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User Profile: Joseph Holmes, Outdoor Photographer

For nearly twenty of my twenty-seven years spent photographing unspoiled landscapes, I have devoted myself to the goal of making color prints that I would regard as inspirationally lovely. The quest has taken me through three major technological phases.

The first was the era of dye transfer. Over six years of work, investing both tools and understanding, culminated in the creation of only some fifteen or sixteen different images, mostly printed at 11 x 14" in size. At the time I was pretty proud of some of these prints. The process was overwhelmingly difficult, slow, and difficult to wield with precision.

An accidental brush with Cibachrome (now Ilfochrome) suggested that the kinds of tonal control needed to get a luminous tone scale in a color print were in fact more easily and precisely achieved with Ciba printing than with dye transfer. With dye transfer, a great deal of effort is wasted just trying to prevent the image from getting out of control, and most of the potential controls are that one doesn't need or want. Further, the primary tonal controls fall at the beginning of a long, multi-step process, requiring starting nearly from scratch, to make any kind of tone curve adjustment which is independent of saturation. Dye transfer F surface paper is very lovely, and commercial uses long benefited from the relatively high retouchability of dye transfer prints, but my work doesn't require that degree of retouchability.

Ilfochrome offers far better sharpness and a far superior tone scale than the now discontinued dye transfer matrix film - highlight separation is a severe problem with matrix film. The trouble with Ilfochrome is that the ability of conventional exposure to produce excellent blues and greens isn't there. One favorite image of mine contained excellent and vital electric blues in the dye transfer print, and, as has often been the case, I found myself compelled to embark on a long and difficult adventure in the quest for a technical solution to a problem that interfered with the proper rendition of a single favorite image.

I gleaned from the dye density curves and spectral sensitivity curves of Ektachrome 64 and Cibachrome II (at the time) that the use of white (full spectrum) light to make prints might be largely responsible for the relative digression of the greens and blues in Ciba's. I therefore undertook an experiment where I used the standard set of dye transfer separation filters to make a three-exposure Cibachrome, to see if any improvement in the color could be had. The results were inconclusive, showing perhaps a five percent improvement in the saturation.

Fool that I am, I nevertheless began work on an additive lamphouse for the enlarger, thinking that it would be a six month and $500 project to custom build the sheet metal enclosure with halogen lamp holders and diachronic separation filters, operated by variable voltage controllers, etc. Dream on.

Three and a half years and many thousands of dollars later, I finished the project, which had grown in complexity and quality to the point where the total number of parts in the unit was about 1500 and the number of electrical connections was about 1000, half of which I soldered myself.

When it came time for the big test(s), I was more than pleased to discover that the greens and blues had improved far more than hoped, and that image contrast had increased significantly as well, bringing still more saturation and the necessity/opportunity to make stronger contrast reducing masks to reduce the overall contrast of the great majority of my images. This greater masking requirement meant that the final result could be better than otherwise possible, because the stronger the mask needs to be, the more qualitative control you have over the characteristic curve, and over the relative density of various primary color ranges of the image. For example, I could now wind up simultaneously with more needed highlight and shadow contrast and less middletone contrast than would otherwise be possible. I could also simultaneously darken blues or reds or any range of primary colors, relative to the other colors and thus solve another broad range of tonal problems.

As a result, I have been able to make prints for several years now (all with various JOBO processors; initially CPP-2, then ATL-3) that are widely regarded by those who have seen them as the strongest color prints they have ever seen.

Three problems, which to a degree persist with this second system, have led me to spend an inordinate amount of my time and proportion of my investment capital over the last three years creating what I think of as the third wave or technological phase of my color lab work in photography, the digital phase.

The three problems are: 1) Less than relatively complete permanence of Ilfochromes on display (e.g. less than well made silver prints), 2) control problems which even my unprecedented level of control over Ilfochrome can't solve (which are significant in about a quarter to a half of my best images), and 3) speed of rendering (I print an average only about ten new images per year (though many of each), which is fine for selling them as original prints, but is much too slow to keep up with my potential for publishing. (Note that this slowness is overwhelmingly due to the complexity of the masking work and the desire to achieve the best result possible in each printed image, not the processing itself.) I have exclusively used reproduction prints for publishing for several years now in order to publish fully realized images, as opposed to most of the half baked stuff one sees dominating color publishing, and I am not about to let quality go downhill in order to be able to make use of the hundreds of thousands of my images that warrant publication.

Of the three approaches to making prints, the digital one is by far the most complex, as computers first make a mountain of complexity out of any molehill, but since the computers are superb mechanisms for the automation of information processing the mountains get whittled down to size, and where you wind up depends on how powerful and elegant the whittling is compared to the mountain building.

I am using Live Picture with production help from PhotoShop to render images scanned from my 4x5 chromes (or negatives) for publishing new posters, and expect to generally use this approach, at least when I can't make a thoroughly satisfactory Ilfochrome reproduction print by the conventional approach, for publishing. Before too long, it will even be possible to plug directly into digital enlarging machines to produce conventional prints from digitally rendered image files. These machines will probably begin to be available for making custom prints in photo labs during the latter part of 1995. How much longer it will be before they are sufficiently inexpensive to use or have their bugs worked out is another matter however.

I also expect to use digitally rendered image files to produce UltraStable gelatin pigment prints, which are the most permanent kind of photographic print ever devised, making it possible to leave a legacy of superb prints that can be viewed under ordinary indoor lighting conditions for centuries without significant change.

The bottom line however, for the time being, is that digital imaging as a replacement for high-end darkroom work is still a ways off, generally, and will initially be fabulously complex, expensive, and slow. On the other hand, the costs of digital imaging are falling, some rapidly, and the biggest slowdowns are being overcome. There is no question that digital processes will ultimately take a big chunk of the color print making business, but it will take several years for them to become dominant. If it weren't for the fact that humans are massively gadget-happy by nature, few photographers would yet be thinking very seriously about digital imaging for rendering conventional color images if they knew how difficult and expensive it still is. Case in point, my two image renderings for a pair of new posters (which judging by the final proofs will be quite spectacular) took me a full month's work. So even though digital imaging holds the hope of the faster rendering of images, it has a long way to go to meet that promise for me.

I don't expect to ever abandon my superb conventional darkroom processes, because there are many aspects of them that are simply superior to the massively complex digital approach, so I haven't thought for a moment about selling my ATL-3. The AutoLab is the ultimate conventional color print processing machine, if quality, not speed is paramount - and for moderate levels of print production, the speed is entirely sufficient.

I have adjusted each Ilfochrome processing step of the P-30 chemistry for optimal results, including better color, better blacks, more thorough fixation, and better washing than can be achieved with inflexible roller transport processing. I also enjoy the freedom I require to not work in the darkroom for up to two months, and still be able to use the chemistry left behind without compromising print quality.

I should mention that I also use an AutoLab for all of my mask processing. Kodak Pan Masking film and Kodalith Ortho Type 3 are the two film types I ordinarily require for masking work, both in 5 x 7" size, and each can easily be processed with complete evenness and repeatability with the AutoLab (using only one shot development). I know of no other method for processing a single B & W sheet film with equally high quality.

My book "Joseph Holmes, Natural Light", a $100 monograph published by the Nature Company for their exclusive distribution, sold out both printings and was almost entirely made with scans of Cicachromes I produced with my AutoLabs. I hope to have it re-published as a trade book so that it can be widely seen by the many who never got a chance to see or own it. Ten of my seventeen posters published to date were also made by scanning prints I made with my AutoLabs. The JOBO machines have been a mainstay of my career for about ten years.

The future of color print making is not entirely digital, and for the finest processing of one person's work using conventional color print or film processes, or black and white film processes, I know of no approach that can touch JOBO's modular, flexible and precise systems.

— Joseph Holmes

Feature Article: Printing Color Reversal

By Paul Rowe

A process often neglected but highly desired is the direct positive print from a transparency. There are two choices, the fabled Ilfochrome (Cibachrome), and Kodak's R-3/R-3000. The telephone inquires we receive are more often "I would like to do prints from slides some day" than "I'm doing——". When I review CompuServe's Photo Forum there seems to always be people looking for commercial processing of prints from slides.

The rap against print from slide processes has always been the high resulting contrast from using a transparency, which is contrasty because it does not have a wide enough response range to take in all of the subtleties of the original scene, and placing this image on an emulsion that also has a limited response range. The resulting print, especially when processed economically from a commercial finisher, just can't represent the range of shades and tones in the original scene.

There have been a number of items introduced which help overcome this problem, and they can be well used in the small darkroom. Kodak's latest paper, Radiance, is far better at reproducing shadow detail than any other previous KODAK paper. Ilfochrome, both the high gloss and the Pearl finishes, are being produced in a range of contrasts, and their medium contrast material reproduces a wider range of tones than any other previous material. Fuji and Agfa also have fine offerings.

In addition to the newer print materials there is the process of print masking, masking is the process of creating a black and white mask to use with the transparency and reduce the contrast of the scene. (For anyone wanting to pursue this further, Ilford Photo, West 70th Century Rd., Paramus, NJ 07652 has written instructions for producing contrast masks.) In the "Journal of Rotary Processing Collection" (#66032, $7.00) the Summer 1986 article was entitled "Contrast Control of E-6 Emulsions for Print Control", by Jay Forrest. In this article he covers a complete approach to producing lower contrast transparencies, which will print with a wider range of tones than the average transparency.

Regardless of your interest in tackling some type of contrast control, I would suggest that you first approach just straight printing of your transparencies using the R-3/R3000 process. Before we go further, R-3 is the designation of the reversal process when used in continuous, replenishable machinery, and requires light reversal of the paper to complete the image. R-3000 is the reversal process for rotary drum and tube processors, and has a chemical reversal built into the color developer. Obviously, for use in the Jobo, R-3000 is much easier to use, and that is what we will talk about. Print materials are available from Kodak, as a Radiance paper, in glossy semi-matte finishes, and from Fuji in two types, Fujichrome Type 35 in glossy and matte finishes, and Fujichrome Super Gloss. Agfa has both a gloss and a matte. (We will cover the use of Ilfochrome [Cibachrome] in a later article.

Incidentally, don't be frustrated by any problems you may have an obtaining Fuji papers. They will be in questionable supply until late 1995 or early 1996 when their new plant in the Carolinas comes on line. In the meantime, if Fuji is your choice, just shop around and you may find dealers who have stock.

R-3000 chemistry is available from Kodak in one gallon setups (you have to buy separate packages of First Developer, Color Developer, and Bleach-Fix), or from Jobo as Photocolor Chrome-R on 600ml kits and 5 liter sizes, and from Beseler (Tetenal) as their "3 step" in 5 liter kits.There may also be some others out there of which I am not aware. All of the above are packaged as liquid concentrates, and can be used at an elevated temperature. Kodak suggests 34°C, Photocolor 30°C, and Beseler (Tetenal) is at 38°C. All three, however, can also be used over a wider range, and list times and temperatures for 20°C to 40°C.

If you are going to try prints from transparencies for the first time, I should give you a few impressions about the handling of the print paper. First, it is slower than RA-4 which you are used

to. You will be using extended exposure time, of larger F-stops, or both. Secondly, filtration may be less than different. Generally it is somewhat less than print from negatives, and do not be surprised to find yourself using Cyan filtration. I have found the starting point suggestions that come with the papers to be very good, with no great changes generally necessary.

To process in the Jobo we are going to talk in 38°C terms. You should note that the higher temperature gives you a faster processing time. The chemistries we will discuss are Kodak, Photocolor Chrome-R and Beseler. Beseler (Tetenal) recommends a lower temperature - 28°C. The steps and suggested times are as follows:

Step - KODAK - Chrome-R - Beseler (Tetenal @28°C)

Pre-wet - 0:30 - 0:30 - N/A
First Dev. - 1:15 - 1:10 - 1:10
First Wash - 2:00* - 2:00 - 3:00
Color Dev - 3:20 - 2:15 - 2:50
Second Wash - 1:00* - 1:00 - 0:20
Bleach-Fix - 2:00 - 2:00 - 3:00
Final Wash - 2:00* - 2:00 - 2:00
Total Time: - 12:05* - 10:55 - 12:20

**NOTE: Kodak wash times for the first and second washes are actually 20 second segments for 1 minute first wash and 40 seconds on the second. The final wash is stated as 2:15 with running water. In a Jobo it is difficult to use 20 second segments or a running water wash. I have included in the Kodak steps a duplication of the Chrome-R times, which should be broken into 30 second segments. The first wash would then have four 30 second washes. This sequence is more than adequate for the proper washing of the print.*

The Chrome-R has a unique feature to offer economy in the R-3000 process. Normal working strength developers can be diluted with an equal volume of water and used as one shot developers by using double the suggested process times for the developers. The Bleach-Fix is used at normal working strength and time, and reused once. You may find the need to fine-tune your exposure and filtration, but you can easily get prints of equal quality to the full strength developers, and have double the number of prints from a given size kit. This technique is suggested in the instruction for Chrome-R, and we have tested it many times at Jobo. It is the typical way we will use Chrome-R in our darkroom.

Just a few little points to remember. R-3000 is a reversal process, just like E-6 for film. If you want more density in a print you REDUCE your exposure. If you want the print lighter you INCREASE your exposure. Print borders, unless you are using a borderless easel, will be black. When changing filtration, adding a filter to the light path adds that color to the print, and taking away a filter removes that color from the print.

I hope this might do a little to dispel the reluctance many seem to have about trying.prints from slides. You can do it with almost the same ease that you have in doing prints from negatives. In fact, in some ways achieving correct filtration is easier because of the direct relationship of the filters and the lack of the colored mask of C-41. Try it. You can get hooked as much as we are.

Article II: E-6 Update

By Paul Rowe

Since mid-summer of 1994 a story has been evolving regarding a change in the mixing instructions for the Kodak E-6 chemicals. The following information is taken directly from correspondence I have had with Kodak. The changes shown are for Kodak chemicals, and have been confirmed.

As a way of explanation, these mixing changes came about as a result of the Kodak Q-Lab specifications. They must operate to tolerances that are twice as strict as the old specifications. It became apparent that the chemical mix specifications for the Kodak chemistry was not adequate to allow the Q-Labs to operate within the stricter tolerances imposed upon them. So here are the suggested changes:

First Developer:

Mix 5% more dilute, and add 1 ml of starter per liter. For a 1 Gallon kit this means to add 6 1/2 oz. (189ml) of water, and 3.8ml of Kodak First Developer Starter, Process E-6, Kodak Part #156-4871. Chemical sets from Kodak larger than 1 gallon have the starter. One Gallon Kits have the starter included in the first developer concentrate, and in order to perform this adjusted mix it will be necessary to buy the First Developer Starter.

Reversal Bath:

Mix the Reversal 40% more dilute. This is the same as the Rotary Instructions have been for years now. They state to mix a 60% solution. Mix as follows:

- A.. If mixing a gallon, add 51 ounces of water to the Reversal solution.
- B. If mixing by the liter, mix normal strength and add 400 ml of water to the Reversal solution.

Color Developer:

Mix the Color Developer 15% more dilute.

- A.. If mixing a gallon, add 19 more ounces of water to the Color Developer solution.
- B. If mixing by the liter, add 150 ml of water to the Color Developer solution.

Bleach:

There is no change in the mixing instructions. Be sure that the bleach is well aerated. If possible, use an aquarium pump for an hour before processing to aerate the bleach. The above variations to the E-6 mixing instruction yield a solution that simulates a seasoned tank solution. A fresh mix under the old instructions is a "hot" tank solution which would be seasoned by processing a number of rolls through it. With a rotary processor and one-shot chemistry, you obviously can never come to what could be considered a seasoned tank solution unless the mix is changed.

Some rotary processors (not Jobo) have preprogrammed a rinse step after the Color Developer and before the Pre-Bleach. Under the old set-up before Pre-Bleach this was a viable method to eliminate certain stains that can appear. However, with Kodak Pre-Bleach in place of Conditioner, the wash after Color Developer is unacceptable. The high pH of the Color Developer being carried forward to the Pre-Bleach acts to release the formaldehyde for the stabilizing process. The wash eliminates the carry forward and the Pre-Bleach cannot work as it is designed. There

are very few reading this article that will be affected by this fact, but I do not want to omit it -- you could end up with unstabilized slides. They will turn green!

Just a word of warning: Be sure you read the instructions that come with each new chemical set-up that you buy.

On Kodak 5 gallon and larger this is merely a change in mixing instructions. Since the one gallon kit has starter incorporated in the first developer, it is possible Kodak could change their solutions and concentrations to incorporate the changes outlined. If this is done and you continue to add and change as we have shown, the result will be a group of solutions that are not correct for processing.

To this point we have only mentioned Kodak chemistry. We also need to consider Master Class Chrome Six. My experience in the use of Master Class would indicate that the above changes are NOT NECESSARY. Solutions mixed in accordance with the instructions for Master Class have consistently yielded an in-control process with an occasional slight modification to first developer time. This type of performance would not indicate the need to make changes required by Kodak chemicals.

Article III: Gremlins In The Darkroom??

From *Mastering Black-And-White Photography* by Bernhard J. Suess.

Anyone who spends much time in the darkroom can tell you there are days when everything goes wrong. If you have never had a day like this, count yourself among the fortunate few.

Usually I'll be working as I have hundreds of times before. I'm meticulous. I keep notes and write down everything, even things that don't seem pertinent. I test paper, the film, the developer, and anything else.

Perhaps it's because I'm doing things on autopilot. I develop a print and it doesn't look right. As I always do, I analyze the problem, make the corrections, but it doesn't look any better. On a particularly bad day it might look worse. Checking what I have done, I find the entire procedure was correct.

After a few more attempts, with no success, I decide that gremlins have taken over the darkroom for the day. Instead of struggling and continuing to make bad prints, I leave the darkroom, watch a movie, read a book, play some music - anything to get out of the rut.

Other photographers have different terms for it: karma, evil spirits, bad luck, yin and yang. The reason and the outcome are the same for all of them. Something isn't working right and you can't figure out what it is. Whether you're too tired to care or it's something that you've never run across before, it's best to take a breather.

I have literally started working on prints I've done dozens of times before (without problems), using tested materials, only to have dismal prints appear in the developer. A day later, I'll try again -- exactly the same way -- and the prints will be fine.

If you are having problems and you're sure you are not making mistakes, relax and try it again later. Gremlins rarely show up two sessions in a row. If you're still having the same problem in your next session, try to find some expert help.

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Tips & Techniques

One of the most frequent calls we receive is from users of the TBE-2's, CPE2+, CPA-2, CPP-2, and ATL-1000. It runs something like "I've got all this film to process and the processor will not hold temperature." The expletives attached to this general idea are best left for non-family publications.

Each of the above machines have a Thermal Overload Button. In almost every instance the owner has tried to rush the process by loading the machine with water that was too hot for the machine to handle. It experienced a quick increase in temperature because water of over 100°F was put in the bath, and responded by being sure there would be no overheat or melt down -- it popped the Thermal Overload.

On the manual machines the button is located on the left side (outside edge) of the control unit. In the ATL-1000 it is necessary to remove 3 screws, move the control panel aside, and the white button is located directly underneath at the bottom of the machine. Turn the unit off, and then press the Thermal Overload Button, and turn the unit back "on".

To eliminate the need for finding your Thermal Overload Button, put water into the bath at about 90°F and let the heater bring things up to temperature. This takes very little extra time from that high a temperature, and you eliminate the frustration.

Do not forget to check your chemical temperatures when using a quick heat method. It takes the chemical bottles longer to reach temperature than the water bath.