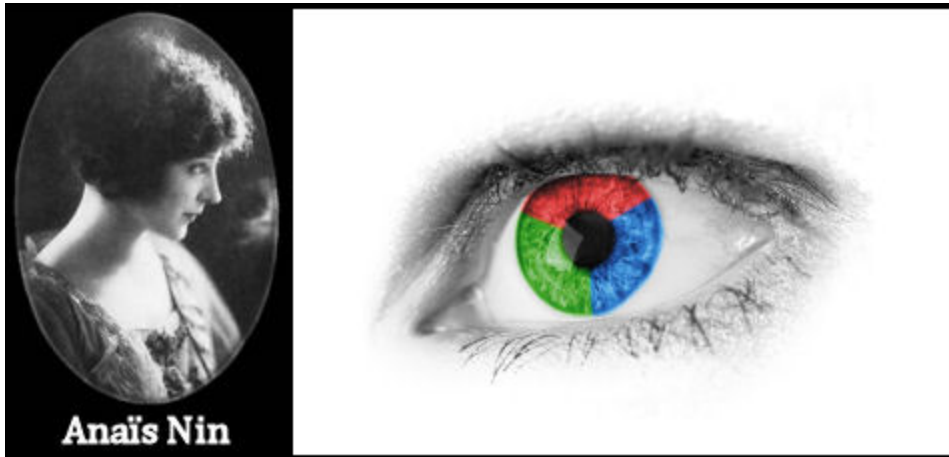


The wider theme behind this book

by George Machen



“We don’t see things as they are, we see them as we are.”

– Anaïs Nin, “Seduction of the Minotaur,”  
1961, referencing the Talmudic tractate  
Berakhot (55b)

“There’s more to the picture  
Than what meets the eye.”

– Neil Young, “Hey Hey, My My (Out Of The  
Blue),” Rust Never Sleeps

“My high-falutin’ camera precisely captures the real scene-in-itself. But I can fix that in Photoshop.”

— George Machen

There is wider theme behind this book. It is to impart into a photo’s scene with post-processing the natural appearance as would be seen or remembered by someone standing in the place of the camera. Dan Margulis peppers this theme of emulating the appearance of human perception throughout all of his books, but I say that it can’t be emphasized and expanded enough. LAB figures prominently into coaxing almost fine art out of what now can take no more time and cost no more than the traditional workflow—with Dan’s modern Photoshop natural appearance, rapid corrections color workflow.

I came out of a trade shop during the early 1990s, for which a former pressman and I supervised the prepress department's conversion from conventional methods of color separation involving mechanicals, artboards, stripping tables, dot etching, vacuum frames, and process cameras—to electronic prepress with Macintosh computers, drum scanner, and imagesetters. My printing press journeyman partner and the film strippers taught me the prepress, and I trained them in applying their career-long skills to the new ways of the computer, incorporating Photoshop, QuarkXPress, FreeHand, Illustrator, electronic trapping, imposition, etc. It was all CMYK back then, and Dan's early articles and books came in very handy; my favorite tips concerned tricked-up black printing plates. More recently I've passed over to design firm and photo studio color correction, where RGB reigns. At the end of this essay, I will describe my current thoughts on trying to bring Dan's new methods to these kinds of firms.

Over a generation ago, it used to be, “Match the art, please.”

Whereupon the prepress trade shop’s quarter-million dollar drum scanner operator would reply, “Of course, we’ll be happy to write-up this job as ‘match the transparency’ for you,” while giving a knowing look and wink at his colleagues, then promptly proceed not to match the art, but instead to match the **appearance** of the art: applying tone curves, opening the range, attacking color casts, reallocating placement of the highlight and shadow, horse-trading contrast—boosting it here, reducing it there, selectively sharpening, and otherwise markedly departing from the literal art as captured by the camera.

And why not? No matter how professionally-well the photographer took the shot, had the scanner operator not moved away from the art, the job would have been summarily rejected by

the client as: colors too “muddy,” image too “flat,” “insufficient emphasis” on the significant object in the image, “unnatural,” needing more “snap,” “dull color,” overall weight of image not what was expected, lack of detail, saturated colors as blobs with no features, *etc.*

Why not, indeed, move away from the art? The brutal reality is that one cannot “match the art” because the camera in the first place cannot “match the scene” as would be perceived by a human standing in the same position. What a person directly and palpably would see is all-important, and is what makes the best impression. It’s not “scene-referred” that counts (as asserted by color management consultants), but rather *seen*-referred!

What the camera inherently lacks—and what must at least partially be made up for in post—are the human perceptual phenomena of *simultaneous contrast* and *chromatic adaptation*, among others. Such aspects of the

human visual-perceptual system evolved over eons, as mechanisms for fostering sheer survival—foraging, hunting, spotting predators, *etc.*

- Simultaneous contrast causes us to intensify tonality and break apart similar colors of foreground objects, to differentiate them from the background.
- Chromatic adaptation causes us to desaturate and neutralize the surrounding lighting.

Observed subjects of interest acquire increased detail at the expense of their periphery. For example, we forcibly visualize a wider variety of blues looking out at the sea, or perceptively coerce finer distinctions in greens and browns when observing the forest.

Whereas a camera records color equally throughout an image, people's color apprehensions of non-significant background regions diminish, as significant foreground

areas concurrently get augmented color brilliance. Whereas a camera delivers uniform contrast, an individual actively enhances contrast and detail in areas of focus, while the background becomes de-emphasized, desaturated, indistinct, and less colorful. These occurrences are instances of the the effects of simultaneous contrast.

While an objectionable color cast duly is portrayed by a camera, humans largely don't see it in person, or at least don't remember seeing most of it. While a computer display of photographs can get color hues pretty well, all the color management in the world cannot prevent human perceptual overstatement of shadow detail and understatement of highlight detail, or prevent the disappearance of color casts in near-neutral areas, but all rudely will appear in print. These booby-traps and shortcomings of computer monitors are chromatic adaptation insidiously at work.

Consequently, every photographic scene must boldly be corrected in order to to simulate human perception and appear more natural:

- Stretch to maximum the overall range from light to dark.
- Intelligently reassign the shadow and highlight to that of the particular image's *significant* subject matter, letting non-interest areas fall to the wayside.
- Bring out shadow and highlight detail (contrast masking).
- Increase global contrast.
- Enhance local area contrast (shaping or modeling of feature tone and of color shade/tint).
- Embellish variations within areas of similar colors, break colors apart; increase saturation and brilliance strongly in foreground, reduce it in background.
- Remove color casts, restore “memory colors” (foliage greens, flesh tones, blues of sky and water).

- Darken near-neutrals in the quartertone-to-midtone range, but boost colors in that range, too, then apply a tapered desaturation to more bland colors.
- Neutralize shadows. (These last two steps not only often foster a three-dimensional appearance, but also go a long way toward preventing that surreal, over-saturated “HDR look” that I abhor so much.)
- Sharpen important subjects, perhaps ignore or even de-emphasize unimportant background objects.

There are a number of other perceptual phenomena that can be emulated with post-processing, but space prohibits elaborating them here, so I focused on perhaps the two most important, simultaneous contrast and chromatic adaptation. You’ll need to read this entire book, as well as Dan’s other books, to learn of others, and more and more are coming down the pike as new research into human

perception and Photoshop techniques to implement their appearance become available.

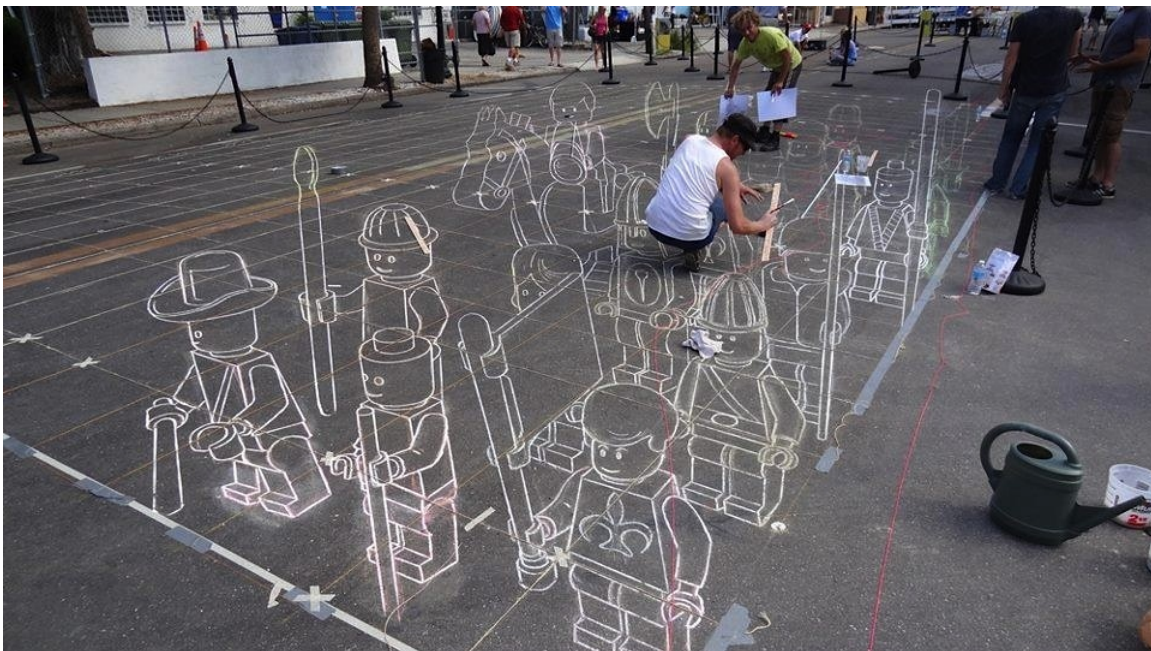
Unlike *amending*-type retouching, which explicitly refashions the content and context of the art such as changing the color of a fabric, moving away from the art with *emending*-type color correction, paradoxically, actually more closely converges on the *meaning* of the art. In short, the latter such post-processing means making an image look *better*.

These techniques are new only to contemporary image processing professionals. But among the great classical painters, Brunelleschi, Donatello, and Botticelli used their equivalents centuries before the invention of the camera which forsakes natural appearance. For example, El Greco used saturated colors of opposing hues to increase apparent dynamic range in a scene. Additionally, he painted black or white lines around the edges of contours, reflecting our eyes' determination of contrast

locally, so increasing the contrast at local edges in his artwork elevated our overall perceived contrast of the scene. Leonardo da Vinci brought to painting the first application of simultaneous contrast, as well as exploiting the thesis of neutralization of shadow areas in human perception by rendering it on canvas. Michelangelo was an early innovator of what we today call local contrast enhancement (*chiaroscuro*) by molding shape and modeling into his paintings—lightening and darkening regions surrounding the proximity of edges—to make his scenes look organic.

When post-processing makes an image's insignificant objects less colorful and thus abate into the background, it imparts an attractive three-dimensional illusion of depth in print. Even more, globally desaturating colors as they deepen toward the shadow areas, while boosting saturation reaching shallow lighter tonality further broadens apparent depth. We want to neutralize shadows, because saturated

colors in shadows look unnatural. And especially the quartertones we want darker, filled-in and more vivid and colorful, because human eyes are more accepting of strong colors there. All of these manipulations taken together trigger visual-perceptual cues, accounting for us “buying-in” to the post-processing enhancements as expressing a more natural appearance. For example, observe how these images profoundly induce your perception to make the figures jump out of a photo that your reason tells you is really just two-dimensional and flat:





The white chalk line art photo illustrates the power of edge enhancement and sharpening, and the color photo reflects local color variation enrichment and hiraloom.

Although one can correct the heck out of pictures, there is nothing better than a great shot made on site. Post-processing must be applied with finesse; a heavier hand becomes

noticeable and detracts from final quality. Nevertheless, aggressive post-processing is essential—but inasmuch as going too far generates noticeable artifacts, “aggressive” must mean only a little bit each of an assortment of techniques, that altogether coalesce into a well-nigh undetectable yet still pronounced natural improvement.

Color correction in post should not be confused with color management. There is a certain contention between the two disciplines. Color management is concerned with (aspiring to) making things look *alike*, such as a printout and a computer screen. Post-processing, on the other hand, is concerned with making things look *differently*, such as a flat, limited-range camera image versus a corrected photo more closely resembling human perception. An *instrument-measured colorimetric* agreement often isn't a *human perceptual* agreement: object colors are perceived *in context*—they often can take on different apparent shades and

hues when placed beside different objects.  
Color management is about matching the art.  
Color correction is about departing from the art.

Inasmuch as it's an old, tired story to come up with doctored images, carefully calculated to show arguments deceptively in the best light, the before and after images in this book are illustrative only. You are encouraged to supply your own images for this new kind of correction, ones that you think are already fine just as they are, so it can be driven home just how much improvement is possible with the color correction methods in this book, not only on poor shots, but indeed even on your very best award-winning photography!

In short:

- Cameras don't capture scenes as humans see them.
- Aggressive image post-processing is mission-critical to competitive and lucrative commercial photography: photos

post-processed to appear more natural—as a human would perceive things standing in the place of the camera—can make or break a firm’s competitive edge.

- Digital cameras, both when “shooting JPEG” and when accepting raw developer factory defaults, often blow out highlights, plug shadows, introduce non-uniform color cross-casts, set inappropriate white and black points, and obliterate detail in bright saturated colors.
- There exist post-processing procedures relatively new, some only a few years old, with Dan’s radical new rapid corrections/natural appearance workflow, whose steps pertaining to LAB are covered in this book, first appearing in 2008, and more procedures over the horizon.

Now a word about how LAB figures into the sundry raw converters. It *doesn’t*. One can make images look better with raw developer adjustments, but just because a correction looks better doesn’t mean it’s a good

correction—if the image does not also appear more realistic. At present, most raw converters' basic artisan tools (including those of the latest Adobe Camera Raw), despite the bloated proliferation of other features foisted by marketing departments, presently are primitive compared to their Photoshop counterparts. This sad state of affairs may persist for the immediate future due to the failure of the programmer engineers to grasp the significance of professional color correction techniques used in the trenches. (It took Adobe *ten years* even to support channel curves in Camera Raw!) The popular raw converters are primitive and insufficient because:

- Many adjustment sliders in raw converter modules naïvely make the same move in all three channels, which the content in each by itself often dictates a separate, different move than in the other channels, degrading the image compared to results of individual channel corrections.

- No layers, blend modes or layer masks.  
The absence of these three alone makes contemporary raw developers utterly inadequate for most serious corrections geared toward conveying natural appearance as presented in this book. (Adobe Camera Raw/Lightroom’s adjustment brush doesn’t cut it!)
- No ability for “by the numbers” exposure and white balance, thereby forcing reliance on looking at the monitor with attendant chromatic adaptation that neutralizes weak casts, thereby misleading the operator.
- White balance adjustments often affect tonality along with color cast, complicating subsequent corrections—some of which that moreover otherwise would be unnecessary.
- And above all, no LAB editing mode, without which problems with many techniques shown in this book for emulating the appearance of human perception would be almost insurmountable.

– The only raw converters of which I am aware that suffer some of these shortcomings the least are Iridient Digital's Iridient Developer (formerly RAW Developer) and Phase One's Capture One Pro. But even then, until Photoshop's only most *basic* tools get folded-in to the various raw converter pipelines, there simply is no substitute for Photoshop LAB color.

And finally, what are the prospects of getting these new color correction methods adopted out in the field? Yes, many unsophisticated clients wouldn't know the superiority of the fruits of this workflow when they see it in isolation, and say they don't care, but in my experience if you put before/after images side-by-side in front of them, they'll perk-up, express preference, and want the version enhanced to emulate human perception. They can see that it will help their bottom line. They want better color; they just don't want to pay for it. So they go with only good enough. But the rapid corrections of this

workflow now make it possible to have one's cake and eat it, too.

Alas, the acceptance of any truly good idea requires shoving it down people's throats, especially in the printing press industry. The photo studio business isn't quite as bad, but I've experienced some frustration attempting to bring Dan's methods to my local firms, with resistance from the color man despite the obvious superiority of the visible results right before their eyes—because it threatens the *status quo*, or she might actually have to learn something new, or *something*. So I've about decided that the best way is to go straight to the owner and pitch this workflow as allowing the company to offer a breakthrough product surpassing the quality of what everybody else has. I'd try to convince the owner that in a sales meeting she should plop-down some before/after images enhanced for natural appearance by Dan's workflow and ask whether her head salesman thinks she can steal

business away from the competition with them. Propose that they grab some of their competitors' own images and cold-call their customers with this workflow's improvements, side-by-side with the comparative mediocrity they've been getting.... Deployment of Dan's modern Photoshop color workflow, along with the LAB procedures it comprises, evidently will have to be mandated from the top at many photo studios.