

KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

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Common Darkroom Procedures

<p>Here are some procedures for making accurate Internegatives, Dupe Transparencies, and Vericolor print films.</p> <p>Some labs actually make internegatives by trial and error. They will make a series of exposures and use what they think is the best negative.</p> <p>Some labs have difficulty in learning how to plot curves. You will need a densitometer for this purpose. I don't know of any quality lab that doesn't, at least, have a densitometer.</p> <p>Each box of Kodak's internegative film is packed containing a sheet of paper which describes a method for plotting your own curves. It is relatively simple task.</p> <p>Once a usable negative</p>	<p>exposure and filter pack have been found by a lab, they will lock in on that system and rarely change. If they have to make contact negatives, they will make everything by contact. I know of this first hand. A lab that I was once associated with made all of their internegatives by contact, regardless of the final size of the print.</p> <p>As a result, the large prints suffered because the small contact negatives couldn't possibly hold the required detail. Enlarged internegatives would have been the correct way to go.</p> <p>Other labs that have not been able to master the plotting systems have resorted to using aids such as a computerized method developed by PFS software in San Francisco.</p>	<p>They will sell you an entire system that is mind boggling. It consists of an IBM (or clone) computer and a specific program that will enable you to not only find the correct exposure and filter pack when making internegatives, but will list the various kinds of original color positive films, which require different filter packs. This means that if you are working with many different kinds of transparencies, and have to place them all on one page, the resulting images will look as if they were all shot with the same kind of film.</p> <p>Of course, other companies have gotten on the band wagon and have developed their own methodology. Kodak has a system that will allow you to place the color readings of an 11 step grey scale tablet from a den-</p>
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sitometer into the computer and the color and exposure corrections will be delivered to you in seconds. So, if you do have a comparable computer, chances are that you can get accurate information from various sources, including your own.

Certain kinds of the equipment are needed for this kind of work. The list of necessary equipment begins with the enlarger and the lenses. **The enlarger** is a common tool and the price range for such equipment is astounding. For instance, a new Omega, or Saunders 4x5 enlarger are close in price. About \$1500 for a dichroic color head model. A bit more for a closed loop system. The new Durst top of the line 4x5 is around \$7000. Quite a difference. The Durst is unquestionably one of the finest enlargers produced today. I have owned the larger 8x10 models and can verify their quality. However, I have made thousands of prints with less expensive equipment and I dare anyone to tell me what kind of enlarger they were made from. If you can afford the Durst, buy it. One of my favorite enlargers is celebrating it's 60th birthday soon. The Omega D2. The little copy of the Eiffel

tower is sturdy, and can be equipped with a color head or a condenser system, with drop in filters. **My idea of a good enlarger** is that it be easy to change sizes and lenses, has an even light source on the easel and does not go out of shape.

The lenses are very important. A great enlarger with a cheap lens defeats the very purpose you purchased the great enlarger for. The lens must be color corrected. This means that all the layers of color will converge to the same focal plane. The apo-chromatic lenses are the best lenses available. However, the latest Apo—lenses are also multi coated to eliminate internal reflections which can cause flare. The lenses I have used during my 50 years in the business have been legendary. Kodak's Ektar, was horrible, but it's soft effects made it perfect for the Max Factor ads we worked on for over 35 years. The Schneider Componon lenses were great. They were not apo-chromatic, but were close enough to imitate them. We used the Apo-EI Nikor lenses. These were phenomenal. We used a 105mm lens to make enlarged separation negatives from 35mm slides. The results were fabulous. Corner to corner sharpness. We paid almost

\$1800 for this one lens. It was worth it. Today the price is considerably higher.

Later on I tested the new Apo-Rodagon and it compared to the Apo-EI Nikor. The difference in cost was another reason for purchasing it. A 90mm Apo-Rodagon was less than \$400. The enlarger should be equipped with some sort of stabilization. It should be level and rock steady. It should also be able to be locked into place when ever needed to keep it rigid and be required not to change the position of the image on the easel.

We should all use a system such as **"Zig Align"** to make sure our enlargers are square and level. If you are serious and want to expand into multiple exposures and placements, you may want to consider purchasing Condit's registration carrier and punching systems.

A quality easel. Preferably, a vacuum easel. This will insure a flat surface for the paper to rest on. Later on, you can think about a registration vacuum easel. Any quality photo darkroom magazine will carry ads that display these easels. So does Condit Mfg.

An easel meter. There are a number of them on the

market. If you need to read different parts of the image on the easel to determine the correct filter pack for making prints, then a meter such as the Speedmaster would do fine. The market is flooded with various kinds of easels. Take your pick. The easel meter sold by **Jobo** is excellent. If all you require is an easel meter to record light levels, then the **Wallace Fisher Easel Meter** will do perfectly.

Processing your internegatives will require accuracy. The Jobo fits the bill. The chemistry is used on a "one shot" basis. This will guarantee repeatability in chemical performance. The Jobo CCP-2 also has great temperature controls and is relatively inexpensive. You could work with 3 1/2 gallon tanks, but they are difficult to keep at the correct temperature, not to mention faulty processing as compared to the Jobo. The chemistry will be difficult to keep replenished accurately. You could send the exposed negatives out to a professional lab, but it had better be professional in every sense of the word.

I would make sure that the electrical system was smooth and repeatable. Place a voltage stabilizer in line with the timer and the

enlarger. This will help prevent line voltage changes that can, and will, affect color balance and density.

A specific method for an accurate procedure.

Here is the method I have used professionally for many years.

I first establish the correct exposure, filter pack, and light level for producing an accurate internegative. This is the most important phase of the entire type C color print process. Learn how to plot curves just in case. You will understand what happens when you are out of balance. The curve shapes will show it. Once you establish the correct internegative information, I would write it down and place it on the wall adjacent to the enlarger.

It might read as follows: 25 seconds-10 magenta-29 yellow— at 1.65 on meter. This enlarger light source will enable you to make contact or enlarged images with complete confidence. I place the transparency into the negative carrier, enlarge it to the required size, focus, then remove the carrier from the enlarger. Next, set the filter pack, place the easel meter in the center of the easel, activate the light source, and with all other lights out, adjust the lens *f* stop until the required meter reading is met. Make sure

that the timer is on the right setting. Replace the carrier, place a sheet of unexposed internegative film into the easel, and expose.

Some labs that I have been associated with actually use the height of the enlarger and the *f* stop setting to determine the proper exposure for the internegative. This system does work, but it is loaded with pitfalls if you make a miscalculation.

How to make color and density changes with accuracy.

Let us assume that the color of the original transparency was off. Could a change in the filter pack adjust the final outcome so that it was more acceptable to your client? Of course it is. However, you must remember that any change to your light source will change the entire color response of the internegative.

Here is what I have done with great accuracy. I used my "Magic Box." This "invention" was really a simple matter. I purchased a color head. Took it apart so that the entire guts could fit into a box. I adjusted the color and level of intensity by eye to match a 5000K light box. I then wrote these numbers down. This was my "zero." If I placed a transparency on this light box, I could adjust

the color balance to my hearts content.

I then compared the numbers on the color dials and either subtracted or added the numbers until I came up with the actual difference from a standard light source. I then added or subtracted the filters from the pack and made my internegative based on the new information.

It works.

The importance of contrast masking.

There are times when an original transparency is just too contrasty. If you try to reduce the exposure time in order to reduce overall contrast when making the internegative, it will be too weak and you will lose shadow detail.

However, if you make a simple contrast mask, the image will be improved considerably.

I suggest that a 15% mask be made for **contrasty** originals, and a 25% mask be made for **very contrasty** originals.

You will have to open the *f* stop to get the proper exposure. Do not attempt to change the actual time.

A little testing will make a world of difference.

Making a dupe transparency is no more complicated than the procedure I just explained. In fact, it is even simpler. A dyed grey scale can be used, but a

colorful original transparency with plenty of greys and whites will be even better.

Using your enlarger, and by trial and error, make a series of exposures on one sheet of film, and process it. Compare it to the original. If it is off. make a calculated guess and make another test. When you are satisfied, write down the filter pack, the exposure time, then remove the transparency from the enlarger and read the light level.

Record all of this information.

The next time you want to make a dupe transparency, place the original in the enlarger, size it up, make sure it is sharp, remove it from the enlarger, adjust the filter pack and then read the light level on the easel, and adjust the *f* stop until it reads correctly, replace the original and expose. That is it.

Making a Vericolor print film is a bit more complicated. You should have an analyzer for this job.

Make a good print film by trial and error. Then, using the image projected in the enlarger, place the probe over several areas. Start with a white area. Adjust the three color dials until they are nulled. (Zeroed.) Record these three sets of numbers. Especially the light level of the **white image on the easel**, not the light on the easel without an image, as

before.

When a new negative is to be printed, place it into the carrier, size it up, then use the analyzer probe to find a comparable white area. Start with the Cyan reading.

Adjust the *f* stop until the recorded reading is reached. Then switch on the magenta probe, and adjust that color with the filter wheel. Do the same with the yellow.

Go back and adjust the cyan again, then the magenta, and then the yellow.

You may have to do this a few times until you narrow it down to a few points of color difference. Make the exposure and mentally compare the results to what you had expected. If the level of density looks correct, then remove the negative from the enlarger, **read the light level**, record it, then make any filter changes that you require, and again place the probe on the easel and adjust the *f* stop until the new reading matches the previous one.

Got it?

If this explanation seems too complicated, I am sorry. I can't make it any easier.

Wonderful news from Bill Nordstrom. In his latest newsletter, he details the news that he has developed a new method for making Carbon-Pigment color prints that will last as long as the UltraStable process, but will

be made with much more speed and accuracy. The Three colors are pigments and the black is a carbon.

A new corporation has been formed.

The name of this new process will be called "Evercolor."

In the past Bill has had his separation negatives made by an outside source. The cost of these separations and the final cost of preparing and completing an UltraStable print brought the price up too high for most photographers to afford. He and his backers are installing a new Scitex scanner and work station so that complete control of the imagery will be in house. The screen size will be 450 lines.

The complete process consists of transferring the pigments to a receiver sheet by use of a laminator. Then exposing the print and processing it much like a sheet of Matrix film, by using a tanning developer, bleach fix, hot water wash, and a cold wash. The time to produce a print has gone down from 2 1/2 hours to 20 minutes.

Henry Wilhelm is currently testing the new pigments. They should last as long as the UltraStable pigments, 1000 years.

His complete equipment list is staggering.

A Main frame Scitex color

scanner, and a Scitex Right Touch Work station, an Iris inkjet proofing system, and the new Scitex Dolev 400 Film output device.

The scanner is a new CCD flat bed scanner which rivals the sharpness and dynamic range of the old drum scanners.

Bill will be able to control color, sharpness, cropping, sizing, rotation at the time of scanning.

Then with the Scitex Right Touch work station, manipulation of the highest complexity can be accomplished. The output eventually will be up to 600 lines.

Some new services in the works are to be 4 color black and white prints, carbon black and white duo-tone working from your CD's and eventually 4 color images fired into glass on steel for permanent art pieces such as church art or museums. The future seems incredible. I can still remember making Carbro prints in the late 1940's with Evans and Peterson, in New York City. After the separations were shot and chosen, and black and white bromides were made, it took another 8 hours of work to assemble the print. Then we prayed that it would be accepted by our client.

If you need more information about this new and exciting development, call Bill Nordstrom at 916-933-3403. Bill

would be more than happy to share his ideas with you.

Will this new process be available to individuals who would like to make their own prints? I don't think so. Do you have over \$500,000. to invest in such a procedure.

Bill will be making prints on a nationwide scale. Eventually, there may be others that would like to be involved with this process, but for the time being, it is a Bill Nordstrom affair with his associates.

Plenty of advertising will soon take place.

My latest book, which is a second version of my first book, is in the final stages. It is to be called, **"Photo Composition 2"** Very clever title.

The name may or may not be changed before the next newsletter is mailed.

It refers mainly to some of the work I have been doing here in Las Vegas.

Producing large "point of purchase" display prints or backlit transparencies for trade shows and the like.

The process is being invaded by the computer generation, but the high cost of getting into this kind of printing system makes it easier to do this work via conventional systems.

There is still room for the courageous entrepreneur.

Matching colors with going to the poor house.

Here is a simple but very effective method of picking and choosing a color that you may want to add to part of your print.

Step 1.

Go to your local art store and purchase a variety of colored gelatins. Make sure to get as many as you wish. The size should be large enough to fit into your filter drawer of your enlarger. Let us assume that you are able to choose 4 densities of 10 colors from warm to cold.

Step 2.

Expose one 11 step grey scale with the filter pack and exposure time used for internegatives.

Step 3.

Then add colored gelatins in the filter drawer. Using the same sheet of internegative film, make one exposure with white light for the same amount of time.

Make as may exposures on the same sheet of film, with different filters, but with the same grey scale and exposure time.

When you cannot fit any more exposures on this sheet, process it.

When you are through, you should have one regular grey scale image and the

rest, colored versions. Make a color print of this negative. Try to make the regular grey scale look grey. Look at the rest of the colors.

They will run from dark colors to light colors. The grey scale will have an impact on the richness of each color.

Do this with as many sheets and color gelatins as needed. Make sure that one space on each sheet is reserved for the normal grey scale.

The trick is to take an easel density reading of just the color sheet without the grey scale

Make prints of all of the sheets.

Here is how you use the information from the prints. First, place the grey scale in the enlarger without any colored gelatins.

Using the easel meter, record the density of each step.

Record these different densities.

Step 4.

Using the system.

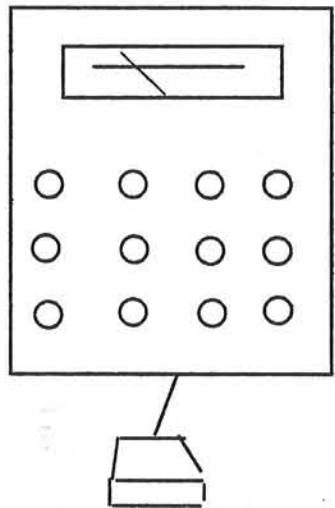
Place the colored gelatin in the filter drawer. **Place the probe under the enlarger and adjust the f stop until the meter reads the same as the density probe, plus the color reading.**

The resultant color should match what is on the paper test print.

Obviously, there are many ways to skin a cat.

There are many schools of thought about matching colors, and most of them work, to a degree.

One of the best I have ever worked with was in using an old Speedmaster analyzer.



The A-6 had 3 dials for each color and one for the white light.

Each dial had ten click stops and multiplied each other. In essence, you could get as close as a 100 th of an f stop in repeatability.

The method here was great. A print was made from a color negative of a painters sample sheet of colors. Once the print was finished, and without disturbing the negative or the enlarger, the probe was placed under the enlarger and a color was chosen. The dials for each color were adjusted until the meter was zeroed.

The numbers were recorded, including the last dials on the right, the actual time of exposure.

For some reason, the Speedmaster company decided to upgrade the unit, and it is no longer in production.

The best part of the A-6 was its infinite amount of color recording and retrieval.

Let me conclude with my thoughts about the new advances in Carbon printing.

The original Carbro process is not totally dead. The original process was not the sole property of any one company. Different companies produced the pigments and sold them in rolls that were 20 inches wide by 30 feet in length.

Tri-Color Corp. in London, England made the most **color accurate** materials of all. The balance was never quite right, but the colors were the best available.

The one key ingredient was the **Ilford bromide paper** that was needed to be combined with the sensitized pigments. This paper had to be manufactured in such a way so that it was coated with 4 coats of silver gelatin, without any protective coating. This paper only had one grade. Therefore, the negatives had to be pretty close or problems would arise. When the death of Carbro became apparent, the American company that also made pigments decided to close their shop and to sell

all of their coating facilities. The company was called McGraw Colorgraph. It was a subsidiary of Carnation Milk Co.

The inventory included the hand roller systems that combined the bromides to the pigments, and the necessary plastic sheets used to hold the pigments before transferring to paper.

Years later, one person in Los Angeles, Reece Vogel, purchased the entire inventory. He has been making prints of his own work. I am not sure of which paper he is using to make the combining procedure. However, this is the old system. It was clumsy and time consuming, but some of the prints I had the pleasure of working on were simply great.

Then along came Rene Pauli, of San Francisco. He purchased the book "Modern Carbon Printing" available from Light Impressions Magazine, in Rochester N.Y.

He devised his own method of coating pigments. He purchases pigments from Winsdor Newton, and "invented" his own method for sensitization. He uses a modified street lamp which contains the ultraviolet light source required for the image to be captured. Believe it or not, this all takes place in his kitchen. The claim to fame that he is

receiving right now is well deserved. He makes all of his own formulas and makes his separation negatives to the actual size of the print.

Then along came **Charles Berger**. The revolutionary method of pigment sensitization and the fact that screened negatives are used to make this new kind of color Carbon print, has taken the photographic art colony by storm. The prints are fantastic.

What Charles is aiming to do is to train enough individuals to make their own prints and to purchase his materials. However, the fact that some one else is making the separation negatives does diminish somewhat the personal ability aspect of the print.

The newest arrival in this new Carbon color field is the new Evercolor company. This will strictly be a service company. In this case, you will be afforded the use of probably one of the finest printers in America today. The prints will be affordable and quickly made.

Where do we go from here?

This is a dilemma that is going to face the photographic community for quite some time. As a former lab owner, and one who has made prints for the most prestigious photographers of our time, I can understand

the problems that will face the art photographer. **The main claim to fame for the photographer is the image he has managed to capture.** The painstaking efforts by the great Tom Kelley required that he produce a beautiful and perfectly composed 8x10 color transparency. As far as he was concerned, he was through with the photographic project. That is, until he realized that he needed a print to hang on a wall or to be placed in a gallery.

Great photographers such as Galen Rowell, need only to produce a great image. This he does by producing a sensational slide.

If a print is required, all he asks is that the slide be faithfully reproduced. He has not asked that it be manipulated in order to make any changes or improvements.

I think that this is where the difference comes in. There are some photographers that need to make their own print in order to make the subtle changes that they feel are needed to put some of the artists feelings and moods into the image. Some of the great photographers and printers that I have had the pleasure of knowing are Ralph Gibson, Vern Clevenger, Steve Solinsky, Bruce Barnbaum, and many others.

Not one of these individuals would trust anyone else to make their prints for them, unless they had complete control of the printer.

Elliot Porter had a few excellent printers produce his prints, but I am sure that they were completely supervised throughout the entire print making process.

If one is making prints for the advertising community, as I have had the pleasure of doing for almost 50 years, realizes that we are making prints for people that have no inkling of what it takes to make a print. None whatever.

But, when I made prints for the likes of Philippe Halsman, Josef Karsh, Irving Penn, and many other well known luminaries, they all knew what they wanted and drove me to desperation on occasion. They had complete control of me and the process.

This is why I still feel that the Dye Transfer print is the most controllable print system yet invented.

When making a Dye Transfer print, you are forced to make your own separation negatives, which in itself is a science as well as an art.

The making of the matrix films is almost like being a sculptor playing with clay or marble

Some of the greatest prints made with today's materials are produced by the Dye Transfer or Cibachrome processes. Why?

Because they truly convey the feeling of the artist, especially if the artist made the prints.

I don't care if they were made in a up to date lab or in a kitchen, if they reflect the artists imagination, then this is right for them.

However, the new Evercolor Corp. will be using the skill of the finest printer in the country. He will add to the photographers imagination in the same way a piece of music is interpreted. This is also an art form.

Looking in from the outside is all I can do at this time.

All I know is that the art of photography is being pulled in many directions at this time. Make great images, and if you can, make your own prints.

If you want the best prints in the world, without any reservations, try the new processes.

I welcome your comments.

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