

Foreword

by DAN MARGULIS



Who are you?

That you are reading these words suggests that you work with or are a lover of color. You could be a designer, a photographer, an architect, a product-identity specialist, an interior decorator, a retoucher, a painter, or merely an admirer of beautiful things. If you are any of these, or a student of the history of science, or of art, or of the development of human knowledge, you are likely to have heard of this book, and one way or another have almost certainly been affected by it.

What is this book?

Its backbone is the most influential work on color ever produced. Its author was a French chemist who had been dragged into the color world in his middle age, made certain discoveries, and developed a unified theory of color usage across all art forms. He had published some information earlier, but this book made its debut in Paris in 1839. An English translation appeared in 1854 and has been considered woeful since; a contemporary review that you'll read next describes it as "awkward, inelegant, often barbarous in style, and sometimes quite unintelligible." Yet it remained the only one available in book form until now, even though the currently marketed edition deletes about a third of the text.

The French original, however, is not much clearer, because the technology of the time did not permit an editing process that we would take for granted today. The version you are about to read corrects obvious deficiencies in style and exposition.

Also, a book like this one desperately needs color graphics. Technology and cost prevented the original author from including more than a few primitive attempts. This new edition has the kind of images that he would have wished to include.

The text occasionally either discusses obsolete technologies that nevertheless have ramifications for today, or offers advice that has since been disproven. Either case calls for some modern commentary. How these recommendations were impacted by cultural history, which affects every use of color, also needs attention.

Who was he?

Michel Eugène Chevreul never painted, but he became the inspiration for the entire Impressionist school of painting, the abstract art of the twentieth century, and even a Broadway musical. He never used a computer, but everyone using one to modify photographs is in his debt. He never was an architect, but his views on lighting and decoration became standard. He was not a horticulturist, but his suggestions on which species to plant, and when and where, had a big impact on the design of formal gardens by members of the Arts and Crafts movement in England and elsewhere.

In his spare time, he revolutionized the manufacture of soap and of candles. He also became a leading authority on diabetes, on kidney disease, and on what happens to the human body as it ages.

If he had never entered the color world at all he would therefore still have been one of the leading intellectual lights of the nineteenth century. Plus, he had recently become the technical director of the preeminent artistic venue in France and possibly all Europe, Gobelins, the royal tapestry works. The factory still stands. Gobelins is even a Metro stop.

Born when the human life expectancy was 40 years, he came within five months of reaching 103. He lived through the French Revolution, yet was the first person ever to sit for a photographic interview in a magazine, at age 100, when he was still teaching a full schedule as a professor of chemistry.

Understandably, Chevreul didn't bother to introduce himself in his own foreword: in an age of very expensive books that did not circulate outside of their own country, any potential reader would have already known who he was. As that is not the case today, my own foreword has to come before his.

Who am I?

My field is the correction of existing photographs. But, as I was working in the graphic arts before the age of desktop publishing, I am familiar with most other modern uses of color. I bought into Chevreul more than two decades ago because many of his theories impact my work.

Also: I am a citizen of the world. Work and pleasure has taken me to much of it, and everywhere I find followers who become friends. My French is good enough to translate Chevreul but I am better

in five other languages. I study and am familiar with most Western art forms of the last quarter-millennium.

Drafts of my own technical books get reviewed by a panel of beta readers chosen for their diverse interests. We have our own discussion groups that, among other things, point out such deficiencies as a phrase that can be taken in an unintended way, an outright brain freeze such as writing *lighter* when the meaning is *darker*, unnecessary repetitions, and whole paragraphs that need to be rewritten for clarity. I am painfully aware of how these things creep into drafts. As Chevreul had no opportunity for such feedback, they crept into his *book*. I believe that I can distinguish such sloppinesses (and silently correct them) from where he said what he wanted to but time has proven him wrong, in which case I want to leave the error in but add a comment.

Chevreul and I share an interest in exploring what makes people like one color scheme, or one photograph, or one reproduction, more than another. If you or I prefer a certain version it is natural for us to believe that the rest of the world agrees. And sometimes it does, but sometimes not. Here's Chevreul's take on it, from §831:

The perception of colors is a simple thing for most human beings, who have been doing it from the moment they were born. It is nevertheless, according to some savants, a phenomenon absolutely incapable of positive explanation, because they suppose it depends on the imagination of the individual doing the perceiving. As we cannot read minds, they say, there is no possibility of knowing whether what one person sees in an object is the same as what another would under similar circumstances.

Indeed, we can't know whether anyone else sees exactly the same thing that we do, but we *can* know that certain juxtapositions of colors cause them to have similar perceptions to our own, and we can know that under certain circumstances they will always prefer the version that we also prefer.

We prove this by assembling juries and asking them what they see and what they like. Time and again, Chevreul tells us that he did just that, to verify that his own perceptions weren't atypical. In my own classes I go deeper, with group discussions

that rate alternate versions of images. More often than not there's a clear consensus. After having presided over around twenty thousand such discussions, I have a good idea about which ones *won't* get that consensus, though even today I occasionally get a surprise. At any rate you'll see a lot of alternate-version graphics. I expect, but can't guarantee, you'll usually agree with my assessment of them.

Most examples are photographs but many are paintings, which are often more instructive. I show how Renoir, say, followed Chevreul's advice in a certain work, and what would have happened if he had not.

Some of the prescriptions may seem obvious. Others may seem irrelevant because they discuss art forms rarely seen today. But if you're like me, you'll find nuggets in every chapter. The light bulb flashes; that Chevreul would have used a candle instead no longer means anything, and we slap our foreheads and say, "How can I possibly have been so stupid as to have overlooked this point?"

You have enough to start Chapter 1 right now if you like. Or, read on to hear more about the special character of the book and how this version was produced.

On timelessness

Technological changes, even radical ones, usually don't change basic concepts. Ladies' fashion no longer features bonnets and hoop skirts but the same colors still flatter the same skintones. We can present data in more complex charts than Chevreul could, but his explanation of what colors to use in them still holds.

But what about totally obsolete examples? Interior decoration is still an art form today. Much of what Chevreul says about it still applies—but some of his advice has to do with arranging ornaments in a room that has no electric lighting.

Well, what do you suppose he recommends for that situation? Shouldn't you be able to figure it out, if color is your field?

In the graphic arts, the future belongs to the problem-solver. Assuming that what we know today will be applicable to the challenges of ten years from now is as foolish as it was in Chevreul's time, probably more so. Late in the twentieth century, we all had to adjust to the color needs of the web, and to the workflow of doing everything on the computer.

More recently, we've needed to figure out how to treat color in forensic imaging, interactive e-books, video, 3-D printing, web pages whose response varies with the device that's querying them, large-format printing, radiological and astronomical images, complicated presentation of data through colored charts, printing with inadequate inks due to environmental or political concerns, legal restrictions on certain uses of color (such as with respect to type legibility), LED billboards—and in years to come the list will grow. Each process has its own limitations, its own demands. Nobody can give you advice about how to handle color for an application that doesn't currently exist: you have to work it out for yourself.

It's not just the limitations of the process. You may be forced to display your work next to inconveniently colored objects, or in suboptimal viewing conditions, or where it will be subject to an unusual amount of wear and tear. Or you may be obliged to use certain colors that you would not have chosen yourself. Success depends on knowing how to make the best of a bad situation.

This is where Chevreul is invaluable. He always states what the problems and the logical solutions are. Usually there's something analogous today. When he talks about how to design an eighteenth-century military uniform, don't ignore it: think of it as a corporate identity project with a sword. When he discusses tapestries, call it a limited-gamut problem with a woof.

Chevreul himself understood that some of these were intellectual rather than practical exercises. A lengthy section on how to use color in stained-glass windows is followed by the questionable concession that they are only worthwhile in enormous Gothic churches. But understanding how such windows affect the lighting is of use to any architect, and understanding the impact of the distance at which they are viewed is vital to anyone who prepares artwork.

As a rule, it is well to have a teacher who is himself proficient in the art form he discusses. On the other hand, an instructor who cannot teach specific technique may well be a good source of common sense. Chevreul has that in spades. Over and over in this book, you'll find basic principles that seem so obvious that sometimes we fail to act on them. I think particularly of his discussions of the prepara-

tion of maps, and of charts presenting data, a field that I didn't realize even existed in his time. Principles like reserving the use of blue to denote water, and of being prepared for various contingencies and modifications in charts: easy stuff, yet lots of top designers don't do it.

The reputation-making paragraph

On the Law of Simultaneous Contrast of Colors might be the best-known work in the history of our profession, but few have actually read the whole thing: its fame is a matter of reputation only. That reputation derives from a single paragraph.

Chevreul was already one of the world's most prominent chemists when he started to study color. Called upon to resolve a purported issue with the black dyes being used at Gobelins, the royal tapestry works that was the pride of the Parisian artistic community, he found that there was nothing chemically wrong with them; the problem was that when used near dark purples and blues they seemed weaker and redder. Chevreul was aware that other scientists had talked about how the eyes play tricks on us in certain circumstances, and he thought this might be one. He experimented with various color combinations, assigned many people to evaluate them, and came up with §16 of this book:

All observations led to a very simple law, which can be stated in the most general sense as follows: *when the eye views two colors in close proximity, it adjusts to make them as dissimilar as possible in terms of tonality and hue.* We therefore have simultaneous contrast both of color strictly speaking, and also of darkness or tone.

That concept is all that many students know about Chevreul. *On the Law of Simultaneous Contrast of Colors* has 1,009 other numbered sections, which explore the law's ramifications in every artistic and utilitarian setting, as well as adding some compelling philosophy about the process of learning.

Chevreul's *impact* is more widely appreciated, because some of history's greatest painters attributed their success to him. Furthermore, they are the ones whose technique is the most immediately applicable to modern photography. I refer to the period known as Impressionism. Today's graphics professionals find more to study in works from that

time because the Impressionists were freer with color than earlier painters, yet they had not abandoned all fidelity to form in favor of the geometric abstractions that pervaded later works.

It is unclear how much Chevreul meant to the first Impressionist artists—Cézanne, Degas, Manet, Monet, Pissarro—although they definitely knew of him. There is no question, however, that he is the father of the style known as *Neo-Impressionism*, which launched in the 1880s. Its major practitioners, such as Matisse, Seurat, Signac, and van Gogh, acknowledged their debt to Chevreul; some called his work “the Bible.” Through these people, Chevreul influenced Delaunay, Kandinsky, Picasso, and the rest of twentieth-century painting. And he is the intellectual ancestor of one of my specialties, correction of photographs in the LAB colorspace.

As far as I know, no scientist has ever had such an impact on any other art form. It is as if Newton were to tell Mozart how to compose a symphony, or Maxwell to lecture Tolstoy on how to write a novel.

Another peculiarity: the book was published in 1839. It did not become popular with painters for about forty years. Also, an 1854 English translation was widely available, yet with a few exceptions, most of Chevreul’s eventual followers lived in France.

Why the delay? Why the failure to adopt elsewhere? This fascinating mystery gets explored in Chapter 6. Part of it was politics; part culture; part may have been reluctance to admit that a scientist could have anything to say about art. But a major, if not *the* major reason, was that Chevreul, so extraordinarily talented in so many areas, was a weak writer.

The limitations of pure eloquence

If you appreciate pure knowledge, read Chevreul. If you appreciate pure writing, savor this:

Let color play its true role, which is to present the procession of nature, and to meld the splendors of the material creation with the actions of man or his presence. Above all, let the artist choose in the harmonies of color those that seem to conform to his thought. The predominance of color at the expense of drawing is a usurpation of the

relative over the absolute, of fleeting appearance over the permanent form, of physical impression over the empire of the soul. As literature becomes decadent when its images outweigh its ideas, so art becomes materialistic and inevitably declines when its spirit is overwhelmed by color sensations; when, in short, the orchestra, instead of accompanying the song, becomes the whole poem.

Charles Blanc, then the most prominent French art critic, penned these scintillating phrases in his 1870 *Grammaire des Arts du Dessin*, translated effectively (although greatly abridged) into English three years later as *The Grammar of Painting and Engraving*. It is full of paragraphs just as lovingly written as the one above. Furthermore, Blanc had an encyclopedic knowledge of European painting. When he wrote about a certain style or technique, he backed it up with lists of works that display it, and explained the ramifications in plain language.

Among the things he explained particularly well were the theories of M.E. Chevreul.

Every French artist was familiar with Blanc. And why not? He was (and is) a joy to read. What happened next isn’t hard to understand. It is no coincidence, in my opinion, that Chevreul was not widely cited by artists before Blanc’s book appeared. Afterward, the artists also claimed to have read Chevreul. I wonder about this, and so do others. We suspect that they read what Blanc *said* Chevreul said, and told the world they had read the original work. I might have done that, too, if I were in their shoes: my ego would not have permitted me to admit that I had used the nineteenth-century equivalent of CliffsNotes to learn something on which my art was supposedly based.

How to scare a publisher away

Many “hard” scientists, to say nothing of political “scientists,” write just as badly as Chevreul did. But we now have ways of compensating for their shortcomings.

Were Chevreul to propose this title today, a prospective publisher would nose around to find out first, whether enough people might be interested in its topic, second, whether the author might know enough to write a book about it. For this particular

endeavor, the investigation would be brief. The marketing department might start to get excited.

If an agreement could be reached, a copy editor would be chosen. If the publisher believes that the author is a good writer, the person chosen will be little more than a proofreader, correcting mis-spellings and grammatical errors. Here, someone capable of rewriting certain parts would be required.

A technical editor would also be needed, to look for incorrect statements or for correct statements used to justify ridiculous conclusions. This editor would also challenge the author to provide proof of certain assertions and suggest that certain key points in explanations have been omitted (perhaps because the author assumed that the audience already understood them).

When, as here, the author is strongly committed to serious color graphics, but cannot produce them himself, the publisher is forced to hire a digital artist as well.

In principle these three technicians don't need to have overlapping skills. The artist and the technical editor don't need to be good writers; the artist and the copy editor don't need a strong understanding of the topic because normally they could ask the author to clarify any ambiguous statements or explain what a graphic was supposed to illustrate.

Alas, that option is only open if the author is alive. His unavailability for questions makes the roles of the three above-named technicians much tougher. Now all three have to be experts in the author's field—and probably less than ten thousand people in this world qualify. Most are neither editors nor digital artists.

A decade in a rapidly changing field is an eternity. A new edition of any technical graphics book older than that needs to be revised. The first choice to handle such a revision is the author himself, but if the author is unavailable, the publisher will look for a co-author to add the needed content.

Finding a qualified one is tough enough for a manual about software. But for a book like this, which touches on all forms of visual art, the co-author needs expertise in many and familiarity with all of the following categories: advertising design; architecture; dance; political history; history of science; interior decoration; literature; music; painting; photography; poetry; sculpture; theater and motion pictures; typography; and weaving.

And I almost forgot: this manuscript is in French. The publisher would need a translator, too. That makes five major players.

These factors explain why there has never been a decent presentation of this work in any language.

The limitation of lack of feedback

The publishing system described above can be effective. Why didn't Chevreul take advantage? He must have known how desperately his prose needed both a copy editor and a technical editor, but of course he could have neither. He owned no photocopier, so he could not duplicate the manuscript and send it out for comment. Without word processors, anyone wishing to tighten up his prose would have had to copy out the entire book in longhand. He couldn't post a PDF on the web for comment, or even send an e-mail. He was largely limited to help from visitors to Paris, because anyone from elsewhere would have had to travel for several weeks to be able to offer support. And not just help—inspiration.

Today if someone half a world away makes a major discovery or pronounces a significant new theory, we know and can get full details of it almost immediately.

I discuss the ramifications after §119. Chevreul thought that he was the first to identify simultaneous contrast. In fact, Johann Wolfgang von Goethe had done so 29 years earlier, in a work of whose existence every student of color is aware today.

Chevreul thus had to develop his ideas almost entirely independently. While this made errors on his part more likely, it also ensured that his thoughts would be original, uncontaminated by prejudices acquired elsewhere.

He had no access to color-measurement devices or even cameras. This may also have been a plus. Since his book is about human perception, measurements might have been a distraction. Their unavailability limited his experiments to observations made by *people*.

On the other hand, spectrophotometric measurements might have given him a better understanding of what “primary colors” are. His attempts to explain don't make much sense to a modern expert who thinks in RGB or LAB. Chevreul also had trouble understanding the difference between reflected and transmitted light, the concepts we now know as *subtractive* and *additive* color.

How this edition came about

In the early 1990s I bought my own copy of the 1854 translation. I found certain parts interesting but the book overall unreadable. I attributed this to the translation, especially because its title is *The Principles of Harmony and Contrast of Colours*, which is not exactly an accurate rendition of *De la Loi du Contraste Simultané des Couleurs*.

I concluded, then, that the so-called translator did not actually understand French and was faking a lot of the content. So before I wrote my 2005 book *Photoshop LAB Color*, in which I wanted to quote a couple of paragraphs, I purchased a copy of the French edition and discovered that the unreadability of the text rests squarely on the distinguished shoulders of its author. I was so flummoxed by this realization that I handed over several paragraphs that I found incomprehensible to some francophone friends, who couldn't make head or tail of them either.

In 2008 I attended a Broadway musical, *Sunday in the Park with George*, which has as its unlikely center the massive Seurat painting *A Sunday Afternoon on the Isle of La Grande Jatte*. The advertising in the theater lobby was festooned with large quotations from Chevreul.

Before attending that show I had known that Chevreul had influenced Impressionist art but also that there was a controversy as to how much. Since there was no doubt about his later impact on Seurat and his Neo-Impressionist colleagues, I gave them more study.

In 2014 I began work on a tenth-anniversary edition of *Photoshop LAB Color*. Chevreul got quoted at length fourteen different times. Thirteen instances came from *On the Law of Simultaneous Contrast of Colors*. I had previously studied mostly his teachings about painting. But the deeper I got, the more I found value in unexpected areas.

The beta readers agreed. They rated as the best chapter of my book one featuring heavy doses of color transitions, Impressionist art, and Chevreul.

I thereupon adopted a policy of whenever I had spare time, instead of wasting it on a computer game or mindless surfing, I would translate a couple of sections of Chevreul. I wrote in the 2014 book that if I lived to be as old as he did, perhaps, as a civic duty, I would finish some day. After all, if I don't do this, who will?

The special problems of translating

Speaking as an author whose name has been cursed by a number of translators, Chevreul is not hard to translate. Unlike many scientists, he felt no need to impress his audience with technospeak. The tone is conversational, not academic. The words themselves carry no clever nuances. The way he used these simple words, alas, is another story.

Most of his sections are understandable by laypeople, but certain ones are quite technical. Also, the work uses terms that are unknown today or whose meaning has changed, or that Chevreul invented.

For example, he uses the term *chiaroscuro* to describe a style of painting. Today, the word means (roughly) a presentation along the lines of many works of Caravaggio and some of Rembrandt, using a full range of tone but with such powerful and extensive dark areas, usually almost totally lacking in detail, as to make the whole effect look somber while seeming to bathe the foreground in light. Chevreul's meaning is different; he uses it to suggest a smooth representation of all detail, regardless of how dark it may be. So, I have to drop notes in at respectful intervals reminding the readers of the discrepancy.

Or, he coins a term, *the height of the tone*, which is not found in this translation because it does not correspond to any phrase in use today. He employs it—sometimes—to denote the relation of the most intense version of a color possible in print (for example, a solid coverage of a certain ink) to pure white. The lower the tone the lighter, the higher the purer. He may compare a certain purple to an orange that he says has the same height of tone, which is baffling because purples are much darker than oranges. His definition is not the same as what we call *equal saturation* today, so I have substituted *equal intensity* where appropriate. But then, frustratingly, at other times he uses it to mean *darkness*.

The 1854 translator couldn't make the distinction, because he had no idea what Chevreul was talking about. So he threw up his hands and offered a literal translation—height of the tone, no matter what the meaning was. If you'd like an example, a piece of that translation is quoted on Pages 129–130. To it, I can only retort with the words of Chevreul's countryman Voltaire:

Woe to the peddlers of literal translations, who in rendering every word eviscerate the meaning! About this it can truly be said that the letter kills, and the spirit gives life.

By now you have probably realized why the only English-language book offered for sale until now features the 1854 translation in an oversized, coffee-table format, with huge type, full-page graphics that don't illustrate the points being made—and the entire text between §§521–828 deleted, on the grounds that it isn't interesting enough. Taken together, the message is: *this book is not intended to be read*. It is a holier-than-thou trick, intended to show your visitors that you are a student of Chevreul.

I hope this edition will end that snobbery.

Who is responsible for what?

As was common back then, Chevreul worked in numbered sections. He subdivided them into a mishmash of hundreds of parts, chapters, subchapters, and headings. Surprisingly, though, when I ignored these artificial breaks and merely stuck with the sections in the order that he presented them, the work seemed to divide neatly into twelve parts, a tribute to his discipline.

- No numbered section has been deleted completely although some have been shortened. All appear in the same order Chevreul envisioned, but in chapters divided and titled by me.
- I have deleted many of Chevreul's subheadings. However, those that remain are his.
- A hundred words per sentence was nothing to Chevreul. I broke many but not all of them, into more digestible pieces.
- I made major cuts in two chapters: first, his description of a hemispheric color model in Chapter 3. Dozens of such models have been proposed before and since. I see no need to study his at any length. Second, Chapter 13 should convince you that he was a maniac about landscape gardening. He would have been pleased to know that his chapter had the desired impact. Gertrude Jekyll, the most prolific designer of formal gardens in Victorian England, acknowledged her debt to him for many of her signature touches. What goes for arranging flowers and vegetation also goes for food or any other kind of still life. So even if you don't care for gardens, thinking about the best way to arrange them

from the design standpoint is a useful challenge. I therefore completely disagree with the other print edition of this book to eliminate the chapter altogether. But lengthy recommendations on particular arrangements of species that grew in Paris 200 years ago are worthless today, and have been axed.

I have rewritten where needed for clarity, to eliminate obsolete references, to add phrases that aid in understanding, and, where obvious, to correct inadvertent misstatements. Normal protocol is to ask whether the author agrees with any such changes. That would be challenging, inasmuch as this one died before my grandparents were born. However, I know him pretty well. He would, like any other author, appreciate the correction of obvious miscues. And I believe he would be more prone than most others to accept additions in the name of clarity. So, that's the standard. If I think Chevreul would have approved the change, it gets made, no separate comment needed.

It's still his book, though. I try to make the text understandable, but not to make him sound like me. You'll still find him a bit long-winded, but that's who he is. I did not keep track of how many times I actually altered content. I'd guess that around a quarter of the sections have some changes and the rest are, within reason, Chevreul's own words.

Chapters 2, 6, 7, 12, 16, and 17 are mine alone. All graphics throughout the book are also mine, except for Figure 1.4, which I made from scratch but is close to a literal copy of one of Chevreul's illustrations.

- Comments from me in the middle of Chevreul's text are identified by a distinct typeface.
- Where his explanations are no longer thought to be correct, I have left them, with a note detailing how current beliefs are different.
- When he promises a discussion of a certain point and then forgets to follow through, I provide it.
- When he discusses an obsolete procedure that has a nonobvious modern application, I connect the dots.
- I have marked certain sections with a fleuron. This is my equivalent of a highlighter pen and indicates something that I personally have found particularly valuable and recommend you read carefully.
- A timeline on Page 296 lists the main political,

cultural, and scientific advances during the 103 years of Chevreul's life.

- Both of us are big namedroppers. Many of the artistic, political, scientific and cultural figures whom we cite are well known, others less so. In either case it seems a waste to interrupt the text to explain who they were. Therefore, a *Dramatis Personae* section starts on Page 305, with biographical information on every individual named in the text—172 names, forming a panorama of artistic, political, cultural and scientific progress.

The simultaneous contrast of ideas

Chevreul, though incredibly detail-oriented, is above all a thinker. His last three chapters (14, 15, and 18) are full of philosophical speculations, as well as practical advice. He asks whether simultaneous contrast, or something similar, exists in the senses other than vision: smell, sound, taste, touch. The role of such contrast in our lives would justify a long book in itself. Chevreul would not be the one to write it, because he had very limited exposure to music, and presumably none at all to Thai or Peruvian food. And he surely never entered an air-conditioned house on a hot summer day and thought he would freeze to death. So I step in to help.

But no assistance is needed in his culminating points. Here, for example, is a disarmingly simple question. In reproducing an original scene by means of a painting (or, by implication, a photograph), is it more important to be faithful to the original color, or to the outline and detailing of the scene?

R.W.G. Hunt, a prominent twentieth-century British color scientist, had an easy answer: the color. But the American physicist Ogden Rood, whom artists cite almost as often as Chevreul, took the opposite view. So, in his usual eloquent way, did Blanc. All three of these men got it wrong. Chevreul, as usual, got it right.

The correct answer is, *it depends*. I know this, because one of my automated procedures, MMM by name, tries to make photos more interesting by adding color variation, which implies being somewhat unfaithful to the original hue. On some images it gets great results, on others not.

Chevreul went farther, citing images in which both are true at once. His example (§343): in a portrait, color fidelity is very important in the face and hair, but not, usually, in the clothing. And later

(§1007) he offers an insight outstanding for simplicity and depth:

When a professor giving a lecture, or an author writing a book, presents two different opinions, hypotheses, or proposals, it may happen that for clarity they decide to omit similarities, and in doing so prevent us from appreciating the true limits of the comparison. In this way not only are the differences overstated, but a completely erroneous notion may develop if, for example, the two propositions are presented to the listener or the reader as being polar opposites, of the sort where if one is true then the other is necessarily false. It would be much more exact to, as it were, trace a circle that encompasses the parts of each that are true.

To that contrast of *ideas*, let's add a contrast of *words*. Blanc again:

Thus all the arts born in the mind or heart of man are so elevated above Nature, that the more literally and servilely they copy her, the more they degrade and destroy themselves. No, the arts of design, in their highest dignity, are not arts of imitation but of expression. And if the photograph is a marvelous invention without being an art, it is because in its indifference it imitates all, and expresses nothing. Where there is no choice, there is no art. Gathering together features scattered in the real world, and lost in its immensity, the artist makes them serve the expression of his thought, and shine on it the light of day: clean, clear, visible, perceptible, unified. Reality contains only the germs of beauty; art unleashes beauty itself.

Is not *beauty itself* a good description of this prose? What would you not give to be able to write so splendidly?

Beautiful words can disguise stupidity. Blanc's definition is impeccable: where there is no choice there is no art; a rote imitation of a scene has no merit. He then takes the majestic leap to the assertion that *photography is not art*. And he wasn't alone: his British colleague John Ruskin, often quoted in these pages, felt the same way.

In fairness, most of the photography Blanc was

familiar with probably *was* just intended to be a rote imitation of a scene. Ruskin certainly used it that way: he took photographs of a scene for reference before painting it. But even in the 1860s there had already been contrary cases where photographers had clearly invoked artistic choices. To suppose that photographers would not soon start arranging their scenes just as painters did showed a shocking lack of imagination. This is the sort of wooden thinking that was not characteristic of Chevreul.

In short, one of the two quotations above is an elegant presentation of shabby thinking. The other

is (although hopefully I have gussied it up a bit) a shabby presentation of elegant thinking.

If you work with color in any way, or have any interest in art, Chevreul can influence you for the better. My suggestion is not to convince your friends and colleagues that you know this by displaying a coffee-table book that nobody can actually read, or an edited transcript of what he said from Blanc. Chevreul is worth studying without such intermediaries.

Maplewood, New Jersey, 1 December 2019