

Photography: A Momentary Capture of Light

Background

The word photography, if translated etymologically, means “light-writing.”¹ This very broad meaning has come to encompass a myriad of techniques and forms, from rudimentary early Daguerreotypes to modern digital imaging, each medium connected by the use of light to form an image. The photographic medium is a modern invention, first achieved on a sensitized pewter plate in 1826 by the French inventor Nicéphore Niépce.² Photography has matured immensely in technology and technique over the past 180 years, providing a wide array of possibilities for the modern photographer. My project uses the two most common contemporary photographic methods, digital imaging and 35mm film, to explore the essence of photography as an artistic medium.

In 1884, George Eastman, the founder of Eastman Kodak Company, invented a technique to coat paper with a light sensitive dry gel: the first photographic film. This invention brought photography to the consumer market because it was a self-contained system that did not require the consumer’s use of toxic chemicals.³ Modern film consists of a plastic substrate covered with a gel containing light-sensitive silver halide crystals (the emulsion). After the film is exposed to light, chemicals used during developing convert the silver halide crystals in the emulsion into visible metallic silver.⁴ This process leaves a negative image on the film, called the negative at this point in the process, and can be used to make positive image prints. To make a positive print, light is projected through the negative onto a sheet of paper that has been coated with a light-sensitive emulsion (a

¹ Prosser, Jay. *Light in the Dark Room: Photography and Loss*. Minneapolis: University of Minnesota Press, 2005. 2.

² "Photography." Wikipedia, The Free Encyclopedia. 16 Feb 2006, 21:52
<<http://en.wikipedia.org/w/index.php?title=Photography&oldid=39765406>>.

³ Ibid.

⁴ London, Barbara, and Jim Stone. *A Short Course in Photography: An Introduction to Black-and-White Photographic Technique*, 4th ed. New Jersey: Prentice-Hall, Inc., 2001. 47, 88.

different chemical emulsion than used on film). The paper is then chemically processed to produce a finished photographic print.

Digital photography has its roots in the television industry and the United States space program during the 1960s.⁵ Technologies were developed for each of these applications to allow for the transmission and storage of images. Since its rudimentary beginnings, digital photography has progressed in its accessibility to consumers, ease of use, and overall image quality. In digital photography, instead of capturing an image on film, an electronic sensor is exposed to light. The sensor converts the light into digital data, which are then saved on an electronic medium such as flash memory. The data can be manipulated on a computer and printed out using either regular computer printers or special digital photographic printers.

The technical aspects of photography are both interesting and important to a thorough understanding of photography, yet, to paraphrase the landscape photographer David Akiba, the technical parts of photography are merely instruments used for an evocative effect. Edward Weston (1886-1958), a master American photographer, wrote an essay titled "Seeing Photographically" about the relationship between a photographer and the act of photographing. Weston writes,

The photographer's most important and likewise most difficult task is not learning to manage his camera, or to develop, or to print. It is learning to *see photographically* – that is, learning to see his subject matter in terms of the capacities of his tools and processes, so that he can instantaneously translate the elements and values in a scene before him into the photograph he wants to make.⁶

⁵ Bellis, Mary. "History of the Digital Camera." 15 Feb 2006, 23:51
<<http://inventors.about.com/library/inventors/bldigitalcamera.htm>>

⁶ Weston, Edward. "Seeing Photographically." The Photography Reader. Wells, Liz, ed. London: Routledge, 2003. 106.

Weston expresses ideas that seem common to many photographers and that also are paramount to photography as an artistic endeavor. He first contends that a photographer must learn to "*see photographically*," a statement that suggests seeing the world from a photographic perspective is different than conventional seeing. One such difference is in the actual field of view (the part of a scene viewable at one time) you are seeing. An average human has approximately 180 degrees of forward-facing field of view, which is constant over our lives.⁷ The field of view of a camera depends on the size of the film (or digital sensor) and the focal length of the lens. Since the photographer can change the lens to fit the requirements of the shot, the photographer is in direct control of the field of view of the camera. So, in one sense, to see photographically means to have control over your field of view. This results in a deliberate choosing of the perspective of the photograph, a process known as "framing" the photograph.

Another way seeing photographically is different than conventional seeing is in the way a photographer views the scene in front of her. While looking through a camera, the scene is cut down into small slivers viewed through the viewfinder. Each moment is viewed as a possible cropping of the scene. The focus is adjusted to find just the right spot to make sharp. And this process continues as long as the photographer looks through the camera lens out of necessity. But then, after the camera is lowered from her eye, the photographer can not help but continue to see the world in this way -- always looking for the right cropping or point of view. The cropping that occurs in normal vision is that of information gathering; our brains sort through our whole 180 degree view to find the most important part and bring our attention to that. While seeing photographically, a photographer is cropping for aesthetics and emotive appeal, rather than just information. Each cropping is a

⁷ "Field of view." Wikipedia, The Free Encyclopedia. 2 Mar 2006, 11:04 UTC. 14 Mar 2006, 21:16 <http://en.wikipedia.org/w/index.php?title=Field_of_view&oldid=41888340>.

deliberate choosing of focus and composition by the photographer in order to achieve her end goal.

Weston's second contention is that rather than focusing on the technical aspects of photography, it is more important for a photographer to learn how to produce the photograph he wants. Weston says a photographer strives to "instantaneously translate" his artistic vision; that is, the photographer should be so comfortable with the technical aspects of photography that he is able to instantly convert the image he envisions into a photograph. It is as if the camera is extension of the photographer's own artistic vision, allowing him to convert what he sees into "the photograph he wants to make." This type of seeing develops in the opposite direction, when the photographer learns how the camera changes the field of view and slowly learns to "see" a scene this way. Then the photographer can connect his own ideas more directly with the photographic medium. This is deliberate process of the photographer manipulating his photographic equipment to produce a photograph with the desired expressive qualities. Photographic equipment is only useful to the artist as a means of personal artistic expression.

Justification

Although a photograph is an image of the past⁸, it can only exist in the present and is thus subject to interpretation in the immediate context of whoever is viewing the photograph. I explored the essence of photography by exploring contrast, a fundamental element of photography. My exploration is framed by a pursuit of basic geometric elements in my environment: the building blocks of all forms, whether natural or artificial. By focusing on elemental themes (contrast and geometry), I directed my energy at expressing my perception of the essence of photography.

⁸ Prosser, Jay. *Light in the Dark Room: Photography and Loss*. Minneapolis: University of Minnesota Press, 2005. 1.

For me, the essence of photography lies in its etymological roots. To reiterate, the etymological translation of photography is “light-writing”. When I contemplate this definition, it conjures a feeling of capturing light, almost as if photography is the tangible act of trapping light. I find the most captivating photographs have effectively captured and expressed the light from the scene. These photographs portray the scene in a way that represents the aesthetic quality of the light as seen by the artist. As a photographer, I see subject and light as the same thing because a subject is only captured in a photograph by the light it reflects. When visualizing my photographs, I picture myself physically catching the light off my subjects and storing the light in my photographs. Anything can change about the photographic media, except you can not remove lightⁱ from photography.

The methods I used are general standard practices and allowed me to achieve consistent, reproducible results. There are many exotic processing that can be done, such as sepia toning and selenium toning, but they require hazardous chemicals and are difficult to reproduce consistently. Choosing standard practices that I was familiar with let me focus my energy on exploring the fundamentals of photography. Through this project, I was able to identify what I viewed as the essence of photography: light. This was insight I gained while reflecting during the printing process and on the final photographs. I identified light as a unifying aspect in all photography and began contemplating light as the essence of photography.

Looking back now over my research material from the beginning of the semester, I see light embedded in nearly every article and essay. Jay Prosser, a photographer who purports that since all photographs are of the past, photography is inherently a “realization of loss.”⁹ He says that photography also helps us understand this loss, thus offering a sort of enlightenment. Prosser’s book is titled “Light in the Dark Room,” using the imagery of light

⁹ Prosser, Jay. *Light in the Dark Room: Photography and Loss*. Minneapolis: University of Minnesota Press, 2005. 2.

entering the dark room to invoke an optimistic image of photography. In an essay about Edward Weston, Roberta McGrath uses light imagery to describe Weston's creative vision as light emerging out of the dark, another use of light illuminating darkness imagery to describe photography.¹⁰ These authors/photographers, even while talking about other aspects of photography, can not avoid discussing light. During this project, I was only able to identify light as being essential to photography and did not have time to explore light's role in the photographic medium. Getting back to such a base concept is, for me, like a rebirth of photography. Technology may change and film may slowly disappear from the consumer market, but light will always remain a uniting characteristic of photography.

Methods

To shoot photographs for this project, I generally relied on my own intuition and photographic eye to guide my work. I spent many a day waiting for the light outside to be just right to go shoot. This generally means clear, sunny days, anytime except around noon when the sun is directly overhead. I also like partly cloudy days, which can provide some interesting skies and lighting situations. For choosing location, my choice was constrained mostly by time and resources. The majority of my shoots were fairly local to school, if not on campus, because of convenience and the good variety of scenery. Generally, I would go for walks, taking my time and slowly considering the scene around me. When something caught my eye, I would take out a camera and start playing with different compositions to see if I could capture something interesting.

While out shooting, I could sometimes feel my brain change modes. The way my brain cropped what I saw changed from information based to aesthetics. I consciously trained my eye to evaluate the scene the way the camera would see it as a way of

¹⁰ McGrath, Roberta. "Re-Reading Edward Weston." The Photography Reader. Wells, Liz, ed. London: Routledge, 2003. 334.

precomposing my photographs before I even held a camera to my eye. During these trips, I found my mind quiet and contemplative as I focused on the visual cues around me.

I began the process of producing prints from film by developing the film. For this project, I used two varieties of Kodak 35 mm film: Plus-X (ISO 125) and Tri-X (ISO 400). The Plus-X is a slower film, which means it requires more light to create an image. This requires relatively slow shutter speeds and is more appropriate for situations with good, bright lighting. I used Plus-X while shooting on sunny or partly cloudy days and in the studio, if possible, because of its small grain size. Grain size refers to the size of the silver halide crystals on the film and small grains mean that the film can capture more detail than a film with big grains. The Tri-X film has larger grain but it is a faster film, allowing me to shoot in situations with less available light, such as indoors, some studio situations, and during cloudy days.

There are many techniques available for controlling the film development process and I chose to follow the manufacturer's recommended developing method in an effort to obtain consistent results. All chemicals were mixed according to the recommended dilutions. It is possible to adjust the chemicals to exactly match the shooting conditions of the film to correct for over- or under-exposures. I used consistent processing as a way to check my shooting technique and to verify I was exposing the film correctly. Any variation in exposure would show up as differences in the film and I knew I could attribute any difference in the film to the exposure.

The film must be removed from the roll for developing. This must be done in complete darkness, as the film is still light sensitive. I used a lightfast container made for film developing to hold the film during processing, allowing me to do the actual processing in normal room lighting. The first step in developing film is the developer, a chemical that converts the exposed silver halide crystals in the film into visible metallic silver. A standard black and white film developer is D-76, a combination of several chemicals that are able to

process a wide range of black and white film. At room temperature (68 degrees F), the developing time was eight minutes. The developing time is highly dependent on the temperature of the chemicals, so it is important to carefully control the temperature of the developer. From the developer, an acidic stop bath was used to stop the action of the developer to prevent overdevelopment of the film. Then, the film was put in fixer (also referred to as "hypo"), which dissolves any unexposed silver halide crystals out of the film. After fixing, the film is no longer sensitive to light and the images are fully visible on the film. The film was then water washed several times and treated with hypo clear, which quickens the washing process by eliminating any leftover fixer. There was another water wash and then the film was treated with a wetting agent (I used Kodak PhotoFlo), which hardens the film, prevent water spots, and makes the film more resistant to scratches and wear. The film was dried for about 15 minutes in a drying cabinet that circulates warm, dry air over the film.

At this point, I cut the film into strips of five and placed them in letter sized negative holders for storage. The holders are transparent to allow for examining the negatives on a light box. Right after developing the film, I generally spent some time looking at the negatives on a light box with a magnifying loupe. This allowed me to see how my photographs came out and to begin thinking about which frames I wanted to print. It is hard to gauge the final quality of a photograph from its negative, but some qualities such as overall exposure, composition, and focus, are easily evaluated at this stage.

Once I have a developed roll, I made a contact print to further evaluate the negatives. A contact print is made by placing the negative storage sheet directly on a sheet of photographic paper and placing a pane of glass on top to make sure everything sits flat. Then an exposure is made and the print is developed. This gives a small, positive version of each negative which I used to identify frames that I wanted to print. At this stage, I tried to

pick the frames that really capture my eye as extraordinary and worth the effort required to print.

For me, the most engaging part of photography is darkroom printing. A darkroom is almost a sacred place. It is a space that I enter only to work on photography and it creates a very real separation from outside distractions. As my eyes adjust to the light and I begin getting my hands wet, I can feel myself get tuned into the prints I am working on. I wait, anticipating the results of each print as I slowly transfer them through the chemistry. I enjoy the hands on control I have over the entire printing process. While using the enlarger, I can adjust how much light reaches each part of the print using my hands as filters. As I process the prints, I can feel the chemistry change the paper between my fingers. It is a very tangible, physical process and closely connects me to my prints.

There are two standard types of paper for black and white photography: resin coated (RC) and fiber based. RC paper is coated with plastic, which retains fewer chemicals than paper and thus requires less time and chemistry to process. Fiber paper does not have a plastic coating and is considered more archival than RC paper because it has no plastic layer that can degrade. I used RC paper because the darkroom I used did not have the special drying racks required for fiber based paper.

Black and white paper is only sensitive to certain wavelengths of light. This is convenient because you can use lights that are a color the paper is not sensitive to without fogging the print. Fogging is accidental overexposure due to ambient light leaking onto photographic paper or film and is a primary concern when handling photosensitive materials. The darkroom is lit by dark red and dark amber lights which fall outside the sensitive range of the paper and prevent fogging.

Printing begins with exposing a piece of photosensitive paper using an enlarger. An enlarger consists of a light source fitted with a holder for a negative and a lens to focus the image. The light projects straight downward onto an easel that holds the photosensitive

paper flat under the light. Exposure time is controlled by a timer attached to the power supply of the light. I sandwiched the negative I wanted to print in a special holder and inserted it into the enlarger. Using knobs on the enlarger, I adjusted the height and focus for the paper size I used. The first prints I made at a standard exposure so that I had a benchmark I could check exposure against. I developed this print and then used it to adjust the exposure of the subsequent print. This would continue until I was satisfied with a print and then I repeated the final exposure to make a run of five final prints of each shot.

There are two main methods of controlling a print: contrast and exposure. Contrast is controlled using special filters that fit over the light source in the enlarger. The paper I used is called variable contrast paper because its contrast can be controlled by selecting a different color filter, depending on the paper. Here, contrast is the relative difference between the white and black tones in the print. A print with high contrast has a lot of black and white patches and less gray area. A low contrast print has a lot of grays and little pure whites or blacks. Generally, I started printing with normal contrast (no filter for the Kodak Polycontrast paper I used) and changed the contrast from there as needed. Exposure can be controlled by adjusting the aperture on the enlarger lens or the exposure time. The exposure affects the overall brightness (density) of the print.

Once a print is exposed, I submerged it in a developer bath. The developer bath does a similar thing to the paper that the developer does to the film; the exposed silver halide crystals in the paper emulsion are turned into visible metallic silver. The print developed for a minute to a minute and a half and then I transferred it to the stop bath. The stop bath is a weak acetic acid solution that stops the action of the developer. Then a fixer bath removed the unexposed crystals. After the fixer bath, the print was no longer sensitive to light and I evaluated the prints in full light. This would allow me to begin washing one print while I printed and developed another print. The prints were washed for between five and ten minutes and I was careful not to over wash the RC prints, because water can penetrate the

plastic coating and cause streaking at the edges of the print. After washing, I fed the RC prints through an electric print dryer that dried each print in about thirty seconds.

While working with my digital shots, I started the print process by transferring the files from the camera to my computer. Then I backed up a copy of all the files onto an external hard drive in case my computer crashes or one of the files gets corrupted. For the rest of the time, I worked on the photographs in Photoshop 7. Since the digital camera I used shoots in color, I began retouching by desaturating the photographs, a Photoshop filter that removes the color information from the photograph, leaving a black and white image.

For the actual manipulation of the photographs, I used a Wacom Intuos 3 tablet, which allowed me to use a pressure sensitive digital pen to work on the images. This gave me more organic control than using a mouse and let me have more control over my adjustments. I worked the photographs in a similar fashion to my darkroom work. I avoided using Photoshop filters that I could not replicate in the darkroom because I wanted to retain the feel of conventional black and white photographic prints. I printed the digital prints on an Epson Stylus Photo 2000P ink jet printer using Epson photo-quality paper. Using Epson branded photo paper ensured I would receive the highest quality prints from the printer.

Reflection

5 March 2006

Although I would not consider myself a beginner photographer, I am certainly not a professional. My first experience with professional equipment went: excitement, preparation, travel, cold, cumbersome, windy, fogged glasses, error code, very cold, gloves, more travel, frustrated, very very cold, retreat. It was a less than pleasurable experience, but I was awakened to some almost spiritual insight into photography.

When I am taking pictures or developing prints, I feel a close connection to the materials I use. Sometimes, just before I trigger the shutter, my body pauses and I can almost feel the recoil of the light hitting the film once the shutter opens. My view of my subject connects with the film for a moment, passing through the camera. While printing in the darkroom, light from the enlarger tangibly falls onto the paper. The methods of photography are tied closely to your equipment and being comfortable working with your equipment is essential in mastering the mechanics of photography. This mastery allows for a more controlled, deliberate use of photography as an expressive medium.

My first experience with professional equipment caused frustration because I was unable to capture effectively what I saw in the scene. By getting caught up on the mechanics of the camera, it felt like the camera was inhibiting my connection with my subject. Had I taken more time to get acquainted with the equipment, I probably would have had a more pleasurable experience and a more successful time at capturing the images.

14 March 2006

I spent a majority of my first day in the darkroom for this project printing a single frame (Roll 1, Frame 3). The photograph is of the soccer field about an hour before sunset. It was from that very cold day and the quality of light is beautiful. The sun is pouring from behind some clouds and washing over the ice covered field. In the middle of the field is a big traffic cone, although it is pretty small in the frame. While printing I couldn't help but thinking, "I wish I could Photoshop that stupid cone out of the way." It was a smudge in the smooth gradient of the light falling over the field. A blemish.

But then, that's how the scene was when I got there. I wasn't trying to capture perfection. The composition is slightly off the rule of thirds and the sun is pretty burned out. It was a miserable day and I was having a difficult time, and was able to capture a fleeting glimpse of beauty. The perspective is what I saw while I was walking into the woods- I

glanced right and shot a couple frames, captivated by the sunset. The “decisive moment” was a glance, a quick blink in passing while hurrying into the shelter of the woods. I was frustrated by the cone for naught. The photograph is one meant to be viewed in passing. A pause to feel that light falling for a short moment. Not perfection. Not flawless composition. A glimpse of beauty on an otherwise crappy day.

2 April 2006

While working this weekend in the darkroom, I had a revelation. It was while I was working on Roll 3, Frame 6. The shot is out my window at about 3 am on the night of a snow storm that had just dumped about a foot of snow. The parking lot was cleared out before the storm and they had yet to plow the lot. The primary source of light in the shot is a streetlight that is pouring its light over the fresh snow. There is a surrealistic quality to the light because it is so artificial and is spilling out over the virgin snow. Above the lot is mostly darkness, although the outline of the forest and some branches can be made out in the black-on-black shadows. I chose this negative because of the huge dynamic range captured, from the subtle dark shadows to the soft details in the highlights.

I was struck to take the photograph, already ready for bed, because I was captivated by the light falling on the freshly fallen snow. There were so many interesting things going on with the light – textures and tones – and I knew it was something that probably no one else would see. In the morning, they would plow and the snow would be off the road, the cars would come back, and the snow would slowly melt and lose that freshly fallen snow surface. The photograph captures this quiet moment of beautiful light.

All of these ideas were floating through my head while printing, when it struck me that the root of all my thoughts was the light. It was the beautiful quality of light in the photograph that I loved, which I soon realized is what is at the root of all photographs. It is light, the capturing of light, that all photographs share. This must be the essence of

photography, because if light is shared by all photographs, then it is an irreducible component of photography. Light is the essence of photography. It's so simple, but was not something I understood until this particular darkroom session.

10 April 2006

Yesterday I worked on two negatives in the darkroom: one of El Capitan in Yosemite National Park and another of a studio shot of a piece of driftwood. I worked on the El Capitan shot at the urging of my mentor, Michael Maloney. He suggested I work on it because if I ever displayed it and someone asked if it was an Ansel Adamsⁱⁱ print, I could say, "No, it's a Ben Bloom." Now, at the time I thought this was funny and figured I might as well work on the negative, you know, just in case.

The shot is well exposed and pretty straightforward, so I thought it would be an "easy" print. While working on it, though, I found some new thoughts running through my head. They all centered on my own ideas about how Ansel Adams would have printed this negative. How would Adams have cropped this shot? How much detail would he have tried to bring out on this snow? How much would Adams have played with the print? All of a sudden, I had a new criterion for my artistic decisions and found myself trying to produce an Ansel Adams print.

I originally thought that this would be overwhelming as I tried to reproduce the grandeur and detail of Ansel Adams' photographs. However, I found myself in more of a dialogue with Adams' work. It was more of a way to recognize my own interpretation of Yosemite rather than to try to hold myself to Adams' standards. I was still working with my personal vision, but used my love of Adams' photographs to guide my decisions. In my previous work, I tended to consciously avoid trying to copy the masters because I had this notion of creating something new and unique that for some reason would have been inhibited by imitation. This new experience of my "dialogue" with Adams demonstrated the

fallacy of this idea. I felt refreshed after working on the print, as if I became a different person standing in for my normal self. I have a new found appreciation for understanding the works of masters and engaging in a discussion with these works as a way of expanding my own skill, artistic vision, and love of photography.

Final Reflection

My love of photography began in middle school and has gradually grown and deepened continually up through this project. My technical grasp of photography has gotten exponentially stronger since I began, mostly from reading about photography and my own exploration with photographic equipment. This project has allowed me to explore my artistic and philosophic understandings of photography and to reevaluate my own biases and assumptions about photography. When I chose to explore the essence of photography, my primary motivation was to question what I knew about the media as a way of growing artistically.

There is an inherent difficulty in planning any creative process because it is hard to *plan* to be creative. I knew that giving myself set work days would lead to frustration as I would be focused on producing rather than creating. Instead, I focused on putting in continual effort over the course of the semester without forcing anything to happen. If the weather was bad or there were pressing deadlines from other classes, I waited until I could focus my energy on my photography or I would work on this annotation. I tried not to set quantity goals for myself because I feared getting caught in a quantity over quality mindset. My attitude was that as long as I worked and thought about my project consistently, I would make gradual progress during the semester and the breakthroughs would come when the time was right.

I found this attitude to be essential to the success of my project. I was able to explore and play with my photography without the pressure of having to produce a certain number

of prints. This is my ideal working condition and I think my work benefited immensely from this approach. It was like therapy being able to free myself from deadlines and to let my work dictate how much I accomplished. In the end, I produced more prints than I expected while maintaining my own high standards for my work. I was able to leave every darkroom session with a new little piece of insight into photography as an artistic medium.

Another important part of my process was continual feedback from multiple sources. While printing, I would continually consult with Michael Maloney. His over thirty years of photojournalism experience was an asset when I was confronted with a technical hurdle in the darkroom. I spoke with David Akiba, a fine art photographer, about the essence of photography and about how I could realistically achieve my goals. I also showed my prints to my friends and asked for their feedback, even if they were unfamiliar with photography, to get some layperson responses. These different feedback sources, in addition to the feedback from my AHS Capstone section, let me fine tune my prints but also added depth to my own perception of my work.

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ⁱ *Note:* Technically, some types of photography do not rely strictly on light. All of these methods use a different form of radiation (X-rays, infrared, UV, etc.), so you can remove light (visible radiation) from photography, just not all radiation. However, “you can not remove light from photography” sounds to me less apocalyptic and dangerous than “you can not remove radiation from photography”, so it stays.

ⁱⁱ Ansel Adams (1902-1984) was a very famous and influential black and white photographer known for his landscapes and photographs of Yosemite National Park in California.