Now You See It, Now You Don't: Illusive Color
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My practise is centered around color. As a scientist I can only emphasize that color is a miracle of the mind. Without the human soul, it does not exist. I am choosing the word soul and not brain, because colour is not only generated by the interaction between an electromagnetic wave and receptors in the eye sending electrical signals to the brain, but also fundamentally influenced by time, memory, smell and touch. To allow my prints to represent all these influences, I am using a method steeped deep in physics.
It starts with Isaac Newton and the bubonic plague. In 1665 just after Newton had received his BA, the University of Cambridge closed to minimize the effects of the Great Plague on staff and students. Isaac Newton returned to Woolsthorpe Manor in Lincolnshire, the house he was born in. The next two years in quarantine allowed Newton (luckily distractions by online meetings did not exist yet) to develop the theories he became famous for: calculus, the law of gravitation and optics. He was the first one to dispel the hypothesis, stated by Empedocles in the 5th century BC, that light beams are sent by the eye to probe objects in the field of vision. Experimenting in the dark with only a small hole in the window shutter, he could not only show that the eye was not the source of light but also that the white sunlight is not really white but embodies all colours.
He sent the sunbeam through a prism and generated a rainbow of colours which he could recombine to white light by a second prism. About forty years later, Thomas Young established the wave model of light i.e. that light travels through the universe like waves through water and generates the same patterns as water waves when they cross each other or are reflected by an obstacle. He also introduces the concept of "particles" in the eye which are sensitive to the red, green and blue parts of white light. It took another fifty years until Hermann von Helmholtz finally established the existence of rods and cones in the retina and their role in the perception of colour. Understanding how colour was generated was a slow process and took over 100 years. During the same period when Helmholtz was working on the physiology of colour perception, James Clerk Maxwell developed a trichromatic colour theory and applied it to the newly invented photography (it has been one of the highlights of my life when I stumbled across his grave at Parton Kirk during a mountain biking trip to the 7stanes in Scotland). It is Maxwell's theory that has had the most prolific influence on my practice, and it is his model which I reconstruct to record colour in my work. Maxwell describes his work as

> *"Let a plate of red glass be placed before the camera, and an impression taken. The positive of this will be transparent wherever the red light has been abundant in the landscape, and opaque where it has been wanting. Let it now be put in a magic lantern, along with the red glass, and a red picture will be thrown on the screen.*
> *Let this operation be repeated with a green and a violet glass, and, by means of three magic lanterns, let the three images be superimposed on the screen. The colour of any point on the screen will then depend on that of the corresponding point of the landscape; and, by property adjusting the intensities of the lights, etc., a complete copy of the landscape, as far as visible colour is concerned, will be thrown on the screen."*

The result of the recording process is three black and white silver halide negatives. Colour is recorded in three different intensities of grayscale patterns. The color needs to be reconstructed from the greyscale in the three negatives. Maxwell used lantern or glass slides and projected the images through the same coloured glass filters he recorded them with (a principle used in all modern displays.)
I am following Maxwell's procedure in my practice. Using an old-fashioned analogue film camera in combination with red, green and blue filters slows image taking down to an almost painful level. This is certainly not a snapshot approach. The camera has to be set up on a tripod, the light intensity has to be measured, exposure time and aperture have to be calculated based on the light transmission of the filters and then even with the help of an assistant who places the filters in front of the lens, it will take at least a minute until the three RGB images are taken. Time will not stand still, people will move, the wind will blow, light is changing. Recording images in this way gives me on one hand the certainty that the intensity patterns on the film will not degrade with time, i.e., the color will always be *true*. On the other hand time itself will leave a trace on the three negatives, a trace I have no power over, and I embrace as a proof of life.

The negatives are the basis of my printmaking practice, and that is where my soul comes in. I rely on memory to reconstruct the colour image which allows me to relive and reflect on my experience. Remembering the colour means also remembering the weather, the temperature, the scents, noise, people as well as my own emotional state that inhabits such memories. These layers color my color, enriching the process and creating depth within the work. Through my choice of color in the printmaking process I hope to instigate a similar state in my audience, generating a playfulness and sense of nostalgia.

My practice predominantly focuses on color reproduction through Woodburytype and photolithography, which I will not discuss further, but concentrate on the less well known Woodburytype. Woodburytype is a historical printmaking method which is rarely used by contemporary practitioners.

Grayscale and color are achieved by a continuous gelatine relief taken from a relief printing plate. To make the printing plate, I use Toyobo Printight Solar Plate KF95 plates, which have a transparent mylar backing. The transparent backing is important since the plate has to be exposed from behind, that is through the backing, to generate the relief necessary for Woodburytype. For traditional cyan, magenta and yellow printing on white paper, the RGB negatives are scanned and digitally turned into positives. For Woodburytype the positive image should not contain black. Photographically it would be underexposed. After adjusting the size to the desired print size, the image is printed on transparent film, brought into contact with the back of the plate and exposed to UV light. Where the UV light is blocked or partially transmitted by the film, the photopolymer stays soft and is washed away during development. Where the film is transparent, the photopolymer hardens and forms the elevated parts of the plate. Since the plate is exposed from behind, the photopolymer starts hardening next to the substrate and a relief forms whose height is a function of the grayscale of the film. The detail in the plate is determined by the exposure time: the longer the exposure time, the finer the detail and the flatter the relief.

After drying, the photopolymer plate is then hardened a second time by flooding it with UV light, varnished with sandarac varnish and oiled before warm, pigmented gelatine is poured onto the plate. Paper is placed on top, and the sandwich is pressed together until the gelatine has gelled. A full colour print is achieved by overprinting 3 times with different plates. The green plate is filled with magenta, the red plate with cyan and the blue plate with yellow gelatine ink. By choosing the height of the relief and the pigment concentration of the gelatine ink, I can change contrast, saturation and hue of the final print which allows me to depict my memory including the heat of the sun, the smell of the sea and the sound of the moment.

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