

Color Mania

The Material of Color in
Photography and Film

Barbara Flueckiger
Eva Hielscher
Nadine Wietlisbach

(In)Visible Color

Plea for a History of Color Photography

Thilo Koenig

cultural differences: not everyone sees the same colors in all worlds at all times.

What is more, “colorful” photographic images are usually additively or subtractively constructed color mixtures (alongside “direct” color processes, to which we will return).⁹ When we look at the images obtained as color mixtures, we perceive the colors ourselves only through another process of additive color mixing mediated by the cone structure of our retinas, through which our brain creates an individual impression of color. The observation of photographic images of the “colorful” world, which we accept today as a matter of course, is thus subject to, at minimum, a twofold optical and physiological translation process.

Even if—in distinction to black-and-white photography, in which the translation of the image that is seen into gray tones signifies a clearly discernible feat of abstraction—one intuitively expects an equivalence between reality and visual impression in color photos, there can be no “correct” color photograph, and this does nothing to simplify the question of photographic authenticity, which is already complicated enough for black-and-white photographs. Frizot, for example, describes how “color photography, paradoxically, acquired an artificiality—an uncontrollable ‘strangeness,’” which today is often used consciously as a creative element.¹⁰ Here, Frizot may be following Roland Barthes, who more or less inverted the question of photographic authenticity and accused color of being “a coating applied *later* on to the original truth of the black-and-white photograph. For me, color is an artifice, a cosmetic.”¹¹ In a way, these authors continue the dispute in art theory that has existed since Vasari, between *disegno* and *colore*, in the course of which color has been denigrated as something added on, indeed as a deception and a lie.

The desire to depict color nonetheless goes back to the beginning of the development of photographic processes, something that Barthes omitted to mention in his mediaontological essay *Camera Lucida*. Nicéphore Niépce, to whom we owe the oldest surviving camera photograph, dating to around 1827, wrote to his brother in 1816 that he wished “to realize colors,” and noted that in his experiments with photosensitive papers, after addressing the reversal of negative tonal values into positive ones, his next project would be “to fix colors.”¹² Even before Niépce began collaborating with Louis Daguerre in 1829, the collaboration which would result in the daguerreotype, Niépce had

written of Daguerre's (unsuccessful) attempts to fix colors and of Daguerre's observations on the color sensitivity of the exposed material.¹³ When Niépce carried out further experiments etching asphalt-coated metal plates after exposing them to light in the camera obscura, moving in the direction of block production for printing, this was another path that tracked preexisting techniques of visual art; even grayscale and monochrome paintings were known from the *grisaille* technique. Dominique François Arago made this comparison in 1839 in his well-known speech introducing the photographic technique of the daguerreotype to the public: "We must quickly state that ... in M. Daguerre's copies, just as in a drawing with black pencil, an engraving, or ... a mezzotint or an *aquatint*, there is only white, black, and gray. ... In short, in M. Daguerre's camera obscura, ... half-tints represent red, yellow, green, etc., for this method produces drawings, not paintings in color."¹⁴ Color was simply part of the idea of a faithful fixing of the visible image with the aid of the camera. This was also noted by the English photographic pioneer William Henry Fox Talbot: "It would be a great thing if by any means we could accomplish the delineation of objects in their natural colors."¹⁵

Color in Black and White

Even the history of black-and-white photography itself cannot be viewed separately from the phenomenon of color, as photographic materials are not color-neutral. For example, in salted paper prints (calotypes) or platinum prints that do not have a barrier coating beneath the emulsion, one can see the "color" of the paper surface as part of the image. This phenomenon had been noted by Talbot.¹⁶ Primed papers have colder and warmer tones (blue-black or brown-black) depending on their photochemistry, and lab processing can bring out different nuances even in one and the same kind of photographic paper. There are then natural discolorations through aging—for example, in albumen prints produced between the 1850s and the 1880s, which have an egg-white primer that yellows over time, and in oxidations of emulsions that cause metallic bluish discolorations. Contemporary publications on the history of photography thus reproduce old black-and-white photos, whenever possible, with four-color printing.

If analogue photographic papers are exposed to light without developing and fixing, they do not turn a uniform gray, but instead become increasingly monochrome over time through the influence of light



Fig. IV F&D Cartier, *Wait and See*, Kodak, 2017. Assortment of 65 different unfixed Kodak black-and-white sheets, produced 1910–1980, hanging arrangement from smallest to largest standard format. Credit: F&D Cartier. Exhibition view *Get the Kodak ...*, Kunst Bezirk Stuttgart, 2017. Photo: F&D Cartier.

Fig. V Anna Atkins, *Alaria Esculenta*, pre-1854. Cyanotype, 25×20 cm. Reproduction from Hans P. Kraus, ed., *Sun Gardens: Victorian Photograms by Anna Atkins*, New York: Aperture, 1985, 82

Fig. VI Photoglob AG, Zurich, *Wetterhorn-Aufzug mit Eiger (P.Z. 18750)*, 1908. Photochrome multicolor print, dimensions unknown. Reproduction from Adrian Scherrer, *Schweiz Suisse Svizzera Switzerland 1889–1911*, Zurich: Photoglob AG, 2009, n.p., fig. 44

→ Fig. IV

on the silver layer. This can be used for conceptual “luminograms”—for example, in the work *Wait and See* (ongoing since 1998) by the Biel artists F & D Cartier (Françoise and Daniel Cartier).

→ Fig. V

A special case are the cyanotypes invented by John Herschel in 1842, the light-sensitive layer of which is composed of iron compounds yielding radiantly blue images. Well-known examples are the botanical cyanotype photographs created by Anna Atkins between 1843 and 1854.

In this connection, we should consider the varying color sensitivity of photochemistry in black-and-white photography: in the early period, black-and-white negatives reacted predominantly to blue light (as had been observed by Daguerre and Talbot) and only slightly to green and red light. In 1873, “orthochromatic” negative film stock provided color correction in the form of an improved capturing of green and yellow in black-and-white halftones, but sensitivity to red did not come until the introduction of “panchromatic” negatives in 1902. The initial limitations of color sensitivity in the black-and-white photography of the nineteenth century conditioned depictions: for example, of reddish skin tones and dark-green forests. Blue skies generally led to overexposures, which is why they were usually covered up on the negative and appeared as uniformly white on the prints.

Autonomous Colors

Although the general public in 1839 was excited by how true to life the depictions in daguerreotypes were, critics were also quick to point out that black-and-white photographs had a melancholic gray heaviness, and that life seemed inanimate in them.¹⁷ This was why, as would later be done with film, simple methods were employed from the beginning to use color to make images appear more “vital” and seemingly more authentic, including hand coloring and the monochrome dyeing of positives and the toning of prints (for example, in sepia and shades of gold), chemically replacing the silver in the image with other colored substances.¹⁸ Yet none of these processes could provide a mimetic reproduction of the colors photographed.

An enduring mechanized colorizing technique was the photochrome, introduced in 1872, in which printed black-and-white photographs were overprinted using colored lithographic plates. Beginning in 1888 and continuing for many years thereafter, the Zurich printing company Orell Füssli and its subsidiary Photoglob enjoyed success