

KEEPING PACE

A Monthly Newsletter Devoted to the art of Darkroom Photography

Volume 52 Oct. 1991

Control, Who Needs It?

Today's technology has produced cameras and printing systems that will automatically focus, expose, and transport the film to the next position in the camera, or enlarger.

All the advertising seems to point to one particular kind of camera enthusiast. The one with no imagination or darkroom skills at all. This is sad, because some of the advantages of control have been eliminated from the methods that were prevalent in the early days.

However, if you should ever visit any photographic gallery and look at the images hung on the wall, you will begin to realize the importance of control in making a photographic image.

The images that were produced by the masters have always been controlled to extreme points.

Ansel Adams never made a straight print to be used for exhibition, nor did Paul Caponegro, or any of the other hundreds of great printers.

Their darkrooms must resemble laboratories of the early 1900's.

Remember, the beginning of photographic history is replete with innovations and control systems that were developed in the very early days of photography. From the very beginning, all photography had to end up as a print.

Let me give you some example of just what is possible in producing a photographic print when it is made by a professional darkroom enthusiast.

The use of different kinds of film emulsions for producing different kinds of negatives. This means that you can get

more contrastier, or softer materials that can influence the final quality of your print. Photographic papers were produced by different companies and were different from manufacturer to manufacturer.

Some were producing warm papers, and some were producing cold papers. Some had smooth delineations from light to dark areas, and some were contrastier papers that gave the results a chalky look.

Then we had different methods of producing prints. They included Carbon, Platinum, Gold, Silver, dyes, oils, and others.

Before much was known about chemistry, a simple system using "print out" methods and sunlight for making exposures on slow paper. This method only required a tray of fixer to stop the "exposure develop-

ment of a print. Sunlight did all of the exposure. Papers were finally divided into two camps. The paper used for contact printing was usually coated with silver chloride. Then the faster silver bromide papers were invented so that enlargers could be used to make an enlarged image. Eventually, the combination of a chloro-bromide paper was produced to fit both methods of printing and it is still being used today.

The use of different kinds of developers in order to achieve different results in contrast and to affect the overall color of the print, from warm browns to cool blues.

The most effective methods for control were just beginning to appear. Dodging and burning in became the accepted method for controlling the overall quality of the images. This system of dodging and burning was done by using little pieces of opaque material attached to a thin wire, or a hole in a piece of cardboard. Chemicals were used on the finished print in order to change the degree of black and white contrast as well as the brilliance of the print. Different kinds of toners were developed that could almost represent the entire range of colors used in an artists palette. Selenium toner was used to enhance

the dark black areas. This is still the most commonly used tool today.

All of these things were used to enhance the image. **This is a far cry from a straight print.**

I remember working with an older experienced journeyman darkroom worker during the mid 1940's. He used to have a bucket of straight developer sitting on a hot plate adjacent to the sink. He processed the black and white print, and if an area didn't seem to be coming along as strong as he wished, he would use a large chunk of cotton dipped into the warm developer, and swab the area in question. The image did come up rather quickly.

Another chunk of cotton soaked in acetic acid rinse, was used to stop the action whenever he felt that it was time.

This large darkroom consisted of a big sink with a back splash wall set at a slight angle. Prints were laid out on this back splash wall as we worked. The illumination for this area was perfect. The viewing light (as well as the safe light light) would cover the entire back board without getting reflections in your eyes.

All this for black and white.

The interesting part came later. During the early days of Carbro printing, all of the dodging and burning meth-

ods were used and they worked fine.

However, chemicals could not be used on the black and white prints because they were eventually used in the combination to the color pigments. This would cause contamination.

Contrast was controlled by a number of things.

First was the actual set of negatives. If they were deemed to be too contrasty, then a few things could be done.

The negatives could be developed to a lower gamma.

Masks could be made to lower the overall contrast of the original transparency before set of separation negatives were exposed. .

The special paper richly coated with silver was used for the actual bromides and consisted of only one contrast grade, so developers had to be softened in contrast by altering it's composition or by the addition of water.

Then, at the final moment, the two bath method for sensitizing the pigments could be adjusted in either direction to help change the overall contrast.

In fact, whenever a set of out of balance separation negatives were to be used, we made masks, as well as adjustment in combining contrast, and in different directions at the same time.

This was hardly a straight print.

Years later, the Dye Transfer process was born.

Could this color process be manipulated so that complete control could be used in producing an image?

You bet your life it could.

In this process, the conventional method was to work from a transparency, which is considered the perfect process.

Once it was exposed and processed, that was it.

No further correction could be employed or invented.

This could be the only process that required no further attention.

That is, until a print was required.

With the Dye Transfer process, you have the option of making contrast reducing masks which could also be helpful in making some gesture towards color correction, which is a necessary evil in making Dye Transfer prints because of the shortcomings of the color filters and the actual dyes used in making a print.

Highlight masks are usually employed in order to restore the highlight areas or to improve upon them.

Shadow masks could also be made to work to keep shadows open and detailed, or the opposite approach could be used to completely

obliterate them.

The Dye Transfer process

is considered by all dark-room workers to be the ultimate in controls for any color process.

We begin with the making of the contrast reducing masks, called principal masks.

These masks will help control the overall contrast as well as the overall color corrections that are sorely needed.

The making of the separation negatives is also controlled by the method used to bring the negatives to the correct contrast range for your enlarger. This includes making the masks and the final separation negatives to the exact gamma.

When making the matrices, contrast is even further controlled by the different proportions of the A and B components of the tanning developer.

So far so good.

Then the matrices are placed into their respective dyes.

Are these dyes also controllable? Yes they are.

The addition of either diluted Acetic acid or diluted Triethylanomine to the dyes will increase the Ph or lower it. Either of these two components will cause a change in the contrast of the dyes.

The print is finally on the transfer board. The addition of acetic acid or liquid

sodium acetate to the first rinse tray will affect the overall density of the transferred image.

Adding liquid Sodium Haxametaphospjate (Calgon) to the solution will clean out the lightest steps, mainly, the highlight areas. These are great tools to be used in obtaining a correct color balance.

There is no reason why a transferred color image couldn't be transferred again and again.

The use of specific chemicals on a Dye Transfer print, can cause color changes, as well as contrast effects.

Using diluted Potassium Permanganate will reduce the cyan, Kodak's Photo Flow will reduce the magenta, and liquid Sodium Thyocyanate will reduce the yellow.

Major color corrections can be made on a print without resorting to more costly retouching services.

This is hardly a straight print.

The Type C print gets most of the flack because it is primarily used on fast automatic printing machines. When you get a print from the drug store, this is the process that is used. However, if you should ever get to a photo gallery that exhibits Type C prints, you will see prints produced with a great deal of dodging and

burning.

Some professional labs, like Bob DeSantis of N. Hollywood, Ca. does use much of his experience as a premier Dye Transfer printer to improve the quality and beauty of his C prints. He rarely ever makes a straight print.

Large commercial labs will make color corrected and photo-composed color negatives that are used to make these gigantic prints found in airline or train terminals.

These are hardly straight prints.

The only problem with the C print process is the negative. Once the negative is shot, most believe that there is little else to do except to accept the results. **Not so.**

You can add color correction masks, or contrast improving masks to the original and change its character. If you use your imagination, you will find that there are many ways to change and improve your final image.

The Type R print is also used primarily as an automatic printer from slides. I don't know of any automatic machine that will adjust the overall contrast of the image. If you look at the resulting print made from a slide on Type R paper, you will see just where the problems are. The paper is too contrasty for the majority of slides or transparencies that are

exposed to it.

If you want to make better looking Type R prints, a simple method for finding out what the actual requirements are for your combination of enlarger, lens, lighting system, and paper, is the only way to make quality prints with this Type R system.

Is this being done? Yes.

The lab that I am currently working with has used my suggestions when ever the need has risen, and the results were worth the effort.

One of the latest processes on the market is **Cibachrome.**

This process has been verbally abused by almost every one when I ask this question; "What do you thing of the Cibachrome process?" Almost everyone has responded, "It's too contrasty and too glossy.

The answer floors me. Too Contrasty? What contrast would you like? Or would you like a contrast for every kind of transparency that comes along?

Too glossy? Try using the pearl finish. It is not glossy at all.

The answer to anyone concerned about the quality of Cibachrome, is very simple. Make the transparency fit the range of your enlarger. Period.

It is that simple.

Again, find the contrast requirements that your

enlarger needs in order to produce a quality print. Once this range is determined, chisel the numbers into the wall next to your enlarger. This is all you really need to know in order to make a goodCibachrome print.

Dodging and burning? Of course it is done.

But even more important is the fact that color correction is possible, as well as highlight restoration or improvement.

For instance, if you make a print of a seascape and the waves seem to be too dull, even though there are white-caps everywhere, simply make a "bump" mask for the highlight areas and your print will jump to life.

You can also isolate any area in the original and either change or improve the color of that area.

It goes on and on.

Control is the darkroom technicians method of producing quality prints.

Without controls, you may as well go to your nearest drug store and ask for a set of prints from your slides or color negatives.

This brings me to the latest color process, the **UltraStable Color Carbon process**, invented by Charles Berger.

Here is a process that is really astounding. The fact of it's longevity alone should be enough to make it a very

important process. The amount of controls that it can use in order to be considered controllable is slight. But the fact that it uses the latest technology in producing accurate screened separation negatives makes it a very viable product. If one has the means, the original image can be scanned, and then controlled using a work station such as Crosfield, or Cytex. In this manner, all the controls such as individual separation contrast, dodging, burning, highlight manipulation, color correction, curve shape adjustment, and anything else that you can think of, is possible.

The fact that most of the preparatory work is being done by electronics doesn't take it out of the realm of photography. We still must have the imagination and taste to make any image a great image. **How we make it is really academic.**

So, what I have been writing about is simply this. Photography starts with the camera and a brain. The rest of the process is to make a version, in print form, of your image.

The next subject that I would like to explore is this: I received a call from Luke Powell, a very well known photographer and Dye Transfer printer from Ver-

mont. He had a problem and asked me to try to solve it.

He works from 35mm slides and produces prints up to 16x20. His method for making the separation negatives is to use a point light source, a condenser enlarger, and Caster oil as the agent to eliminate refraction. He also uses color corrected apochromatic lenses.

He doesn't notice too much wrong with the prints made to the 11x14 size, but when he makes a print to 16x20 he notices color fringing. When making a print from a set of enlarged separation negatives, separation color filters are used to make the different color layers.

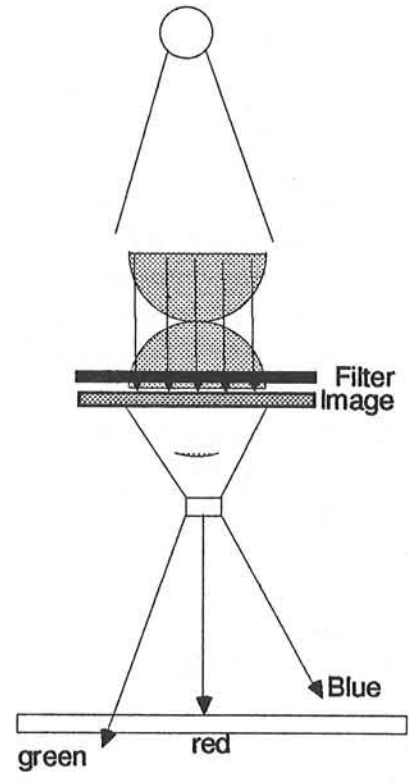
The biggest threat to quality when using any enlarger, especially when actual color is involved in the original transparency and with color filters used to make the negatives, or even exposed directly onto Cibachrome paper of Type R paper, is "Chromatic Aberration."

This chromatic aberration is caused by one of five things.

1. The enlarger lens should be the best you can afford. **An apo-chromatic lens should be a must.**
2. The condenser must have two matching elements in a double condenser set.
3. The transparency should be free from any fringing.
4. Some kind of immersion

- oil must be used that has as close as possible the refraction index as the glass in the carrier.
5. The image must be in absolute register

Chromatic Aberration occurs when the image fails to focus at the same focal point through the three filters.



If you make separation negatives by contact, there is no occurrence of chromatic aberration, because the image is in contact with the final negative material, and focusing is not required. But how does one find out whether or not the cause is the expensive color corrected lens, or something else?

My first suspicion was the glass in the carrier, so obviously, my first suggestion

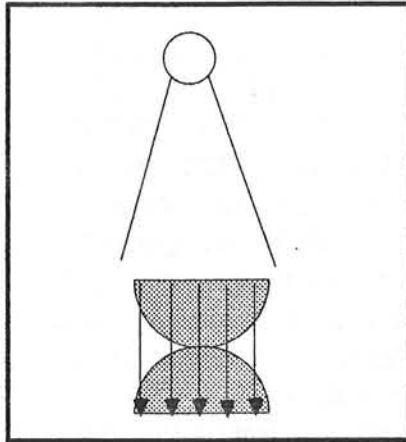
was to take the transparency out of the oil carrier and resort to using a glassless carrier.

This was tried but the phenomena was still occurring. The next step was to place a black and white negative in the enlarger, and make the three exposures through the separation filters. The fringing went away.

The only other reason for the fringing would have been the original transparency. Most of us will look at a slide through a 6 power loupe and be satisfied with the result. However, if you intend to make a 16x20 image from the 35mm slide, the blow up is 16 times. I would further suggest that a 20 power loupe be used to study the image in the original. Does this effect ever occur in making prints from scanned originals? No, because the scanner probe is so close to the transparency that it virtually is a contact system. The image may be blown up by the use of electronics, but the image would remain sharp.

I thought, perhaps, that the condensers had something to do with the aberration, but this wasn't the case. In fact, a set of matched condensers is a necessary element when a dual lens condenser is used. The two lenses that face each other in the enlarger's head collimate the light source so that

it travels in a straight path through the focal pane.



Have any of you had your work exhibited in a photographic art gallery?

If you have, then you are aware of the feeling of acceptance by the "art" community.

However, there is more to getting our work hung than you think.

First of all you should have at least 15 or 20 images of a theme. Whether the work consists of scenics or portraits or abstracts, you must have some kind of theme that will hold your work together.

Luke Powell of Vermont has done something that most of us would have never tried. First, he made a series of 15 or 20 Dye Transfer prints of various locations around the world. He kept them in sets so that each set would be a theme of it's own. He has spent over 5 years compiling a list of directories and museums.

He has built a data base of over one thousand non profit museums and galleries all over the U.S. and Canada.

He finishes his prints by proper framing using aluminum frames and UF-3 plexi-glass.

He has designed and built his own crates that could be carried and insured by U.P.S.

His procedure is to contact a museum or gallery, show them samples of his works and ask if they would consider showing such a portfolio?

If they agreed then the exhibitor would pay for the shipping, (round trip) the insurance, and a modest fee for renting the work for a specific time.

This has been a successful arrangement for Luke Powell.

So successful, in fact, that he is offering to anyone the opportunity to be involved with him. If any of you are interested, contact:

Luke Powell
230 Battel Block
Middlebury, VT 05753
802-388-3216

After 5 years, he has eighty exhibitions on the schedule from major urban institutions to community art centers.

There have been shows in thirty five states.

He has estimated that over one million people saw his work in 1989.

This could be an opportunity for any of you that have been able to produce a series of prints.

I have been asked this question many times.

Is it possible to make a set of screened separation negatives that can be used in the UltraStable process, without resorting to the commercial scanner?

The answer is yes. But it does entail some major effort from the skilled dark-room worker.

Regardless of the size of your original transparency, make a set of enlarged separation negatives just as you would when making a Dye Transfer print. Make them to the size that your enlarger can handle. You will also have to make a black printer by exposing a separate sheet, in succession, through each of the separation filters, for approximately 35% of each color exposure.

You now have the four color negatives needed for the UltraStable process. Hopefully, these negatives are in the correct balance and contrast level.

At this point, make a set of exposures by enlargement onto a higher contrast film such as Kodak's Separation # 2. This will become a set of color balanced positives.

This is where the real work comes in. The set **must** be balanced accurately for contrast and color balance.

Using a vacuum contact frame and any quality litho film, make a set of exposures through each of the positives using pre-angled screens. This part of the job is done in a safelight environment. Each sheet should get the same exposure, unless you think there will be changes.

Process the litho films in any quality litho developer. When they are dry you can make a color test of any part of the the image by using 3M color key materials and see a fairly accurate proof of your work. (This material requires an Ultra Violet Light source.)

If all looks well, continue on with the UltraStable print. This will be all your work. The negatives may not be as sharp as defined as a set from a scanner, but all of the nuances that you can dream up will be your work and no one else's.

Here is a story that needs telling.

Years ago, when I was in the rat race of the commercial field, I had to produce many strip-ins and photo composed color prints. In order to make things fit properly, I used register pins

and punches on the easel as well as in the carrier.

I would then place the image in question in the carrier and make an enlarged image on a sheet of Kodalith film, developed in a weak continuous tone developer to a very soft gamma. I would then place this Kodalith sheet on a set of matching pins on a light box, punch a sheet of Rubylith film, and place it on the same pins.

Using a brand new Exacto # 11 blade I would score the Rubylith film very carefully and eventually peel away the image so that the silhouette was visible.

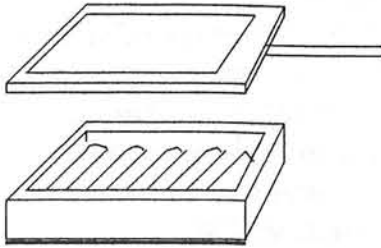
I would then place the peeled Rubylith sheet back on the easel, again on the same set of pins. Place a sheet of thin white paper under the Rubylith so that the open area is white. The image was now in the same position as was the sheet of Kodalith film.

My purpose now is to expose the image on the easel through the enlarger lens, using the enlarger as a camera. I replaced the image in the carrier with a sheet of unexposed Kodalith film, on pins. The result would be that the cut out image was exposed onto the new sheet of film in the carrier also on pins in the carrier. The fit was accurate. However, it was a nuisance to have to place two lights on either side of the easel so

that an exposure could be made.

I thought to myself, "wouldn't it be nice if I had a light box with pins and a vacuum system and use this device as my easel. All I had to do was to switch on the light and copy the image up to the carrier.

So, I designed a system, in 1965, built it and used it for over twenty years.



The top piece was made from a sheet of diffused plastic. I scored the lines just inside the film size, drilled a hole down halfway, then from the outside, drilled another hole and met it. I attached the vacuum pump to this device and placed a switch in the line for the instant start fluorescent.

I later discovered that Bob DeSantis also did a similar thing, as did Frank Tartaro in New York City.

We didn't buy this contraption, because we all came up with the same kind of idea. We all made our own versions.

Eventually, Condit Mfg. decided to incorporate this kind of device in his new 4x5 enlarger system designed

with this idea in mind.

His system includes the timer, light switches, a completely registered enlarger and easel, with a perfect vacuum easel and pump, a filtering system, and a movable easel platform with clamping bars. It is the best system for a small lab that is getting involved with photo composition. that I have ever seen.

His backlit easel is 11x14, where mine was 20x24.

He designed his own excellent system and has been selling it.

Suddenly, he was being sued by some one from Chicago who claims to have a patent on this idea, and that his patent was four years old.

I didn't think it was possible to patent an idea. Ideas are supposed to be free. Anyone can think and get an idea. I am sure that the plans and design by the person from Chicago are totally different from Condit's design.

This is unbelievable. If there was ever a list in this world of people that I would absolutely trust it would certainly include Warren Condit.

He wouldn't need the idea from an amateur to build his own system. His list of "inventions" speak for themselves.

I wish him luck in defeating this claim from a person that has never made a professional print in his entire life.

This will also be a re-cap. As you may know, I am in the process of starting a home study course on any of the three systems that I have been involved with for almost 50 years.

I have all of the plans ready and I am sure that who ever takes advantage of getting involved with the color processes, and decides to get involved with my study courses, that they will be much better printers in the long run.

These courses mean that I would actually tailor the specific course to the students ability so that I won't have any one sitting there with a blank stare, ever.

If any of you are interested as individuals or as a group let me know.

And if any of you have been making progress with your work, I certainly would appreciate seeing your work.

In the meantime. I still have my stuff for sale. I won't bore you with the numbers. You should know them by now.

Thanks for your kind support. We really appreciate it.

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