



# Plate Blending as Poetry

In brilliantly colored images, detail in the weakest ink—the unwanted color—is critical. If you don't have it, build it.

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By Dan Margulis

**E**mily Dickinson, the 19th century American poet, was a keen observer of matters of color. She should, in fact, be required reading for certain of today's theorists.

Although not a Photoshop user herself, she was able to put her finger on many an issue that still plagues us. The image at upper right of this page is a romantic icon, and many of us have to reproduce this kind of thing over and over again.

Most of the time, that reproduction is—well, I'd better leave the description to Dickinson:

*It tried to be a Rose  
And failed—and all the Summer  
laughed.*

\* \* \*

Since our clients may not be so easily amused, it behooves us to do some technical analysis. I haven't seen the particular flower that Dickinson was referring to, of course. But I can tell you what its problem was. It had a lousy cyan plate, just like the image at the top of this page does. The operator should have blended channels to get a better one.

How can I be so certain? Because that's how it is with red roses, and that's how it is with the large majority of brilliant objects. The weakest ink is the key to detail. And to understand why things work that way, one might start with the following:

*Nature rarer uses Yellow  
Than another Hue.  
Saves she all of that for Sunsets  
Prodigal of Blue.  
Spending Scarlet, like a Woman  
Yellow she affords  
Only scantily and selectly,  
Like a Lover's Words.*

This isn't bad poetry, but as color theory it leaves a lot to be desired. The exigencies of rhyme got the better of the facts. Understandably reluctant to commence hostilities with

*Nature rarely ladles Yellow  
Out of a Tureen,*

the poet found herself obliged to declare Nature prodigal of the wrong color. I cannot continue the rewrite: the business about spending scarlet is far too politically incorrect for the editor to permit me to leave it in. I have thought, instead, about comparing the way nature is with red to how calibrationists expend time and money on color management solutions that don't work, but I've had some little difficulty coming up with lines that scan.

I would, however, end the poem thusly:

*Chorus'd Nature, chanting Yellow,  
Sings with more élan  
Than Progeny of Press atonal  
Magenta and Cyan.*

## But Graphicker for Grace

Before you decide that poets should stick to poetry and Photoshop authors to Photoshop, let's cut Emily Dickinson a break. She didn't know that the front end of her verse was incorrect, because she thought in the color terms some of us learned in school under the acronymous name Roy G. Biv: Red, Orange, Yellow, Green, Blue, Indigo, Violet. I don't know that there has been a lot of research done on this point, but my impression is that, of these seven hues, Dickinson is correct, Nature uses yellow the least.

Today, we have buried Mr. Biv and are more inclined to think in terms of CGYRMB, a perfect color circle. In this model, red falls midway between yel-

low and magenta, magenta is midway between red and blue, and so on.

One might think that there would be no reason to think that any one of these six colors would be used more than another, but a quick check of the works of God and Man demonstrates how silly that view is. Red, green, and blue objects are far more common in nature than the other three. Bananas and other yellow objects exist, but they aren't that common. Bubble gum is magenta, and certain Caribbean waters are cyan, but outside of these I am hard put to come up with anything else that is magenta or cyan. And yet you could name literally hundreds of things that are red, green, or blue.

An interesting exercise is to walk down the street and record the color of clothes that passersby wear. I've tried this, and have found ratios of anywhere from four to ten to one in favor of RGB colors as opposed to CMY.

The point of all this poetry and palaver? Simply this. In the images you work with, you are far, far more likely to be working with red, green, and blue objects than cyan, magenta, and yellow ones.

To translate this into prepress language: it is extremely likely that the objects we work with will have two strong inks and one weak one, as opposed to one strong and two weak ones. It is that weak one, and how to exploit it, which is the focus of this column and the next. This time, I'll focus on images that have brilliant colors, like the rose. Next time, we'll consider more subtle maneuvering in more subtle colors, including some interesting ways of improving the detail in faces,

which are, after all, the same basic hue as a rose, and thus have the same weak ink.

## The cavalry of woe

CMYK, in addition to being a cockeyed colorspace, is a backwards one. Instead of choosing inks based on their positive capabilities, they have been selected for what they do *not* do. Magenta does not reflect green light; yellow does not reflect blue; cyan does not reflect red.

From this, it is not too much of a stretch to realize that much of the color correction we do is topsyturvy: that to be effective, we have to think in color terms that are the opposite of what one might expect. When we deal with reds, we should be thinking cyan; when doing greens, magenta; and when portraying blues, yellow.

This is the religion of the *unwanted color*—the color that is the odd man out.

Because the unwanted color is so proficient at poisoning what would otherwise be a bright, clean look, it has a special importance in making an image seem lifelike. The unwanted color, even in slight quantities, is what gives an image depth.

When there are clearly two colors dominating, the unwanted color is so potent in neutralizing them that adding it is almost like adding black.

The unwanted color, however, is not quite such a blunt instrument. Also, a much bigger range, and thus a better shape, can be engineered into the unwanted color than into either the two dominants or the black.

Best of all, the unwanted color is easy to adjust—or, if need be, to create. The two dominant inks must be kept carefully balanced, otherwise areas of the flower will start to get too yellow or too magenta. But it will take an enormous move in the cyan

before this rose goes to something other than a shade of red. Much can be hidden in the unwanted color, and part of the normal technique of working with roses should be calling up the cyan and seeing what improvements can be made.

As I discussed in two columns earlier this year (“Sharpening With a Stiletto” and “Hit-tin’ ’Em Where They Ain’t”, February and April, 1998) these improvements often include more unsharp masking than is applied to the rest of the file. Notice how harsh the magenta at bottom left seems by itself, and yet the corrected color image does not seem oversharpened.

To sum up, when trying to improve sky, the professional thinks of yellow first. To correct roses (and faces), we concentrate on cyan, and for plants and other greenery we focus on magenta.

## The berry’s cheek is plumper

When everything is brilliant, nothing is brilliant. Plate blending to enhance contrast in the unwanted color is often needed when there are large areas of intense color.

There are two main reasons this maneuver is so important. First, the human observer always tries to break apart similar colors, whereas a camera does not; therefore, humans perceive much more variation in the color of fruit than is going to be captured on film. Since our job is to remind the eventual viewer of the original subject, not what the photographer captured, we have to try to restore some of this color variation, and applying curves and sharpening alone may not do it.

Second, we want our bright objects to look three-dimensional, not like flat blobs. The second lime at left is a lot *rounder* than the one above it. The reason is, the purer the color, the closer it seems to us. The more it tends toward gray, the further away it goes.

At the brightest spot in the center, these two limes are almost identical in color. The difference is at the edges. There, the second version is more gray, the top more green. The grayer edges recede into the background, fooling us into thinking we are seeing rounder fruit.

And, not to beat a dead horse, when we have a dominant red, green, or blue object,

**In brightly colored objects, the unwanted color is the key to contrast. The two color images at left have identical cyan, yellow, and black plates. The two magenta plates that make the difference are shown at bottom.**

the way to turn parts of it gray is with its enemy, with its opponent, with the ink that is specifically designed to contaminate, poison, depurify, confound, distress, and distraint it, to wit, the unwanted color.

Once having concluded that this lime needs a magenta plate like the one at bottom left, the question is how to get there from the version above it. The answer is, you don't. The original is simply too flat. Curving it won't help, at least it won't help as much as we need.

Accordingly, we need to seek assistance elsewhere. At right, the most convenient choices. The maxed-out yellow (not shown) is plainly unsuitable. The cyan is pretty flat as well, although it does have a well-pronounced hot spot in the middle. And the black? Well, at first blush it seems as flat as the magenta, but it isn't. This black is like the photographer who only knows how to correct using Photoshop's Brightness/Contrast command. It isn't good for much right now, but, by gosh, there's potential.

The first order of business is to get a copy of the aforesaid black channel so that we can play with it. This is done by exposing the channel, Select All (Command-A); Copy (Command-C); New document (Command-N, which automatically opens a document to the same size as what we have just copied); Paste (Command-V); drop down one layer (Command-E).

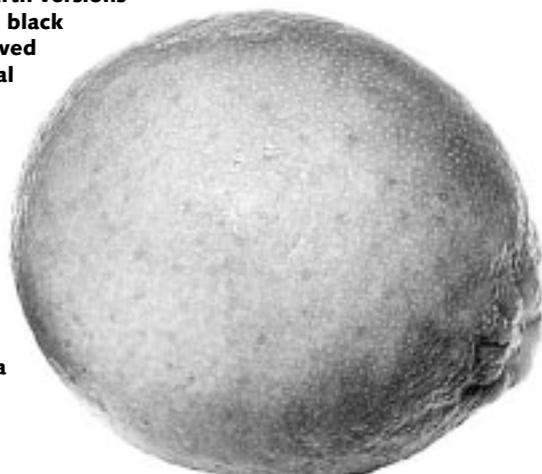
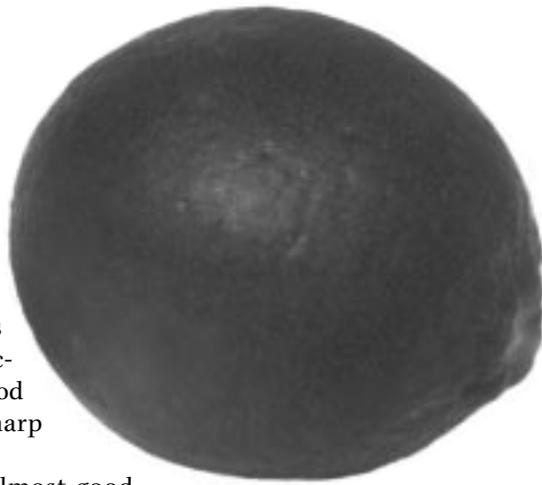
The result of all this alphabet soup is a grayscale document that is divorced from the

original, meaning we can smash it all to pieces if we like.

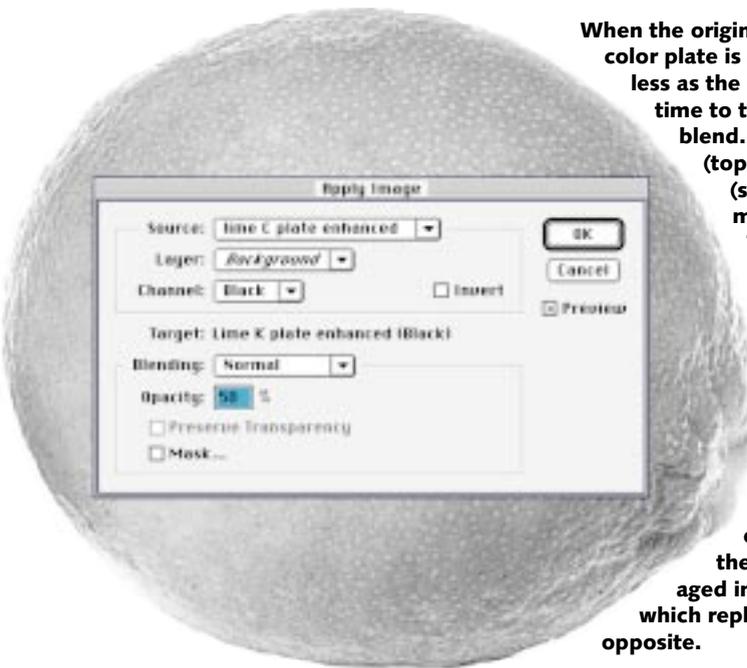
But there is no need for such violence. Instead, what we want to do is increase contrast in the fruit. We create a curve that is as steep as possible in the area occupied by the lime. And for good measure, we apply some unsharp masking afterwards.

This souped-up model is almost good enough to replace the original magenta plate, but as a matter of good form I think we should try doing a second separate document using the original cyan plate. The progress of this entire procedure is shown below. Notice how the version based on the cyan has been lightened, to be closer to the tonality of the original magenta.

Each one of these high-contrast B/Ws has its merits. The one based on the black channel is more detailed. The one based on the cyan has more weight on the sides. Personally, I vote to blend them. This is done as follows. We arbitrarily pick one of the two as the target image, and, with that one active, Image: Apply Image. Up comes the dialog box shown below. We now specify that the source is the other image, and pick an opacity. Here, for the sake of



**When the original unwanted color plate is as flat and lifeless as the one opposite, it's time to think about a blend. The cyan plate (top right) and the black (second from top) are much better starting points. The third and fourth versions are the cyan and black again, but removed from the original image, enhanced with curves and sharpened. Then, using Photoshop's Apply Image command (left) the two are averaged into a single plate, which replaces the magenta opposite.**





simplicity, I've chosen a 50–50 blend.

The time has now come to mix this third grayscale in with the original, unsatisfactory magenta plate. With most images, we'd probably be thinking of a 50–50 blend again, or perhaps even a smaller percentage of the contrasty version. The reason is that in most cases a blend like this will start to throw certain colors off. Here, however, there *are* no other colors, just the lime. So, we opt for a 100–0 mix, a total replacement of the old magenta with the combination that rose phoenix-like from the ashes of the cyan and black.

As with most such blends, the job is not yet done. The new magenta channel is darker everywhere than the old one. We want a rounder lime, not a browner one. To create the illusion that the fruit is still the same color, we need to reduce the magenta in the light spot at center until it matches the original. When it does, the light spots in the two versions will be an identical green. Since we tend to judge the color of an object based on its lightest area, that should take care of the problem. So, a quick move of the lower left portion of the magenta curve to the right, and we're home.

### Give the one in red cravat

Our last demonstration of the contrarian school of color correction is shown at left. At first glance, it isn't much like the other images in this column, which tend toward blazing exhibitions of a single color. Here, 90 percent of the image—the door and the woman's flesh and hair—is fairly subdued. The dress, however, is brilliant red, and when we see brilliant reds we must instinctively look to the cyan plate.

The extra bite in the door comes from moves in the L chan-

nel of LAB. But LAB techniques won't put folds in the dress. And without those folds, the dress looks like it's painted on.

This seems like just another version of the lime, or of the rose, which gets a proper cyan plate (but no other change) opposite. But this one is not so easy. The rose was essentially *all* red and the lime was all green. The current image is neither. Unfortunately, this means that if we start blending into the cyan plate generally the background door is apt to turn a very weird color.

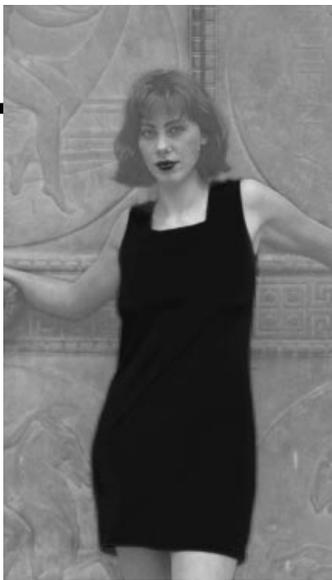
There's nothing for it but to make a selection, and blend into that. First, a quick examination of the channels verifies the problem. The cyan is terrible. The magenta is totally solid. The yellow is serviceable and is the obvious blending choice.

I've used this image in my classes, and have been astounded to see professional retouchers who are insightful enough to realize that such an unorthodox maneuver is necessary, yet so orthodox in their ways that they take half an hour to create the necessary selection mask.

Here there is no need to spend any time at all. Just look at the magenta plate in Figure 5.14. One can hardly ask for a more decisive distinction between dress and background. All one has to do is hit the dress with the magic wand tool, and presto, a perfect selection. I feathered it one pixel from force of habit, but this is not really necessary.

Now, with the dress still selected, flip to the cyan channel, and apply the yellow channel to it. This will leave the background unaffected, of course. I used 50% opacity.

As happened also with the lime, this blend leaves the cyan channel temporarily too dark. Therefore, with the dress still selected, I applied a curve that



The image at bottom left is corrected overall, but a plate blend was still needed for the shape of the dress. Bottom right: the original cyan plate. Above, left to right, the steps to correct it: the original magenta; the original yellow; with the dress selected, the yellow pasted into the cyan at 50% opacity; with the dress still selected, a curve is applied to lighten and add contrast.

brought the minimum cyan value down to what it was before the blend. I left the curve relatively steep so as to retain the shape of the folds.

### Inebriate of air am I

The professional retoucher thinks in reverse. When we see a color that dominates the image, we should not be dazzled into believing that that is the one we must attack. Instead, we should be more subtle, devoting our energies to courting the color that is prominent by its absence—unwanted, perhaps, but not unnecessary, not unloved.

The language of color is indeed the language of poetry, and often those with a poetic bent see things that scientists cannot. The idea that yellow is less common than the additive primaries in nature is counterintuitive, but nevertheless quite correct. Many of the problems with the failed calibrationist solutions discussed in Chapter 2 came because their authors did not realize certain facts about color that were obvious to, say, Leonardo da Vinci.

Or Emily Dickinson, for that matter. How often I have been attacked, over these past few years, for saying that photographs taken in dark conditions generally need to be lightened even when the photographer has already attempted to compensate. Match the art! say the scoffers. What gives you the right to think that an observer would see it differently than the camera?

A voice from 1862 answers them:  
*We grow accustomed to the Dark  
 When Light is put away.  
 As when the Neighbor holds the Lamp  
 To witness her Goodbye.  
 A moment—we uncertain step  
 For newness of the Night,*

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*Then fit our Vision to the Dark  
 And meet the Road erect.*

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For all the instincts of the true poet, certain things come only with time. Appreciation of the importance of the unwanted color is one of them. For now, we should just firmly resolve that all strongly colored red, green, and blue objects: flowers, fruits, faces, whatever—shall always have shapely unwanted-color channels in our work. In arranging this, we avoid the following misconception, the fruit of inexperience:

*The good Will of a Flower  
 The Man who would possess  
 Must first present  
 Certificate  
 Of minted Holiness*

Phooey. The above is a crock. You want good flowers, you don't need any certificate. You need a good unwanted color. The certificate, plus the other three channels, plus a dollar and a half, gets you on the subway.

