We made enlarged separation negatives and made matrices that almost matched his original. but he wanted a more moody image and insisted that we add a black printer to the print using the cyan matrix as the carrier. The result was outstanding. But this was a decision made by a master photographer that realized the importance of the print.

Have you ever looked at the reproductions of fine photography and wondered if the photographers were happy with the results?

Have you ever looked at a billboard and wondered if it couldn't have been printed better?

Believe me, I have, many times. This is a curse that professional color printers

have had to endure all of their lives. I couldn't walk down the street in New York City without dissecting some of the posters and billboards and wondering what kind of results could have been obtained if I worked on this particular account.

While I am on the subject of what photographers can do to improve the final viewing of their work, I am reminded of the great photographer Reid Miles, who recently passed away in Los Angeles.

I had the great pleasure of making many images for Reid. He was a flamboyant person that had a great gift for creating and then capturing images.

Most of the prints that I made for him were made from 35mm originals. Whenever I picked up a job from Reid, I would get a complete picture in my mind about what he was expecting from me. He was such a good communicator that I seldom had to make anything over for him. He knew exactly what he wanted.

You can assume that I wasn't concerned about the use of a small camera to create an image.

On the other hand, the large format is much more detailed, if that is what you want to display.

The question is "how big a camera can one use?"

In 1860, glass plates of 44x36 inches were made for John Kibble, an amateur photographer from Glasgow, Scotland. This must have been fun.

William Henry Jackson used 20x24 glass plates in a large view camera to capture some of America's first glimpses of Yosemite and Yellowstone.

More recently, A photographer in Florida had the idea of photographing portraits using a 20x24 studio camera. The film carrier was loaded with Kodak's Type R paper and used as the final image. A reversing prism was used to make the image appear properly when the print viewed.

The idea was to make one image. Just one. It was a final and didn't need printing. The idea, in my opinion, is a throwback to the days of Dagguere who made just one image at a time. No negative was used. Instead, a polished silver plate was coated with copper, and after processing, the negative was viewed against the silver plate and the positive image would appear.

The problem with this system of using Type R paper is not a bad idea, but rather one of longevity.

The image will fade rapidly. Then what?

With today's remarkable and accurate color films and their speed, why would anyone want to make images as they did in 1868?

The making of one image, if it has longevity, and if it is an important historical image, may have some merit for sale as a one of a kind image. However, I don't see it. This is more of a promotional scheme than one of artistic merit.

The question still remains. Who was to work on the second half of photography, the print.

The image seen by practically everyone is the print, or the reproduction.

Not the negative, but the print. It is therefore most important that the same amount of skill and concern be placed on the print-making aspect of the photographic image.

This is where I come in. I don't profess to be an international photographic star, but I do believe that I know how to make a print. I do confess, that when ever I make a print for someone else, it is sometimes done with my feelings and not those of the photographer, unless I am directed otherwise.

I really don't care what size camera is used to make an image. I am concerned only with the image that was created, not just the fine details. This is also where you come in.

If you weren't interested in the print making aspect of the field of photography, you wouldn't be concerned with this publication.

The making of transparencies from color negatives has taken a new turn. In the past I have been mentioning the use of Kodak's Vericolor Print Film as the material to use for conversions. I recently came back from a trip to visit Steve Solinsky in Nevada City, CA. He is successfully converting his great negative images to positive color images using Kodak's Duraclear material. It is much sharper and has very little grain. It can also be processed in the same chemistry as the Type C print.

We made a set of separations from an 8x10 Duraclear image, It separated perfectly.

Steve is using Kodak's T-Max film, processed in HC-110 developer. The results are excellent. The sharp and almost grainless negative is an asset.

Steve's originals are shot with a 4x5 view camera using Kodak's color negative materials.

The enlarger is a gem. It is an old Elwood, mounted on a new track bolted to the wall. The light source is an Aristo white light system, which could be used to make color images, if necessary.

Of course, the standard Condit registration system is used and the enlarger is braced against the side wall once the size has been set. The lens is a 240mm Rho-denstock and it covers the slightly smaller than an 8x10 image.

The easel is a simple home made thin version of the By-Chrome system.

The light source must be left on constantly, otherwise a change in the color of the neon type tubes would occur and change the exposure. This is accomplished by using a Packard Shutter on the lens. It works great. In fact, I did the same thing 40 years ago.

His room for processing the matrices is large enough so that 20x24 films can be handled. In other words, he has spent some time in making a top quality lab for the Dye Transfer process.

Just to give you an idea of what can be done with a Dye Transfer print, here is what transpired during the print rolling session.

I. We pulled a straight print. It looked fine,

but we decided to change the contrast overall, mostly in the magenta dye. We mixed up a 10% solution of Triethylanomine and reduced the cyan 1/4 step, the magenta 1/2 step and the yellow 1/4 step.

2. We pulled another print, examined it and decided to reduce the magenta another 1/4 step. This was a great improvement, but we decided to go even further.

3. We lowered the whole thing one more 1/4 step and increased the magenta to 1/2 lower yet. The results were just about right. Try this with any other system.

Processing the contrast masks (Pan Masking Film) in a tray is not easy. They have a tendency to scratch very easily. I would suggest that either a Jobo be used, or you learn how to handle this delicate film. If you insist on using a tray, then make sure that you have more than an adequate supply of developer in your tray. Add the first sheet emulsion down, then face up and rock it for a few seconds to make sure that it is completely covered with developer, then slide it face down into the tray and try to keep it from hitting the bottom of the tray. Use a floating action. Practice this in room light with

dummy film and you will soon see how simple it is to do.

If more than one sheet is to be processed, space them at least ten seconds apart.

Any scratches that appear on your masks will definitely appear on the final separation negatives. Don't waste time trying to make a print with scratched masks or negatives, unless it is only for practice.

Imagine making small contact size masks for 35mm originals.

This is something that I have done for many years.

How did I keep from getting scratched images? Simple. I floated the masking film face down, and even when flipping 2 or 3 sheets of film in a tray, I made a positive effort to "float" the film.

Every sheet was handled face down.

If I saw even the slightest hint of dirt or abrasion on the emulsion side of the mask, I made it over immediately

Then in order to insure clean and sharp 8x10 separation negatives, I placed the 35mm transparency and mask together in the enlarger carrier and used silicon oil as a preventative for eliminating any scratches or abrasions. The image was also free from Newton rings and any notice of color refraction.

The importance of print making is very evident when you visit a photo gallery. If you are serious about quality, and I am sure that you are, practice good habits and never ever be satisfied with "good enough."

I am waiting for more details about the new Evercolor Carbon Pigment process that Bill Nordstrom is preparing for it's official opening. I was supposed to visit with Bill last month, but circumstances prevented me from visiting him.

From the earlier conversations with Bill, we can expect some fantastic images to be made very shortly. This will probably be the **first and only extremely professional separation negative service known in the entire world.**

He plans to make 600 line screens.

With my eyes, even 250 lines looked pretty good. My hats is off to Bill and his cohorts. I wish them all the luck in the world.

In the meantime. my new book on "Photo-Graphic-Comp" is available for \$75. Both the old and new versions can be had for \$100.

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