# Four Color Bromoil, some suggestions...

First, let me say that the four-color transfer process is no different or more difficult than one color transfer.  And, like the one color process, the image resulting will not be an exact replica of the standard C print or transparency... too many things come as variables in the bromoil process.   So, let's begin...

In my earlier work, before computers, I used a direct to print separation process from color negatives or internegatives to make the separate matrices for printing...  (I am assuming everyone trying the process is familiar with the basics of offset lithography, and the four-color process...)   To accomplish this, I printed the color negative onto panchromatic black and white paper through standard process separation filters. Two things made this a difficult task:  first, the filters are dense and the resulting exposure times could go into tens of minutes; second, the process is carried out without any safelight…. So lots of test sheets and time were required.

With the advent of computer imaging, and especially Photoshop, this effort was greatly simplified.    Now, one can make accurate separations and paper or plastic negatives without the darkroom, and can develop standards that work from one session to the next….  Dan Burkholder has written a volume describing the computer generated negative and is a good starting point.  I started before he published however, so I have a few variations of my own. You should develop a style and technique that you can repeat, and that works for you, just like inking…. Having a consistent inking touch is pretty important to the success of the 4-color process, as you will see.

To start, that is, for your first tries at this, choose an image that is pretty balanced, with good tonal separation and some good colors.  Think ahead that the result will look like you have placed a wet Kleenex over the image... try it, if the image holds up, it will make a good 4 color bromoil...

Like this one, done digitally from a scanned flower in Photoshop:



Next, resize, and increase the canvas size to give room for the corner crop marks, and add them using the pencil tool... then choose image>mode>cmyk from the menu bar.

Note the change in tone and color, best not to alter at this time, remember that the screen is in RGB:  make any color adjustments there …

To make the separation negatives needed to make the matrices for printing, I find it best to invert the image now, rather than allow Photoshop to make the negs later.  We will make some adjustments to the negs, so this is the best way (I think).  Looks like this:



Note we have a black border with white crop marks… will print (of course) white….
Now, go to the Channels pallet and pull down the menu, select >split channels and click..
The result will be four separate images named:  cyan, magenta, yellow, and black…. Be sure to add the color names to the images using the type tool….. very important…

Of course…  At this time, I digress, the calibration of your paper negative to printing paper becomes important….  Oh, didn't prepare a calibration?  Well, here is my way, in a nutshell, as the whole thing is long…  Please ignore the next 2 pages if you know how to adjust your images to make a good digital neg…. use your technique; please….what we are trying to do is make four identical printing negs….

Some notes on the making of digital negatives.... or, Kimball's method...

First, my equipment... I use adobe Photoshop 7.0, a Mac G4, and an Epson 1160 printer with mediastreet.com enhanced inks ..... But, almost any printer computer combination will work if it will make good prints.... leaving out printers like Lexmark and Canon for the most part...

Secondly, I use a translucent printing sheet, Amazon photo film (Kelly paper company in the US) or mediastreet.com white polyester.... I feel the translucent sheet has a number of advantages over the very popular pictorico transparent material.... number one, it dries instantly... and will take a lot of abuse without damage...number two, it is very easy to read the neg....and, I print all black images, not colored ones... this is very important if you are using variable contrast paper.... but, this method should work with any paper or film...

First and most important... find out what range of tones your paper will print....to do this, I use a simple step wedge like Kodak's old 14 step thing shown here:



Note that I have added a zero box...... you can make your own scale in Photoshop really easily... just use the fill command and make a series of boxes... the exact values are not important, but if you use the fill % command, it should be easy to make at least 15 steps from white to full black, put a mark in the 50% box for reference...

Next, pick the paper negative materials you plan to use and make ink jet prints of the test wedge on each one...depending on your printer, it might be best to print this in black ink only... just remember that this will become the standard for all your paper negs..(some printers won't make a solid enough black in which case you need RGB...)

Now, to the darkroom, step two...you can test all the printing papers you normally use in this step, just make sure to take careful notes... use number 2 grade or a number 2 filter for this test and expose for a normal print, that is, try to get the 50% grey step in the middle of your test strip... all the scale will probably not print. if it does, you need to make a more dense "negative"... increase the contrast and make another one...it should look something like this:



IMPORTANT NOTE: record the f stop and the exposure time as well as the distance of the light source....you need this to make prints later...this is your "standard set up" so make sure the lighted area is as large as your largest planned paper neg...

Now, open the step wedge image on your computer. Look at the test print and determine where the high and low (white and black) end points are.   Then, use the "info" pallet of Photoshop determine the K value of the lightest and darkest steps that printed.... these will become the density limits for your paper negs expressed as a percentage of black...in my recent work, using Bromoprint #2, the end points were 12% and 80%. These numbers now represent the compression of the paper...(but not the bromoil process. If one is obsessed by accuracy, I suppose the correct way would be to bleach and ink all the tests....that's not me...) and will define the limits of your "perfect" neg.....

What this means, is that you will be able to make a digital neg that prints all the tones on your favorite paper, if you use your "standard set up".... Easy, now, let's apply this to the separations...

For this demonstration, I grouped all four images on a single 10x13 sheet in Photoshop so I could print them the same, bleach them the same, and then cut and ink them with abandon...  the grouped negs looked something like this...
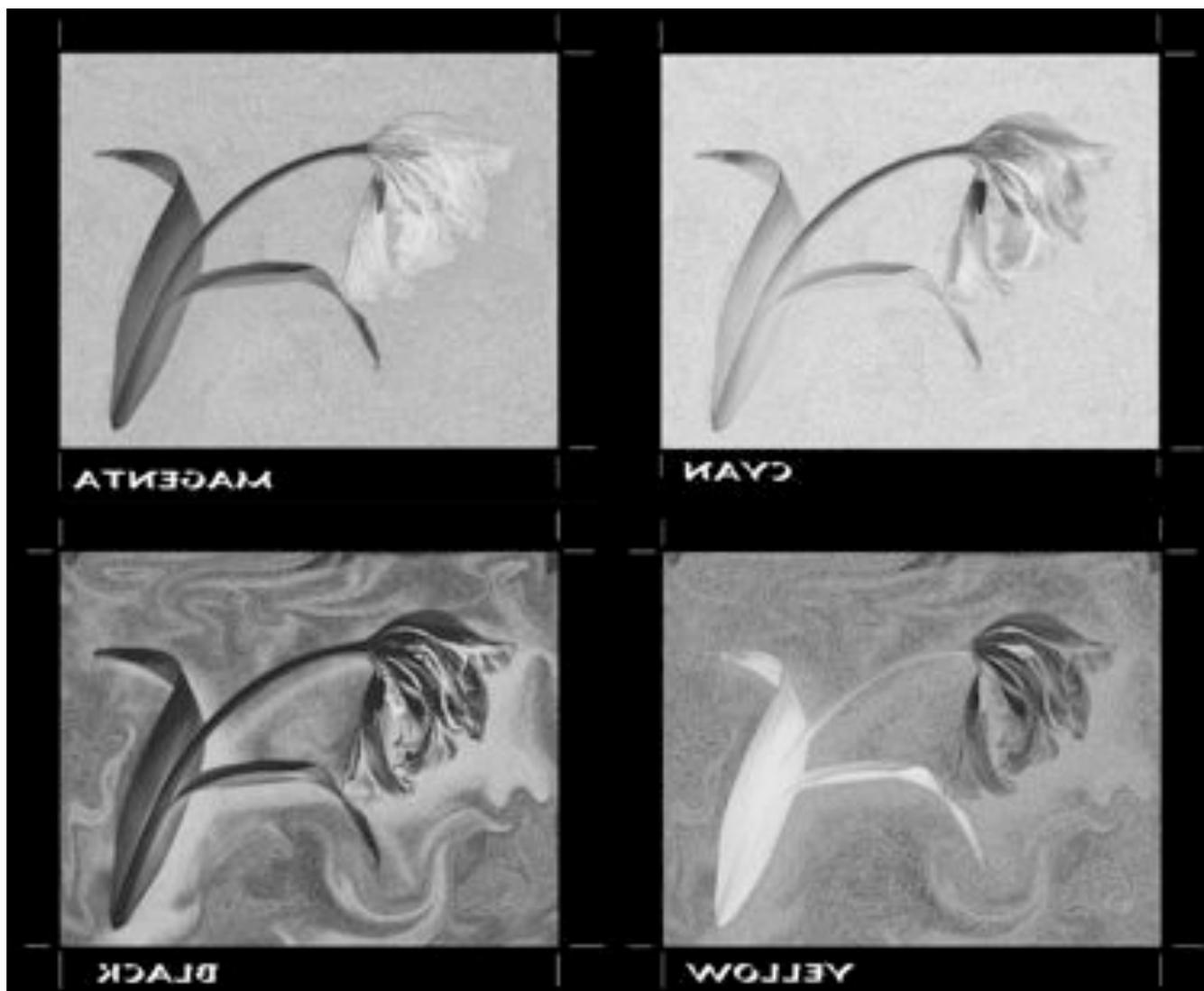


Oh yes, don't forget to flop the images in this step....  One other item of note, that is the black image is not the image from the channel split.  It might work for some things, but I like more meat in the black, preferring to adjust the inking... so, I substituted a reverse grayscale from the original image...  the black neg from the channel separation step is often too thin for our use... use your own judgment and trial on this...I also

applied the standard set up to each negative, that is, set the high and low density on each negative to my standard value.  Use only the output levels slider in the levels command in Photoshop.  A caveat here:  I am aware that this is not the most exact way to get where we want to go, but given the amount of work in the process itself, I looked for a shortcut... if you have a personal method, again, use it...  the resulting histogram will have blanks on each end, not fully black or white...

Now, make some  prints:



CYAN



MAGENTA



YELLOW



BLACK
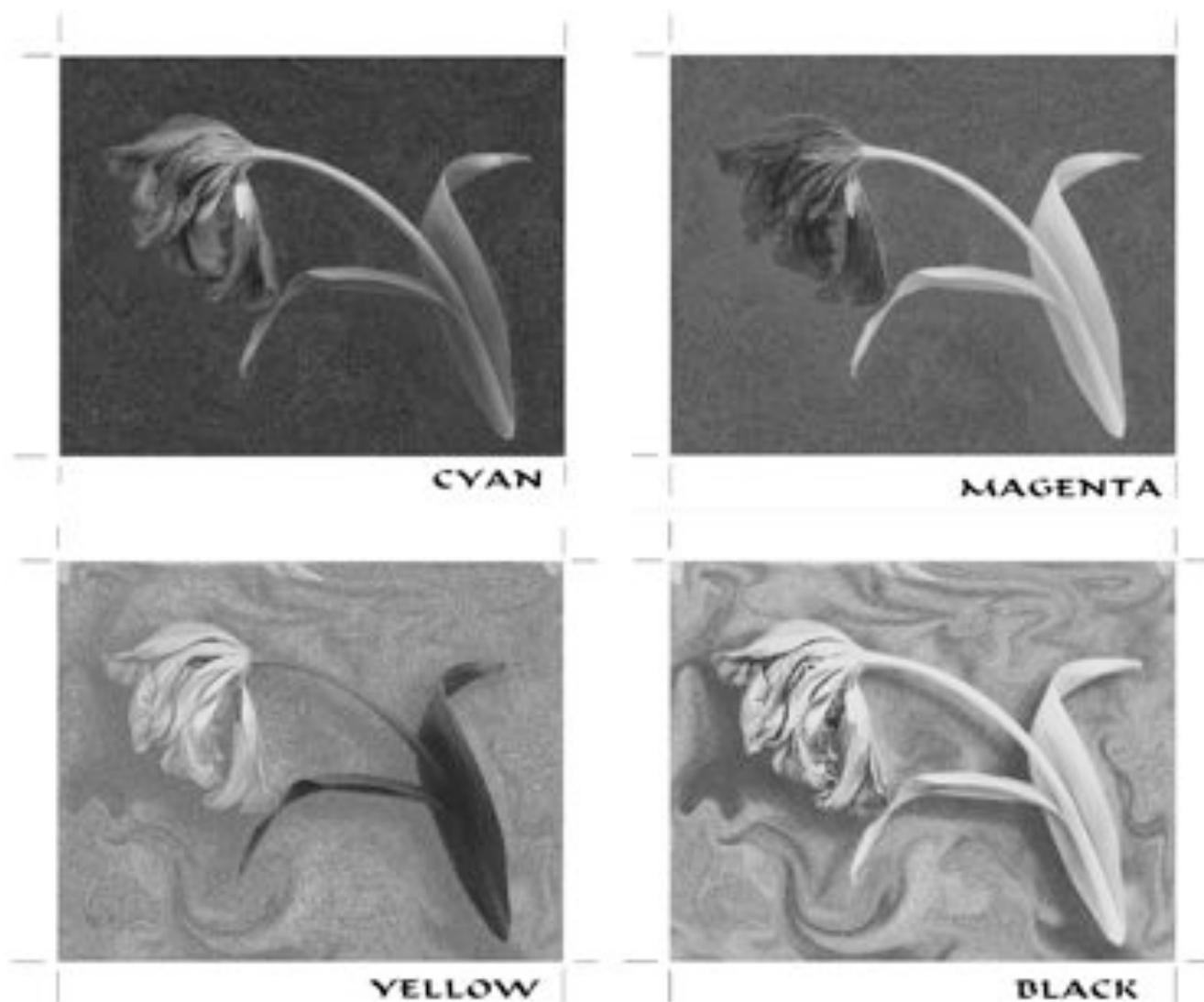
Make several, and dry them…. It's sad to have a single color fail at the last minute…

Next, flatten each sheet and make small knife cuts through the paper along the crop marks, or use any other method you can think of to retain the alignment of the images...when you bleach these, the lines are invisible!!!  Bleach each and all exactly the same way, I use fresh bleach for each print, although I have made perfect images with old bleach... whatever suits your usual style, remember, you will have to make four good transfers in four different colors, using four different inks...  don't panic... it can be done...  here is what the individual inked prints look like...



You can see that the yellow is very hard to read.  And note that I have inked the black lightly; you don't need a solid, just a fill.

The next thing to do is make the print; don't forget to make the registration marks! I start with the cyan image. The progressive image looks like this:



First cyan, then the magenta, then yellow... lastly just a little black.

(these are actual scanned prints)

I wipe the crop marks off before printing...or tape them out is better...here is the final image, nothing much like the original, but for using an old wooden roller mangle from Sweden, not bad maybe...

tulip, bowing

A last word, the inks... I prefer to use light fast inks, which precludes using standard process litho inks that are NOT lightfast.  I use inks from Daniel Smith in Seattle, picking as close to process colors as possible.  For cyan, I use the Mediterranean blue block printing ink, although that might not be available right now.  If it isn't, I have no substitute in mind.  The cyan etching ink is a good color, but I find it unsuited to bromoil.  All of the pthalo blues are too red, which will confuse things if you are trying to make good accurate color.  For magenta, the best choice is quinacridone red in the litho ink series.  Hansa yellow medium is a very pure and stable yellow, available in the block printing series and also available in the litho ink series.

This is a lot of talk, but I hope at least someone will give it a try....  Again, maybe with some luck I will be able to demonstrate the process at a coming fest...  seems like I started talking about it 5 years ago... sorry...  have a great hopperfest.   Chuck and Nan