

# KEEPING PACE

A monthly newsletter devoted to the art of darkroom photography

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## The reasons for making separation negatives the way I do.

The following article was inspired by a letter to Tony Frascelli, a New York lab owner.

### Let me explain my method of making separation negatives.

The system that is being used by the majority of color labs at this present time is as follows.

A 21 step grey scale is taped into the edge of any transparency to be separated. The image is read with a densitometer and the high and low points are recorded. Then the similar points are found in the grey scale and are marked.

### Then, the first thing that is done at this point is to make a set of 25% masks.

Then the grey scale and masks are combined and these marked areas are

used in order to find the correct exposure and developing time so that the correct contrast is met in order to make a set of negatives that will fit the required range for the process.

This is great. It sounds correct, and if you look at the labs that have been using this procedure for years, you must conclude that this is the way to go.

However, if you processed the negatives to too high a gamma, the possibility of reaching the "chemical fog" area would surely ruin your efforts.

Now let me explain what I do, and why I do it differently.

I have always felt that we were putting the emphasis of control on the wrong materials.

Instead of making the masks to a specific 25% all the time and "playing the accordion" with the contrast range of the separation negatives, I came to a conclusion many years ago that there had to be a better way to open shadows and keep the saturation of color from increasing or decreasing because of what I did to the negatives.

During the year of 1964, I was asked to be the west coast experimental lab for Ilford, and their new product, Cibachrome.

It was during this time that I was to experiment with Cibachrome, that the germ of an idea came to me.

I was forced to learn how to make masks for the Ciba process. The material was much too contrasty for normal exposures.

## The masking experiments led me to this conclusion.

All printing materials that were final materials, such as Ciba, Type R, Dupe Transparencies, and yes, even type C, and Duratrans, could have their contrast levels corrected to fit **any enlarger** by masking their transparencies or negatives to the correct contrast range, prior to making the exposures on the final material.

I wondered if I could use this approach in making separation negatives.

The first thing that I had to do was to find out what **contrast range my specific enlarger would produce with any given material.**

The technique I decided to use was as follows. Mount a 21 step grey scale in a sheet of opaque material. Then placen this 21 step grey scale in the enlarger, size it up so that I could place more than one image on an 8x10 sheet of matrix film, and made a series of different exposures.

I then processed this one sheet of 8x10 matrix film in a normal mode. (1 Part A and 2 parts B. in Kodak's tanning developer). After the hot water part of the process, I thoroughly dried this sheet of matrix film, dyed it cyan, and then

transferred it to a sheet of prepared dye transfer paper. I examined this cyan image carefully through a **red # 29 separation filter.**

I marked the print where the image just began to exhibit detail in the high and low areas of the grey scale. I removed the 21 step grey scale from the enlarger and read the identical steps through a densitometer. By subtracting the lowest number from the highest number I arrived at a density range. **This is a key number.**

From now on, any transparency that you would like to print and hold the details in the high and low end of the original, means that a mask must be made to fit this transparency that would enable you to have a "ready to go" sandwich of mask and transparency and all that need to be done at this point is to expose the negatives to a pre-determined gamma, and the correct density range for your enlarger will be evident.

Does this mean that a 21 step gray scale is no longer needed?

Not necessarily. But all you really need to know now, is what function the grey scale plays in producing a set of separation negatives. Up to this point, the 21 step grey scale was used to identify the areas that we wanted to place on the

straight line portion of the separation films curve shape.

The only reason for a grey scale is so that our exposures and development times can be monitored and that our predictions for accuracy can be verified.

## My method now consists of the following steps.

1. The first thing that I do is to determine the contrast range requirements of a negatives that will produce a fully detailed image with my enlarger on matrix film. I have already explained how I do this.
2. I then choose a gamma of development for separation negatives that will insure my not reaching the "point of no return"

## Let me explain this step.

How long can a sheet of film be processed? It must have a point where the development no longer works properly. The highlight will eventually reach a point where it cannot produce any more detail, while the shadows keep ondeveloping. This is called "**chemical fog**".

We must develop our film below this point. Making tests on a sheet of film that has been exposed through the blue filter is the best way

to find this "point of no return".

I have found that my combination of Kodak's Super XX and H C 110 developer, give me a clean unfettered negatives at gamma .75

Other combinations of film and specific developers will also work. However, you must test these combinations out thoroughly before you commit yourself to any system.

If I need a density range of 1.20 for my negatives, and I want to develop my negatives to a gamma of .75, I must divide the gamma .75 into the negative range of 1.20. the answer (**1.60**) is the correct required contrast of my **combined mask and transparency (CMT)** before I make any exposures or development.

My formula for working up, a job is as follows:

original transp. density range.....2.30  
the required CMT ....1.60  
The difference is .....70

If I divide the **difference of .70** by the original transparency density range of **2.30** the answer is **30%**.

Therefore, if I make a 30% mask, the highlight and shadow portions of this particular transparency will print with detail, and will fit the requirements of the enlarger

before making matrices. The negative will also have been developed to the specific gamma which will prevent chemical fog.

**3.** I mount 4x5 transparencies into a larger sheet of 8x10 film.

I then cut a space and position the three step grey scale as close to the original, as possible. The three step grey scale represents the straight line portion of the negative film curve shape.

This grey scale will only be used as a guide in determining whether or not I have reached the correct gamma, and contrast range in the image.

If I am separating an 8x10 transparency and can't place a grey scale into the edge of the film. I will then tape it under the contact glass and place it at the black edge of the film. I will then punch half moons into the black edge of the transparency so that the grey scale will show through the edge of the film.

In other words, my system is to place the masks and original transparency **together with the correct pre-determined contrast range before I make separation negatives.**

My 35 mm. transparencies and 2 1/4 inch films are masked by contact. I elimi-

nate the source of most trouble by getting rid of the **flare** that is evident in all exposures from an enlarger., by placing the "sandwich" in the enlarger.

When working with small originals, I place the mask and transparency together in an "oil" carrier and proceed to make enlarged negatives with **nothing to expose through.** This is my procedure.

Let me clarify this last statement.

Most of the professional labs make enlarged separation negatives by **making masks on the easel** and then exposing through them in order to make the separation negatives.

**I have a slightly different approach.** I make my masks by contact and eliminate the flare factor. This means that my combination is in the enlarger with **nothing to impede the exposure on the easel.**

By masking with this system I am not forced to use a point light source. I can still use condensers and end up with a very smooth, accurate, and detailed, separation negative.

In other words, I assemble all of the elements in their **proper contrast range** before I commit myself to exposing separation negatives.

I hope this explanation is satisfactory.

## Here is one way around the expense of buying a densitometer

I promised you that I would have a specific idea about how to make a very inexpensive visual densitometer.

All you need is a calibrated 21 step (or longer) grey scale. if you can't get hold of a calibrated grey scale, get an uncalibrated grey scale and have a friend calibrate it for you.

If you don't have any friends, send it to me, and I will calibrate it for free.

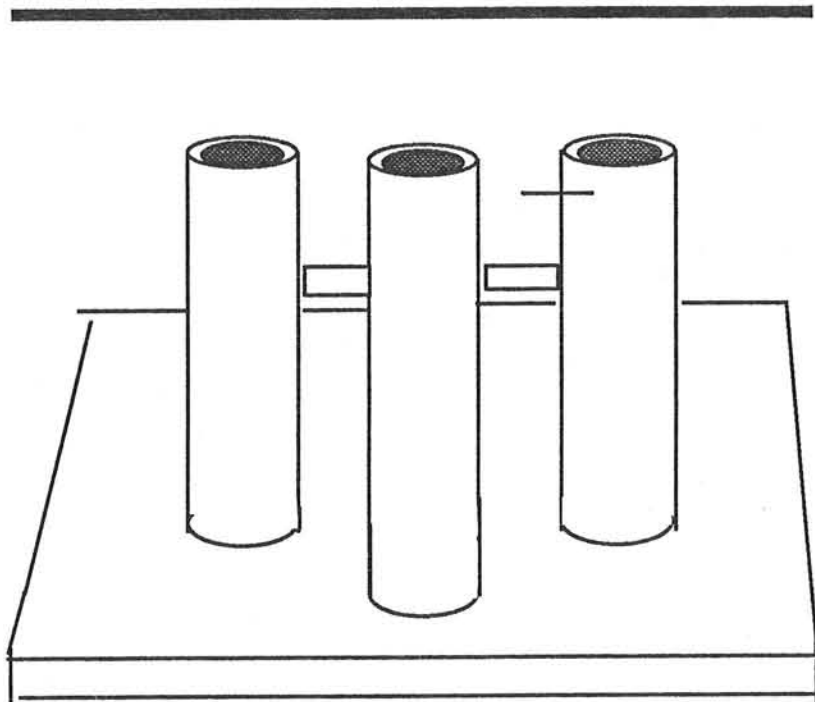
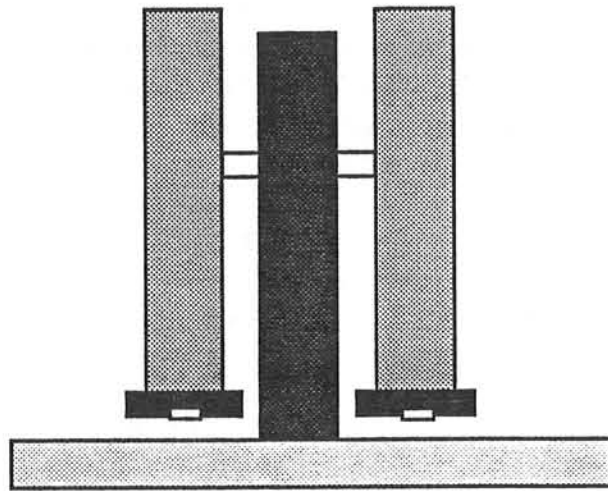
The most expensive part of the entire unit will be the grey scale.

Next, you will need two lengths of PVC pipe. 6 inches long by 3/4 " and one piece 7 inches long. You will also need a sheet of 8x8 plexiglass or lucite. Look at the diagram .

I have cemented the longer piece to the sheet of plastic using PVC cement. Then using 4 PVC plumbing tee's and a couple of short pieces to attach everthing. The last 2 things that you will need are end caps that will fit over the bottom end of the PVC pipes.

Drill a small 1/4 inch hole in each cap.

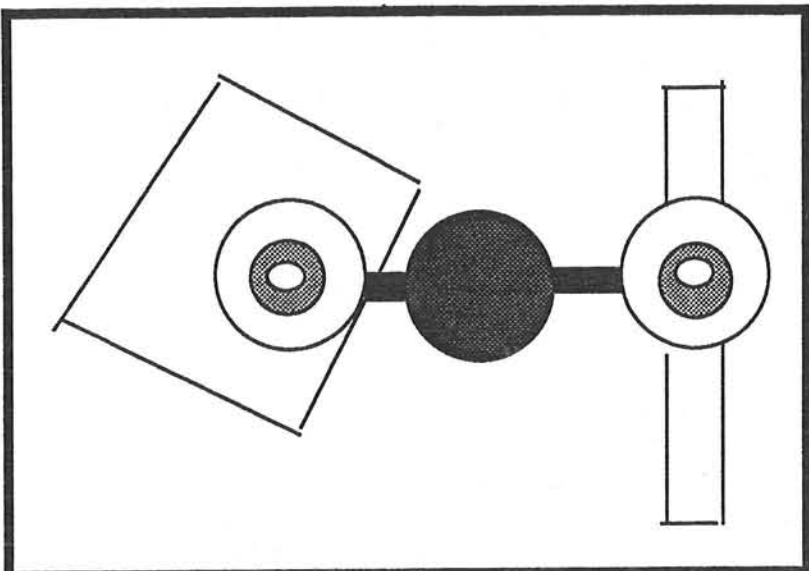
Here is how this unit works. Place the unit on a light box. It doesn't matter what kind of light source it is.



Place a transparency under the left pipe and look through the pipe. Locate an area that you would wish to extract a reading from. Hold this transparency in this position by hand or by taping it in place. You will examine this area with your left eye. Place the calibrated grey scale under the opening in the right pipe. Slide the scale

so that one of the steps is visible through the end cap. By sliding the scale in either direction you will eventually find an area that closely matches the left eye in density. Don't worry about color balance. Just examine the area for density. If necessary, dim both eyes and the match should be even easier to find. The





number on the calibrated grey scale should be close enough to interpolate if necessary. For those of you who can't afford a densitometer, this could be an easy way to accomplish the densitometry necessary to complete the steps in any color process. Kodak once had a small densitometer that worked on the same principal. It used a continuous grey scale and a set of small mirrors to deflect the inner and outer images. You will have to use your eyes, of course, as this system is based on your ability to judge densities. **But the price is right.**

**More about the Cibachrome process.**

The Cibachrome process has had an interesting history. Most color printers that have not experienced the great difference that masking offers, are missing

the boat all together. I only know of one person whose work is very professional and beautiful and that he doesn't use masking. He solved the problem by only shooting scenes that have a very low contrast level. The added increase in contrast helps these kinds of scenes and makes for a better print. For the rest of us mortals, that would rather shoot all of the images that interest us, we are better off making the proper masks that would bring us to the correct point in contrast before we expose any Ciba paper. The new paper, Cibachrome 2 A ( I call it an amateur paper) can only be processed in P 30 chemistry. However, in a pinch, P 3 paper (Cibachrome 2) can also be processed in the same chemistry. The times for processing are almost the same as for the Cibachrome 2 A paper. The results are rather good.

But for a real saturated quality Cibachrome print, I would rather stick to the professional end of the materials and use P 3 chemistry and Cibachrome 2 paper.

Most people still complain about the high gloss of the Ciba material. It is available in a pearl surface (CRC 44 M)

I have resorted to using Kodak Dektol developer (straight) instead of the P3 developer, with excellent results. However, I am sure that the 3rd chemical in the P3 developer package has enzymes that help keep the highlight areas brighter. I have even used Kodak Rapid fixer in place of the softer fixer in the P3 package.

I have heard of some labs experimenting with Kodalith developer and Kodak D11. My personal preference is the Ciba chemistry, because I have always felt that when a company goes through all of the trouble to find the best possible chemistry to use with their product, they must know what they are doing.

**However,** the latest news is about a new chemical lab in Lake Placid, Florida, called **The Dye Chrome Research Co.**

They specialize in Cibachrome chemistry.

According to one of the principals in the organization, contrast control is achieved by the use of two separate bleaches. I am going to order a kit of chemistry and give it a try. You will hear more about this new chemistry in the next newsletter.

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**The scanners are only the beginning**

Here is some news about the Dye Transfer retouching field. Most retouchers that have been involved with advertising agencies and that have been working with Dye Transfer prints have been switching to the new digitizing systems and bypassing Dye Transfer prints totally. This is sad. The personal skills that were once the hallmark of a great retoucher is now being utilized by an electronic device.

One of the finest retouchers in America, Alan Williams, has joined the electronic retouching field. With all the skills that he has developed, even he remarked about what a remarkable job of retouching the unit was capable of doing.

In some respects, this places the responsibility for keeping the process alive right in the hands of the creative photographer.

The reproduction part of the Dye Transfer and Cibachrome fields is slowly, but surely, ending up where it should have been all the time. In the hands of competent artists who would like the processes because of the fact that it gives the artist the control over the art, and not simply a "drug store" print. Or an electronic print.

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I have been in contact with Joe Holmes, a great scenic photographer whose work has appeared in the famed Sierra Club books and calendars. He has been producing Cibachrome prints using the new P 30 chemistry. His work is being exhibited and sold in galleries in northern California.

He has told me of the re-birth of the **Carbro process**. When I first began making professional prints in the 1940's, the Carbro print was it. There was no other professional process at all ,until the Dye Transfer process was introduced.

Today's version is different. In the old days we made black and white prints on quality Ilford paper, and then these sheets were combined with sensitized colored pigments. These pigments were then reduced to colored images that we adhered to sheets of celluloid. The registration was all done by hand and by eye with material that was not only

flexible, but stretchable as well.

Now, the process has a new twist. The original image must be converted to a set of screened negatives.

These are exposed onto the sheets of pigmen that has been coated onto a sheet of polyester material.

The registration is all done as if it were a Dye Transfer print.

The prints have a remarkable detailed finish. The only problem with this system is the cost of making scanned and screened separations. However, not loke the original Carbro system, many prints can be made from these original screened negatives with absolute accuracy, so that limited edition prints could be made.

I will also find out more about this process and keep you informed.

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**A recent student of mine has given me food for thought.**

He has been making C prints for the past 17 years with uncanny accuracy. His system is based on calculations and calibration. The only meter he uses is a reflection densitometer. The method works as follows;

First, a C print is made of a Kodak grey card. (A Shirley negative would work just as well)

The card is read with a reflection densitometer, and the readings are recorded.

Then, the C print is made until the readings match. From now on, these readings are considered as "zero".

When a new negative is introduced to the process, a contact print is made using the same enlarger and filtration as a light source.

Any change in filtration and density is determined by eye. All that is added or subtracted are the filter changes. The exposure change is marked off in percentages. Then a final print is produced with few make overs. The size changes needed for producing larger sized prints are all figured out using mathematical equations. The system can also be used for producing Pan Mats for making Dye Transfer prints.

**This has led to a germ of an idea that I think will work.**

If I were to make a C print of the Kodak grey card print, by trial and error, or with an easel anylizer, I could then make a set of Pan Mats (strip test) of the same card, and even if I used my eyes, and were able to make a set of exposures on Pan Matrix

film through separation filters, and produce a similar grey I would know the necessary exposures that would produce a good set of Pan Mats, then all that had to be done in the future is this:.

Make a good C print to a 5x7 size. If you use a Jobo processor, like I do, then you can see a result in 6 minutes. If you use an easel anylizer for producing prints, then making any new judgments will be fairly simple.

Once you have this good C print, all that has to be done is to use the same ratio of separation exposures for producing the Pan Mats. **The difference here is to leave the filtration that produced the C print in the enlarger.**

Then use the separation filters and give the exposures the same times as you did for your original test. These exposure times will change only when your Matrix film or C paper has been changed. Instead of using mathematical calibration's to find the correct exposures for the new enlarged size, just use your easel anylizer and obtain the same light level on the easel.

I should be hearing from my student soon. He has offered to let me in on his mathematical formulation. I am looking forward to trying

out this new approach to making Dye Transfer prints. This would be a boon for those of you who are afraid that the Dye Transfer process is too complicated but would like to get involved somehow.

I will let you know how I make out in the next newsletter.

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### **Slide production has really changed**

The field of producing slides in color has taken a real change from what was once a totally photographic process to one of electronics.

Most labs that are involved with "presentation" slide production have joined the computer revolution.

A rather large lab in Southern California has the capability to receive information from a client from anywhere in the world. Once this information has been received, it is a simple matter to produce this "presentation" slide in a very short time.

The equipment calls for a quality computer, such as an IBM or the new Macintosh 2 cx.

Scanners can produce the photographic images, then graphics and lettering can be added and the entire picture can be assembled and sent to a "slide recorder".



These units can produce a needle sharp slide in brilliant color in a matter of minutes. The slowest part of the entire process is the processing of the Ektachrome film.

Polaroid Inc. has the instant slide system which makes it possible to produce quality slides in minutes.

Years ago, in Los Angeles, we owned and operated a gallery.

One of the artists that we represented was a computer graphic artist.

He presented slides to us that were actually photographed from a 9 inch professional monitor, using a macro lens and a Lieca camera. I thought that these images looked sharp. However, not compared to the new slide recorders. The detail is astounding.

The computer revolution is creeping into our lives and labs every day. Some labs that I was once familiar with are now involved with digitizing scanners and all kinds of electronic retouching and assembly. I guess it's impossible to stop progress.

The only good news for most of us in the field of Dye Transfer is the fact that the ability to make subtle changes in producing a print is still far superior to today's scanners.

The Pro Lab conference is being held in San Francisco this year th the Moscone Convention Center from June 23rd through June 25th. If any of my readers plan to visit this conference, you will probably see me there. I am scheduled to give a talk about **masking**. Not contrast masking, but "frisketing"

The making of masks that can hold out parts of a layout , or burn in other parts of a layout have been a strong point for me for many years.

My talk is scheduled for Sunday, the 25th, from 1 to 4 pm. If you happen to be there please say hello .

I will be talking about and showing slides pertaining to making hard edged and soft edged masks, combining type with photocomposites, understanding the spread and choke systems, and many of the systems used to produce a professional "strip-in".

I will aslo discuss the methods that I used to get my share of the market.

For those of you who would like to be involved in this field of photo comps. **I have a book** about the subject that is informative and to the point. It describes the kind of equipment that I consider neccessary for turning out professional work. It sells for \$50. plue \$3, for shipping. If you are interested,

simply send a check or money order to me and it will be in the mail, pronto.

The next item on the menu is this newsletter.

**Most of my subscribers have their starting month in July.** This means that in one month most of you will no longer be receiving this newsletter after the next issue. **If you wish to continue receiving this newsletter, please send \$60. to**

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For those of you who have supported me with your subscriptions to this newsletter, I want to say **Thank you.**

If any of you ever have any questions that you feel I am qualified to answer, either write to me, or call:

**619-241-0905**

I am usually at the lab trying to improve a specific process, or working on a new subject for the newsletter.

Next months newsletter promises to be filled with new revelations about Ciba, and Dye Transfers from color negatives. I am planning to experiment with a new approach to making quality Dye Transfer from negatives with making too many tests.