

KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

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Idiosyncrasies of the Darkroom

Idiosyncrasies of the darkroom.

It almost sounds like a dreaded disease, but in fact it happens to be a common everyday occurrence.

Most of us who have worked in darkrooms know the importance of being accurate and professional in our approach to quality workmanship.

However, there have been instances in our handling of our materials, by all of us that are far from being scientific.

For instance, when processing a black and white negative in a tray, and you have already set the timer, did you ever give the film just a few seconds more in processing, because somehow, you felt that the contrast should be just a little higher?

Most of us have.

When processing black and white prints in a tray, do you ever get into the habit of short cutting the developing time in order to "save" a print.

Don't do it.

Always process the paper to it's ultimate conclusion, otherwise the blacks may never get the chance to be completely processed.

When I learned to make black and white prints, I learned from an old pro. He taught me to use a large tray to process the prints, with plenty of safelight illumination so that I could almost see the print in the proper light.

He taught me to make safelight tests so that I could use the brightest light and yet not fog the paper.

We used an angled viewing board at the back of the sink, so we could place wet prints there for inspection.

We also used a hot plate heating a graduate of concentrated developer. A large wad of cotton was also in the graduate.

If we felt that than area wasn't developing up with the rest of the image, we would help the area with some warm concentrated developer.

We also used a cold water hose to keep certain areas from developing before the rest of the picture.

Was this scientific?

Not by a long shot.

But it was a very effective way to make prints.

The creative controls that most of us are used to, is totally eliminated by only working in a scientific vane. We couldn't get the effects of a hot developer without really using hot developer.

I remember that I had to place separation negatives

(usually glass plates) in the film hangers in the same orientation to each other, otherwise, the images would not process evenly thereby causing "wedging."

This would cause background areas to suddenly become uneven and multi-colored.

Many young and enthusiastic darkroom technicians have not had the pleasure of spending much time with the processes.

Most of us that shoot pictures for a living, bring our color film to a commercial lab to be processed. It is all done by machines, and rightly so.

But what about those of us that must either make negatives or special masks for the specific kinds of prints that we make.

Some of us have processed film in trays, tanks, tubes, dip and dunk machines, and roller transport machines. We often wondered which method was the "best."

The "best" what?

For the best speed, the roller transport beats all.

The best for convenience in handling, and the dip and dunk method the tubular system beats them all.

The best for a methodical repeatable process, with replenishment, and less handling of the film, the

tanks and film holders beat them all.

The tray method is usually not considered the best, and is the method most attacked by "serious" darkroom enthusiasts.

However, I like the tray method.

The reason for it's lower acceptance by the average darkroom worker is the ease that it can be damaged by scratching, and unevenness in processing.

In my humble opinion, the roller transport is great for the large producer, if the replenishment and maintenance of the machine is carefully checked every day.

The tubular processors, such as the Jobo and others, are great because they use a "one shot" chemistry system. There are no readings to make because there are no controls strips. Fresh chemistry, correct temperature and correct agitation is all that you have to be concerned about.

The short shortcomings for the tubular process is the possibility of scratches and the delay caused by having to clean the tubes.

The tray process is really my idea of perfect processing for small amounts of film.

If handled correctly, no scratches will occur, nor will unevenness.

It also can be considered a "one shot" chemistry system. However, for those of you who have little coordination

with your hands, stick to the Jobo.

One of my prize students, makes all of his masks, negatives and highlight masks using the automatic Jobo. It really depends on you. Do you feel the need to get your hands wet, or would you rather be a bit more scientific and use a machine?

Have you made contrast reducing masks using Kodak's Pan Masking Film?

If you have, then you will understand what I mean when I say that all you have to do is handle the film and light scratches appear as if made by magic.

You may not notice much damage on a large 8x10 sheet of film, but when working with small originals that must be masked, especially when making Cibachrome prints, any mask imperfection will be enlarged along with the rest of the image and will be seen.

If you want to mask a 35mm or 120 transparency in order to make separation negatives, Cibachrome prints, black and white internegatives, or for any other reason, you know how easy it is to get unwanted little abrasions and scratches on the Pan Masking film.

It has a very sensitive emulsion surface and is easily marked.

If you attempt to use a trimmer and try to cut the film to a smaller size, the abrasions caused by the edge of the trimmer will show up on the mask. Probably right in a face or sky. Never where it won't be noticed.

If you process more than one sheet in a tray you will probably get them scratched.

If you tray process you can mark the film by touching the bottom of the tray.

After you process Pan Masking film, examine the film using a 6 or 12 power loupe, and you will see many unwanted marks on the film. These marks will carry over to what ever you are preparing to print.

If you try to load Pan Masking film into the little Jobo device that can handle 6 sheets of 4x5 film, I guarantee that you will get so many scratches, that you will want to throw the loader away.

Don't do it yet. It is not the fault of the equipment, but instead, the **fragile surface of Pan Masking film.**

But, you say, what about film hangers?

This is probably the worst way to process film ever invented.

It was the only way for glass plates to be processed in the early days, but glass plates have virtually disappeared

and the hangers are somewhat "archaic."

The pump marks caused by the developer rushing through the little holes in the film hangers will produce more developer activity along the edges of the film and prevent one from getting a smooth background.

At one time in my color printing career, I used a machine called the Hyro-tube. This was a fore runner of the current Jobo. It consisted of a box that held two tubes. The film would fit between little bumps in the inside surface of the tube. The rotation was bi-directional.

The processing time had to be precise. It was a manual operation.

However, the chemistry was fed through a light tight system and it was easy to add and dump chemistry. The processing was "one shot" and immaculate. The temperature of the machine was held to very tight controls, however, the chemistry had to be heated or cooled to the correct temperature before attempting to process film.

These machines were great, but not fast enough for the commercial market and eventually went out of business. I wish I had one today.

Do I have a solution?

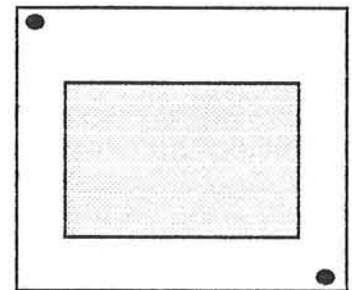
You can bet your life I do. Here is one of the reasons

why I like tray processing.

Float processing.

This sounds rather silly, but it does work.

I have been using a new approach. When I make masks for my 35mm system, you must know that I recommend mounting the 35mm transparency into a larger 2 1/4 sheet of film of the same thickness.



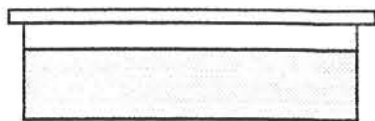
This allows me to handle the film without fear of damaging the little sprocket holes or even touching the film as it is placed on and off the registration pins.

If I am making separation negatives, I can place both the red and green mask exposures on the same sheet of 4x5 film. These two images can be processed on one sheet of film. The technique is as follows:

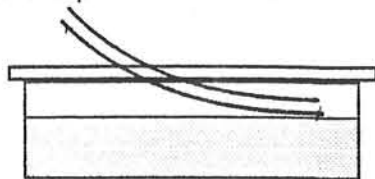
If you use 4x5 film for the masks, purchase the film in that size. Try not to have to cut the film down to size. If you must cut larger film down to size, place a sheet of spare film, emulsion down, on the trimmer and

use this as a surface on which to place the unexposed film.

This procedure will help eliminate many scratches. Use a tray that fits the film. In other words, use a 4x5 tray for the 4x5 film. Fill the tray with the correct dilution of chemistry, and make sure of the correct temperature.



Now the floating system. Place the film into the developer making sure that the film does not touch the bottom of the tray. Float it on the top of the solution.



Agitate the film properly, lifting it up, and flopping it over, then lifting it up again and flopping it again. Keep this up until you are ready for the stop bath. Keep the same procedure of floating the film until you are in the fixer, emulsion up.

I use Kodak's Rapid Fixer with hardener. The hardener will allow the film to be handled normally after it has been dried. Let it rock, gently, until ready for the wash.

Wash the film emulsion up, for as long as you wish. I don't wash for more than 2 minutes.

If this is an archival image, wash the masks for 10 minutes.

Then place the film in a clean tray filled with clean distilled water and Kodak's Foto Flo for 2 minutes, rocking gently all the time. Remove the mask from the tray holding both edges of the film between the thumb and forefinger of one hand.

Hang in a dust free environment till dry. No marks.

I can assure you, that if you try to process this kind of film in any other way, you are apt to get scratches or abrasions, and possibly, some unevenness. However, once the film has been dried, and if Rapid Fix was used, the hardening action of the fixer will make it more difficult to damage the film.

I have been in the habit of squeegeeing film for over 45 years. I even used to squeegee 35mm films and small 4x5 sheets with the same procedure. However, I refuse to handle 35mm film or even 4x5 films in this fashion any longer.

Working with 35mm originals is a study in patience.

I used to make masks over and over until I could get a set that would work. Now, it is a cinch.

Another bit of darkroom ingenuity, When I worked at the New York Institute of Photography in 1948, a question was asked by one of the students, "If your temperature in the tray is a bit too cold, how do you recommend raising the temperature just a little bit?"

The answer he received was a classic.

"Place your hand in the developer and watch the thermometer."

I almost rolled on the floor. This was such a weak answer that I use this remark as a guide to getting the student to think.

The thermometer should be accurate. But even if it isn't, if the same thermometer is used every day, it will have repeatable characteristics and is still valid.

The next time you want to influence the direction of the temperature in a tray, (or tank) use a plastic sandwich bag, filled with either ice or hot water.

Move the bag in all directions in the tray, while watching the thermometer. The use of a sandwich bag is much more accurate and a lot less messy.

If temperature is difficult to maintain, try using the Zone 6 Compensating

thermometer and timer that will adjust itself to the temperature by either shortening the actual time or lengthening it.

This same instructor was asked during a lecture on color photography, "How close can you come to a transparency with the Dye Transfer Process?"

The answer was also a classic.

He held up a color print of an apple.

"What is this?" asked the instructor.

The student said, "It's an apple."

The instructor, in a deep and reassuring voice said,

"There you are."

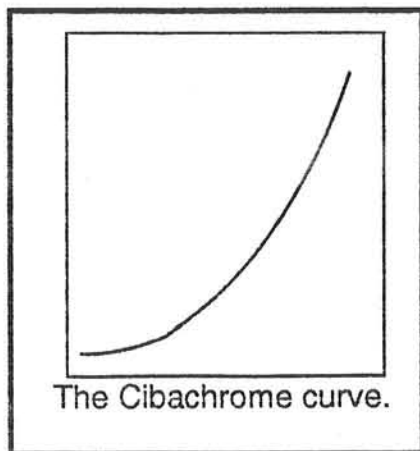
Which brings me to the next subject.

Color acceptance.

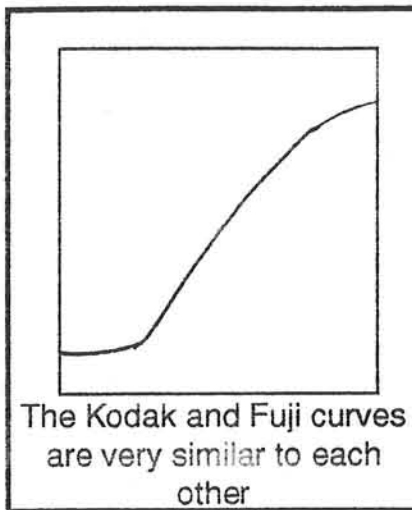
Which process is best between these three.

Cibachrome, Fujicolor, or Kodak's Ektachrome print, commonly know as Type R.

The curve shape on these three systems is as follows:



The result of such curves can be the reason why the



Cibachrome process holds much more highlight detail than any other process, including Dye Transfer.

We recently made some prints of the Grand Canyon. The sky area was just visible in the upper background.

The Type R prints of Kodak and Fujichrome, were devoid of accurate color in this area. Instead of the sky reproducing a similar blue as indicated in the transparency, the sky looked grey.

The Cibachrome print was very close to the transparency. The reason for the color difference was due to the differences in the dyes as well as the curve shape. However, there was a definite difference between the details in the rocks at a lighter density. The Cibachrome print held the differences accurately,. The Type R prints did not.

However, the speed of the materials were miles apart. The Kodak Type R and the Fujichrome papers were very fast. They each

required a 7 second exposure at $f 11$.

The Cibachrome paper was very slow. It required an exposure of 240 seconds at the same f stop.

I have worked in labs where there was no timer used with the enlarger. Instead, they would start the enlarger lamp with a switch, and then use a metronome.

It was claimed that they could count the exposure times and the dodging and burning of the image with much more accuracy.

I have tried this, but because of my method of working so precisley for the past many years, I had to use an accurate timer for the main, as well as the additional exposures. I couldn't trust myself to remember all of the moves that accurately.

Most labs do not, I repeat, do not use some sort of electrical stabilizer for their enlargers or contact equipment. This is a big mistake. You can be sure, if some electrical load changes in your community during a printing session, the results will be such, that you will be making prints over.

If you have an electrical surplus company in your area, purchase a voltage stabilizer in the correct wattage that will fit your bulb strength. This is a small investment to make when you consider how much

material you will save with this kind of protection. Don't expose anything without it.

I plan to make a few "Ultra Stable" color prints in the very near future. I plan to write my conclusions about this excellent process when I am finished with the first couple of prints. The coating of the materials is a simple matter to accomplish. There have been many publications written by Louis Nadeau, of Canada. He has one book that is a must for any enthusiast of the old Carbro process. He has kept the old formulas alive and explains the coating process. He even details the making of an inexpensive ultra violet light source, which is a must for the new color Carbon process. The book is titled, "Modern Carbon Printing."

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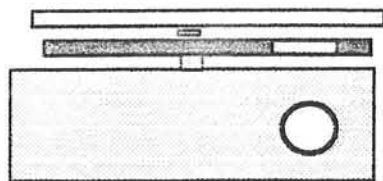
His many books are also carried by "Light Impressions." Rochester, NY

I am currently making some 4 color screened separation negatives for a local newspaper here in Las Vegas. The technique is simple.

In order to find the correct exposure for making this kind of product, I first projected a three step grey scale. Then I made exposures on Pan Litho film through a set of color separation filters, and also through a set of pre-angled 85 line screens. I made as accurate an exposure through the red #29 filter until I was satisfied with the result. I noted the exposure time. I then proceeded to make exposures through all of the other filters, the green 61 and the blue 47 B. I made enough exposures so that I could find which ones matched the first red density. I finally found the balance. The red was 15 seconds. The green was 140 seconds. The blue was 280 seconds. The black was made without color filters but through it's own screen. The results are not dramatic, but they do look like color prints in the publication. I would rather have had a scanner like the Nikon or the Barney Scanner and make separations through the computer. If the price was right, I would make continuous tone separations and then convert them to contact positives and finally to screened negatives. I would have all of the necessary control in my favor instead of just hoping it looks like a

color print. Making a light source as even as possible is very important when making quality reproductions. I have discovered that my light source which has been used for making contact separation negatives and contact masks, has been off center. I had to expose a large 8x10 color negative with a very smooth and even background. It was off. Here is how I accomplished the correction: My light source is a point source, 100 watts, 20 volts. The control box is a variable transformer that can be adjusted to a very low voltage. It is only 2 1/2 feet below my working table that houses the exposing platen. This is much too close to expect a smooth even light from a point source. K & M, the manufacturer of graphic art light sources, recommends that there should be a minimum of 10 feet between the light source and the exposing platen. In my case, I would have to stand on a ladder and work on a high table, or place the light source ten or more feet down the hall, use an overhead mirror, catch the light source and aim it downward towards the exposing platen.

A diffusion light source



The item at the top of the diagram is a sheet of diffusion material. The second item is the filter wheel, and finally, the light source. By placing the diffusion sheet above the light source, I was able to keep the shorter distance from the light source without fear of unevenness. What kind of affect does this have on the final image? Very little. The images are made by vacuum contact. The edges will be slightly softer but the effect is almost unnoticed. I have made many prints with both systems and have found that it is almost impossible to see the difference.

Another idiosyncrasy is the method for eliminating Newton's Rings.

Just what is it that causes Newton's rings? Moisture and two very smooth surfaces. Since I can remember, Newton's rings have been part of the photographic process. This is one of the reasons that glassless carriers were invented.

When I began working in earnest making Dye Transfer prints for a living, we used to use a very fine powder made from pumice. The engravers used this gritty material for years. We tried it. It worked on large images only.

The method used was interesting. The powder was placed into a small squeeze bottle. The bottle was shaken, then a puff of powder was squeezed out into the air and the sheet of glass(or a negative) was passed through it as the gritty material fell to the floor. The powder helped to eliminate the surface tension- which is the basic cause for the Newton's rings. The accompanying mess caused by the grit of the pumice was not for my Dye Transfer lab. My lab had to be immaculate. We treated our surroundings as if we were in a hospital. We decided to try something different.

Arid Extra Dry Deodorant
(Unscented, of course.)

The fine powder spray produced by Arid, is much finer than the engravers pumice.

Another advantage was this. If you didn't want to use the grit to eliminate the surface tension, then just spray the glass directly and wipe clean with a dry tissue.

This eliminated the moisture on the glass, and it

eliminated the rings most of the time. Aluminum Sulfate is quite a drying agent.

The very best way to eliminate Newton's Rings is to place the transparency and any masks between clean glass and use silicon oil as the medium to completely, eliminate the annoying Newton's rings.

I know very well what the difference is.

Another annoying problem in making prints is static electricity.

This occurs when the humidity is low.

When you place a large sheet of film on a vacuum easel and cover it with another sheet of clear film, and then try to pull the top sheet off the sandwich, little sparks of lightning will fill the air.

You will fog the film in a most interesting manner. After processing the film, it will look as though lightning bolts were captured on your film. In fact, that is exactly what happened.

The light struck areas will resemble little chicken feet. We tried to neutralize the film by touching it with a piece of grounded wire. Of course, that didn't work. We finally came up with a solution.

A thin piece of black paper.

The paper must be opaque and thin.
The procedure is as follows;

Place the sheet of film (matrix) on the easel. Then the second sheet of film, (Kodalith?)
Wipe them down so as to get a perfectly flat union. Use vacuum to make sure the fit is tight.
Make the necessary exposure. Then gently lift one corner of the top sheet and slip the edge of the black paper between the matrix and the Kodalith. Keep sliding the black paper between the two sheets of film until the entire sheet is released.
This will eliminate all of the troubles caused by too much electricity in the air.

A word about where to read the transparency when making masks and finally, prints.
If you are making a Dye Transfer print, and determine the density range by the subtraction of the lower reading from the higher reading, make sure you pick the areas that show some detail in the shadow areas and the highlight areas.

After the masks have been made to a specific gamma, you should verify the gamma by checking the 3 step grey scale. If you divide the original grey scale into the masks grey scale you

will get the correct gamma. If it is within .02 from the desired gamma, this will be close enough.

However, when you read the negatives, check the areas you read in the first place. The resultant density range is all you really care about. If you are within .05 from your desired density range, you are in good shape.
The most important thing to consider is this. Your aim, from the very beginning was to get the density range of the transparency as close to the required amount that your enlarger can handle. This is the most important thing to consider. Did you get close enough to make a great print?

Years ago, one of my competitors used a unique method for obtaining a color balance.
If the image was of a car, he would read the whites on the whitewall tires through all 3 color filters in his densitometer.
Then he would read the black edge of the film. He claimed that the edge of the film indicated a difference because of processing, and by correcting that area the print would be more accurate.
I didn't agree with this premise, but I have to admit that his work looked great.
I still believe that the image

must be reproduced as seen or corrected by imagination and filters as a guide.

Some news about my upcoming video about Cibachrome printing.
I have finished the script and will begin shooting within a week.
It will be full of explanations and visible proof of what I do.
It should last about one hour. I will attempt to make it easy to follow .

If any of you are interested in my "home study courses" let me know. I am positive that you will learn quite a bit about color printing when you are through with any of the courses

My other wares are still for sale, including the "Art of Photo Composition",(\$50.)
Dye Transfer through the Eyes of a Professional." (\$200.)
My book on a "Professional Approach to Ciba," (\$135.) and my monthly newsletters. (\$60 per year.)

Again, I thank you.

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