KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

Volume 63 Sept. 1992

Following Manufacturers Instructions.

Adhering to the manufacturers and developers instructions. This is one of the most exasperating things to ever happen to a teacher or manufacturer.
It boils down to the manufacturers ability to tell the truth about their materials, and for teachers to really know what they are talking about.

Let us say that you want to develop a sheet of film in Microdol developer, and the manufacturer says that the correct developing time is 6:00 minutes at 68° F. but you decide on going to 72°F and 4:00 minutes developing.
Will you get the proper contrast or density? Who knows?
Unless you make many extensive tests with rigid controls and make accurate plots and keep records of the results, you may never know.
In fact, the information on a can of developer gives you a processing time at a specific temperature for a specific kind of film.
What about contrast?
The contrast of the original scene (the zone system) is critical. You must know the different exposures and developing times for obtaining different degrees of contrast, so that the negative will more accurately reflect the scene. This is where Ansel Adams was so brilliant and accurate. He could creatively adjust the developing and exposure times to fit his idea of what the scene should be.
This is also what Dye Transfer is all about.

The reason I bring this up is because I do get many calls from buyers of my books and newsletters.
One recent question was "I used Ilford's HP 4 and Ilford's black and white developer to make principal masks and cannot get the resultant gamma to anywhere near the diagrams in the book. What is wrong?"

Well, for the first thing, I never recommended the materials that he used.
I recommended Kodak's Pan Masking film because the contrast range of the film is quite low when compared to the normal image films, and because I use a standard and easy to mix developer, HC-110, diluted to a specific amount, such as 25cc per liter of water.

Even my instructions do not necessarily match Kodak's instructions, but I made extensive tests and plotted many curves, as I am sure

that Kodak did the same thing, and I modified my developer so that it's developing time would be easy to handle, especially with the film speed and light source that I use.

In other words, I did exactly what the manufacturer did except I used my own environment as the backdrop to solve the riddles of finding gamma.
In my books, I specifically mention that my information is to be used as a guideline only, and not as a perfect system to duplicate. .
After all, my water is different than yours and so is everything else, such as air, electrical stability, the light source, the color of the lens, development, agitation, and so on.
I try to teach that we all have our own environment to work with, and our own procedures to develop.
I do not deviate from the manufacturer's instructions unless I can prove that my method is better for me, and possibly, you.

One of the intriguing situations is where I first read that principal masks must be produced to a 25% range of the original. That's it. No reason why, just **25%.**

Being inquisitive brought little fruit as the people that I asked didn't really know.
It seems that many years ago, someone said to someone, that a 25% principal mask would reduce the contrast of the transparency enough so that a good set of separation negatives could be produced. Every book concerned with masking for contrast bought this premise.
I also bought this premise. I also wondered why every 3rd. or 4th job that I was working on would be almost impossible to produce. Every lab in the country that was trying to make some kind of quality image from a transparency experienced the same pain.
I asked many questions from Kodak and found no one to give me any real answers.

I decided, that If I wanted to become adept at this game of quality reproduction, I had better know more than the manufacturer.
I decided to study densitometry and sensitometry. I learned how to accurately plot many curves in order to really understand how film could be molded and changed to fit a specific contrast and density.
One of my favorite sayings is this;
"The Dye Transfer Process has survived in spite of Kodak."

But when the manufacturer, such as Kodak, or Ilford, and any other world class manufacturer of films and developers takes the time to hire Ph.D.'s and chemically knowledgable scientists to test their materials, then you can be sure that they know what can and can't be done with their products.

Remember, all the information about the manufacturers materials has been learned by the manufacturers making extensive tests in their own environment. Not our environment, but theirs.

Before I decided to write my books on Dye Transfer and Cibachrome, I made sure that I knew what I was advocating, because I also made so many tests with the chemistry and materials that I knew exactly what could be expected when producing prints in my own situation.
After all, Kodak was really in the business of selling materials and not trying to teach all color printers how to become masters of the art.
This development of the Dye Transfer process has been brought about by the untiring efforts of the early pioneers in the color printing field.
Many a Ph.D. has written books about masking and color theory, but they have never made a print that was worthy of hanging anywhere.

Here is an example of not knowing or telling the lab technician about a serious

part of the Dye Transfer process.There is a step called **Paper Conditioning.**

This soaking of the paper gets the Dye Transfer paper expanded to it's fullest size, and also acts as a means to enable the dyes to travel from the matrix film to the paper, by a process called imbibition.
The difference in Ph actually makes the dyes travel from one place to another.

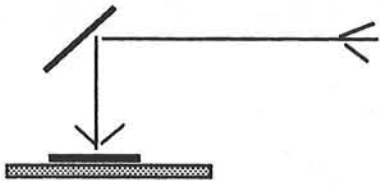
In order for this process to work, the Ph of the paper at the time of transfer should be specific. You can look into any publication about Dye Transfer ever produced by Kodak, or anyone else, and they never mention it. Why?
I am not sure. I have a deep suspicion that they may not have known, or conveniently forgot about it.

The many Dye Transfer enthusiasts that made prints, using the prepared Paper Conditioner sold by Kodak, never realized that the life of the material could be lengthened by being able to read the Ph of the chemistry, using a Ph meter, and either add acetic acid or Triethylanomine to the paper conditioner to bring it back to it's original Ph.

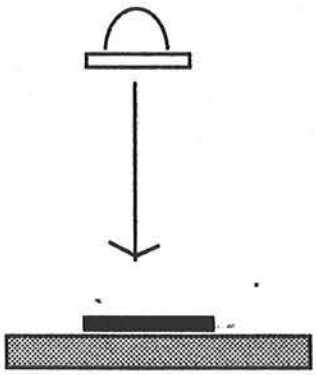
Bob DeSantis of N. Hollywood, CA. "invented" his own paper conditioner by mixing the correct amount of Triethylanomine and acetic acid and water to a Ph of .62.
This allows the dyes from the matrix film to transfer to the paper without bleeding, nor taking too long to transfer. It is like a tight rope act. Too much of one or the other and the print is doomed to failure.

Ed Evans of Evans Labs, in NY, "invented" a warmed transfer area which helped to increase the transfer speed, however, this also increased bleeding.
I once used what I thought was a flat and level plastic material to use as my transfer table. What a terrible job of transferring I had, until I purchased a granite board from Condit. What a difference. His transfer boards were really flat.
In fact, you can go to any stone company, and pick out a slab of polished granite, make sure that it is smooth by using the following system:
Place the edge of a 36 in. metal ruler in different positions across the slab. Try to slip a thin sheet of paper between the slab and the metal ruler. If you can't, then this is the piece of granite for you.

Many lab enthusiasts want to use a point light source to make separation negatives and fail to realize that most point light sources are very uneven and can cause problems.
If you want to use a point light source, do what the Gretag Company, and K&H contact systems recommend.
Place the light source way down a hall, more than ten feet away, up close to the ceiling. Then place a mirror over your work table to be able to capture the light source and project it down to the table top.

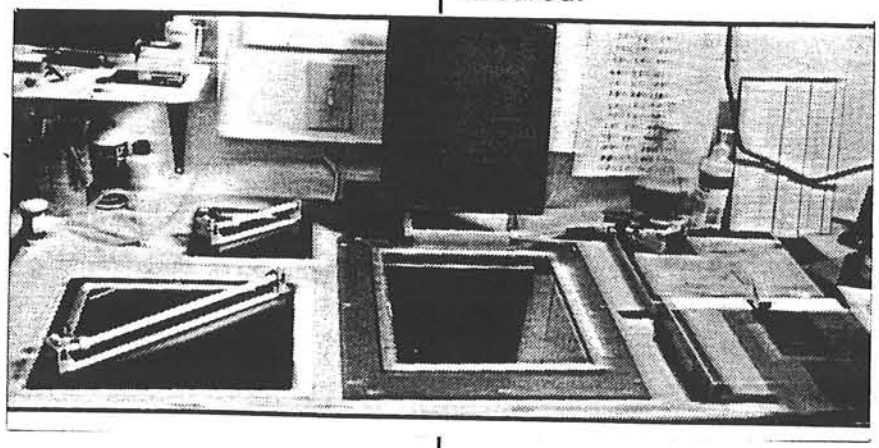


The light being placed at this greater distance will not show the unevenness of the bulb.
If you move the light source closer, you will notice the poor quality of evenness.
I have had little trouble using a diffused light source. The difference in sharpness when working with litho films is not as great as when using continuous films.



For convenience, I recommend using a simple vacuum platen manufactured by Condit. The image below describes how to use a simple system and get great results.

You must also develop a method of agitation that is repeatable and consistent. However, if you use a simple processing system such as a Jobo, repeatability can be assured.



This photo of my old separation area shows the Condit vacuum platen. The diffused light source is below the table, and consisted of a 20 volt system with a diffuser between the bulb and the platen.
This system is convenient and a pleasure to use.

Processing any sheet of film when making contrast masks is a critical step. If you want to reach the correct degree of contrast (gamma) it is imperative that you have a repeatable method that is scratch free and displays even processing.
If you work with a tray, you must be very careful not to scratch the films during the processing stage. Any scratches will show up in the final enlarged print.

Using one shot chemistry is also very important. If you plan to use a tank, using film hangers, and insist on adding replenisher whenever needed, you will be in trouble.
Replenishment is a science that has yet to be conquered.
Any reasonable person must ask "How any manufacturer can give you adequate replenishing instructions when the degree of activity in the developer is never the same?"

I am an advocate of one shot chemistry. I also am a strong believer in accurate temperature. This means that you must rely on an accurate thermometer. However, I also strongly advocate the use of the **Zone VI adjustable timer** that will allow you to measure the temperature while you are processing, and if the developer changes temperature either before or during the process, the timer will either slow down or speed up depending on the differences.
I wrote about this remarkable instrument before. It really works well.

The processing instructions that are packed with the Kodak Matrix film are not quite right.
If you follow their instructions, you can make a good set of matrices, except for one important thing. The 3 films must be added to the developer tray within 10 seconds after the chemistry is mixed otherwise the strength of the developer will be quite different than the 30 seconds or one minute of mixing time that they recommend, and then the matrices should be added every 15 seconds . The developer begins to lose its vitality very rapidly.

The second problem is the stop bath.
Kodak recommends using water as a stop bath between the developer and the fix. I disagree, The film keeps on processing in water and can cause unevenness.
However, if you use a simple 1% acetic acid solution and soak each matrix for 45 seconds, the processing will

stop. It takes about 30 seconds for the acid to reach the bottom-most layer of a thick emulsion, so 45 seconds will be an adequate time.
The fixer is just cosmetic. It doesn't matter if you fix the matrix film or not. the unhardened emulsion will still wash off in hot water.
Ed Evans Lab in N.Y. hadn't used fixer for years. He simply used a 2% acid bath and after development, went straight into the hot water portion of the process and rinsed until no more unhardened emulsion was present.

Is money important to you?
Instead of using the expensive Kodak Part A and Part B tanning developers, I mixed my own. I freely give my formulas to anyone that asks for it.
The B portion is simply Potassium Carbonate, mixed in warm water, 9 1/2 lbs to make 5 gallons.
Even Sodium carbonate will work, as I once ordered it by mistake, but it lowered the speed of the matrix by one full stop.
If you live in cold country, make sure to keep the tank of B solutionabout 70°. If it gets close to 56° F, it will solidify, and you will never get it to dissolve again.
These things have never been printed by Kodak. I wonder why?

However, there are areas that you can trust the manufacturer to be completely accurate.
The color film, especially Kodachrome, is produced to a very fine balance. They will even include the correct filter pack to use when shooting sheet film in a studio.
But, the way the film is kept during it's trip to you could be very important. If you work on the west coast, and the film is manufactured in Rochester, N.Y. by the time it gets to your supplier, it could have been warmed up to a dangerous degree. The color balance can and will shift thereby making it your responsibility to test the film and decide on a new filter pack.
Most professional suppliers have refrigerated or frozen display cases where the film is kept prior to your receiving it. This is a must.

You can actually freeze film and use it many years after the expiration date has gone by.

The next fly in the ointment is the **filter information printed on the box label.**
There is really an effort by the manufacturer to give you a starting filter pack. However, the pack was decided on at the plant during manufacture. By the time it got to you, and travelled from a great distance. the color balance may have shifted.
But the main reason for the inability for you to use the manufacturers filter pack is, because the manufacturers enlarger or contact light source did not match yours, nor did the lens color. nor the water, nor the electrical stability, nor your temperature and agitation.
You will have to malke your own judgements about the filter pack.

Many of you make Cibachrome prints but are you are making proper masks for the process?
If you make a contrast reducing mask that has a gamma of 35% or higher, there is a possibility of flattening the highlight areas. There are a few methods to alleviate this problem. **Highlight masks are the answer.**
This part of the print process can be considered creative, or simply the saving of the job.
If you have a picture of a white sheet hanging on a clothes line and the contrast of the people and surrounding areas require contrast reduction,and you make a principal mask, the white sheet will lose most of it's fine detail.
How do you keep most of the detail in the white sheet while at the same time open up the darker areas of the rest of the image?

There are a few ways to accomplish this task.

1. Make a highlight mask first, then add it to the transparency when making the principal mask. In this way the preservation of the highlight detail is somewhat accomplished by not allowing it to be flattened out.
   After the principal mask is made, there is no further need for the highlight mask.

   This mask is made by exposing the transparency by contact onto an ortho litho film or onto a Pan litho film. A very short exposure is used and the film is developed in a stronger developer than normal, such as Kodak's D 11 or Litho developer. This procedure is called "a pre-highlight mask."

2. A better method is as follows.
   Using a reversible film such as Kodak's LPD 4, make a short exposure in contact with the original transparency and produce a very dark positive image with just the highlights appearing on the film. Process this sheet of film in either of the same developers mentioned. This is called" a bump mask."

After the principal mask is made we are ready to make an exposure.

Remember, this system requires registration both at the enlarger carrier and on the easel.

After the initial exposure on paper, remove the paper and place it in a safe box, then exchange the principal mask for the new "bump mask" and re-expose the image again, for an additional 50% to 150%.

In this way you will have complete control of the amount of highlight reconstruction desired. Creativity is now in your hands.

Some of you are interested in getting your images placed into a gallery. This is not an easy task. It will take an effort. If you have 15 or 20 images that can constitute a theme, then you may have a chance to get your work looked at and possibly asked to enter some prints for a review.
One of my students, Vern Clevenger, has alarge file of images both on color negative and on color transparency.
He has a reputation of being a fine student of nature, understands composition, and know his camera like the back of his hand.
He shoots 4x5 and his work reflects his love of the great outdoors.
His method is to first make a C print of his work to make sure that it has the emotional appeal that is necessary to catch the eye of an onlooker.
When he is satisfied with this print, which may need much dodging and burning and color correction, he will use this information to make the necessary adjustments in the Dye Transfer. It is almost like having a proof print and using it to further correct the final image in Dye Transfer.

Many artists work in the same fashion.
Ctein, the photographic expert who has produced many articles for photo magazines is also a fine Dye Transfer printer.
He uses Pan Matrix film and works from color negatives.
His technique is interesting.
He first makes a C print. If the image needs dodging and burning, he uses a very accurate system to make the dodging a burning repeatable.
He makes a series of soft edged masks in different shapes. He then adds these masks to the top side of the film carrier and tapes them into position. When he is satisfied with the results, he then makes his the Pan Matrix images with the same dodging and burning films taped into place.

The results are precise. His work is seen in galleries in Northern California.

What I am trying to say is this.
If you want your work seen in galleries, produce a theme, make at least 20 prints, make sure that they are spotless, and are presented professionally by proper mounting and finishing.
Never dry mount a serious print. The chemicals used in the mount tissue, whether it be hot or cold tissue, will eventually destroy the print. Instead, tip the print with archival tape, and simply flap the print with a good quality beveled board. People who sell fine photographic art make sure that the print is as archival as possible.

Purchasing your own mounting equipment and machinery for cutting beveled edged mats and the right kind of metal framing supplies is very satisfying, and cost effective as well.

If you must take your work to a professional framer, the cost can be prohibitive. If you spend the money on your own tools, and learn how to use them, your work will look even more professional.
Every fine art printer that I have had the pleasure of knowing or working with finishes his or her own work. A good source for the necessary tools can be found at any quality art store or at Light Impressions Co. in Rochester N.Y.
They carry all of the mat cutters and archival boards and tape that you can imagine.
Their archival print boxes will keep your prints safe and clean. Use this kind of box to ship work out of town when trying to impress a possible client.

The one possible photographic area that may not be assimilated by the scanners is the field of Photo Comp. I don't mean the kind of work that needsphotographic images cloned or stripped together, but images including colored lettering and designs.
The only reason that scanners nay not ever invade this field is because the work of dissection is the most important part of the system.
An example:
We have an image that represents a King of hearts playing card.
The design was produced by a graphic artist.
Our job would be to produce a color negative or color transparency that could then be used top produce a 40x60 inch print on Kodak's Duratrans material so that it could be viewed as a transparency in a shopping mall or airport. .Suppose the client wanted the background white.

The crown and parts of his robe to be yellow, the major part of the robe to be red, and the outline and beard and the rest of the robe to be blue.
Our job would be to examine the image and to determine the method we would use to capture each color on it's own sheet of film.
The first thing would be to make a copy of the art work, on ortho litho film, then make a reverse of that negative to produce a print as seen here on the page.
I would then opaque the yellow areas so that it too would be rendered as black. This sheet of film would be used to expose the color negative film with "white light."
I would also make a duplicate of the original negative so that I could isolate the different colors.

I would use Rubylith material (a red film that can be scored and peeled) to isolate each color separately.

This would be used to expose the colors. one at a time, through the proper filtration on the same sheet of negative material.
I don't see how the use of a computer coould possibly save any time or money by scanning the same original art work, and isolating each color using the tools that come with the computer program.
The images are usually two dimensional and for the most part, consist of simple flat colors.
If a photographic image must be placed into position, then a separate mask is made that is totally black except for where the image must be placed. At this point, it is simpler to make a dupe transparency to size and to contact it into position on the pin registered platen. It must be placed so that the emulsion of the transparency is in contact with the color negative material.

Any color can be added to the negative by exposing the same color through the enlarger light source onto a vacuum platen on the easel. The buggest obstacle is density.
There are much more accurate programs such as the "Peterson Color Matching" system that work beautifully. His system allows over 540 color to be first produced and called upon for matching it in the negative.

Commercial labs are in a quandry at this time in history. Most of them are contemplating joining the scanner revolution. It is ging to force some of them out of business, but for the fortunate few, such as Color House, in Burbank, CA. or Irvine Photographics, in Irvine CA. These labs and others like them got on the bandwagon earlier than most and are making hay while the rest of the labs think about it.
My old partner, Paul Elmi, has two workstations in his Hollywood CA lab and is producing the posters needed for the motion picture companies.
This is the perfect place for such an investnment.
The Labs that priimarlilly work with flat art and must produce colorful graphic images need not to be worried about the scanners.

The one area that needs scanners so that fine art prints can be produced is the new Color Carbon process, UltraStable.
The material can be used with conventional separation negatives, but when you examine the difference between the old way and the scanner way of producing negatives, you will become a scanner aficionado.

I am waiting for the time when I can get further involved with the process.

The advent of long lasting pigments such as those used in the UkltraStable process has finally enabled the photographic medium to be received as a modern art form with longevity that rivals any painting.

The prices are coming down.

It is possible right now to purchase a Mac 2 CI for about $3,000. add to this a program such as Photo Shop, and purchase a removable large storage disc, then you too could have images scanned, sent to you for correction on your own work station, and returned for a set of screened negatives to be produced, so prints could finally be assembled by you. Think about it.
In the meantime, I am working on a new book called" a Graphic Arts Approach to Photo Composition."
This book will continue from where the last oneleft off.
I will need a few more months to complete it.

In the meantime, if any of you have questions that you would like answered, write or call me.

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