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2021

What Sound Reveals To Our Eyes: The Intersection Between Subconscious Thought and Real Imagery in Experimental Film and Sound Design

Mireille Heidbreder

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What Sound Reveals To Our Eyes: The Intersection Between Subconscious Thought and Real Imagery in Experimental Film and Sound Design

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Art
at Virginia Commonwealth University.

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Link to Full Thesis Film (Password is VCUThesis): <https://vimeo.com/532678331>

Abstract

WHAT SOUND REVEALS TO OUR EYES: THE INTERSECTION BETWEEN
SUBCONSCIOUS THOUGHTS AND REAL IMAGERY IN EXPERIMENTAL FILM AND
SOUND DESIGN

By Mireille Heidbreder, MFA

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Art
at Virginia Commonwealth University.

Virginia Commonwealth University, 2021.

Major Director:
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The impetus for making films that conjure up atemporal, interconnected spaces suggestive of a unique reality has been influenced in large part by Michel Foucault's idea of *heterotopia*, or the creation of a new world by joining together discursive spaces. As such, my practice begins with the collection and re-imagination of these discursive spaces through a combination of an in-depth exploration of little-known landscapes and the organic observation of the natural realm in relation to the human world. By combining various mixed media including digital, film print, as well as re-purposed archival footage, I alter the filmic quality of the images I have captured and researched to lend them a sense of other worldliness. Concurrently, I create a soundscape, composed of multi-layered field recordings and archival sounds, which are at once harmonious and reminiscent of nature, yet have a cacophonous and almost hyperreal quality. The result of the combination of image and sound is the manifestation of a reality that speaks to the relationship between humanity and the natural world.

I. Introduction

As an experimental filmmaker I choose to explore the continually changing relationship between humanity and the natural world. When filming, I do not set out with a preconceived notion, but rather engage in an in-depth exploration of the elements within an area, investigating unknown landscapes and phenomena while organically observing the natural realm. As such, I immerse myself in an environment and wait for it to reveal itself to me through the filter of my own subjective perception. In this way, I become, in effect, an optical and sonic researcher.

I focus on capturing the visual experiences from my observations with a variety of media, including a combination of Super 8mm and 16mm film cameras and prints, along with lenses I have adapted and modified for my digital work. For my thesis film, titled *NOX*, I have intentionally selected specific film stocks to take advantage of the individual film's unique materiality, each of which captures the equally distinctive ephemeral expression of a moment while at the same time allowing for the preservation of what may or may not be seen in a location at that time. In addition to filming my own images and manipulating the color, grain, and saturations provided by the different film stocks, I have also carefully selected fragments of archival film sourced from the Prelinger Archives. I use archival footage in my work to create transitions between my own captured film, whether film stock or digital, as well as to introduce pieces of historical relevance. The amalgam of images serves to remove any concrete setting or set grounded location. In this way perception, temporality, and incidence are woven together to create a sense of reverie that influences the perceptibility of the events.

Furthermore, I have refined my editing techniques by becoming more conscientious of the transitions between the various media as well as paying careful attention to the compositional

and conceptual matching of each of my shots. I have, in fact, come to realize that the visual slippages from shooting on film print serve as transitional moments between the past and present histories of the locations I am researching.

During my creative process, the construction of a soundscape is as important as the creation of visual imagery. My sound design is not simply a collection of diegetic and non-diegetic sound fragments combined with other musical elements that serve to accompany what is being viewed, but rather, in the manner of other film and sound creators such as David Lynch, I create a soundscape that can stand almost as an individual character. For example, in my thesis film, I incorporate sonically different, naturally occurring sounds together with disparate non-diegetic field recordings, further mixed with archival sound bites of historic recounts of acute natural and meteorological events. I also continuously research how both the inclusion of musical elements and naturally occurring field recordings can overlap in terms of the tonality of specific keys or chords. This mixture of sound creates a space that exists as its own entity that together with the visual imagery develops a *heterotopic* feel. That is, a novel space that feels at once surreal, disturbing, and transforming. The soundscape enhances the visual experience of what is present, while at the same time suggests the possibility of imagined elements. The combination creates atemporal, destabilizing spaces that conjure up an unsettling and unique reality.

II. The Origin of the Idea

Heterotopia, Reverie, Temporality

The idea of the creation of a new world or reality by joining discursive spaces derives from Michel Foucault's theory of *heterotopia*. Foucault's short essay *Des Espaces Autres (Of Other Spaces)* addresses the idea of *heterotopia*, a concept he expanded on to describe spaces that are so mired in layers of meaning and relationships that they cannot be defined by a single overarching ideal or logic.¹ As such, culture and context can redefine these locations and settings, and the newly conceived spaces within that context have a precise function for that given society or persona. Foucault further suggests that heterotopias fragment temporality; in other words, heterotopias encompass both loss and rebirth through their constant recombination. In fact, Foucault notes that a specific heterotopia is neither an open nor closed system. In this way, it is at once isolated from other environments, yet simultaneously penetrable as a function of one's perspective.

In sum, Foucault suggests that sites or stages that reside in our being can mirror and yet distort other spaces. Thus, our subconscious gives us the ability to infer something about a new or revisited thing. At the same time, our collective consciousness, a function of our learned experience of the world and a more esoteric by-product of the exchange of ideas and thoughts with others, further grounds and shapes the way that we perceive an experience. As Foucault explains, "The heterotopia is capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible...heterotopias are often linked to slices in time—which is to say that they open onto what might be termed, for the sake of symmetry, heterochronies."²

¹ Michel Foucault, "Des Espaces Autres [Of Other Spaces: Utopias and Heterotopias]," *Architecture/Mouvement/Continuité* (November 1984): 6.

² *Ibid.*

The concept of the world being an amalgamation of what we experience and what we remember or imagine can also be couched in terms of the divide between the dream state and reality. Gaston Bachelard, one of France's foremost 20th-century philosophers evolved a phenomenology of the imagination in which he describes a state of *reverie*, or creative daydream. In his book *The Poetics of Reverie*, Bachelard addresses this divide suggesting that the perception of reality and the dream state can be considered as parts of a continuum. Furthermore, this spectrum is delimited by real and hyper-real aspects of consciousness related to our phenomenological experience, and the dream state mirrors the reality we experience. Thus, Bachelard's *reverie* refers to something more dream-like than reality, yet different from the dream given one's inability to recount the contents of the *reverie*. Bachelard further suggests that poetic reveries have the ability to create hypothetical lives, which, in turn, enlarge our lives. As Bachelard puts it, "poetic reverie gives us the world of worlds."³ This concept reinforces the idea that the experience of reality or of a world is a conglomerate of all the worlds that we create through dream, perception, imagination, and reverie. As Bachelard explains, "I no longer know what I am remembering or imagining when I come across them in my reveries."⁴ Bachelard's conceptual framework is, thus, complimentary to Foucault's idea of the experience of the world being the result of an amalgamation of what we experience combined with the remembering or imagining of a thing as it passes through the different levels of consciousness.

Within my own work, there is an intentional absence of temporality, which removes the context of present time. The mixture of archival footage and original print, which at times can be indistinguishable, does not allow the viewer to become anchored in a particular time. The choice

³ Gaston Bachelard, *The Poetics of Reverie*, 1969, p. 13.

⁴ *Ibid.*

of editing tempo and pacing add a layer of visual shock that gives the footage an almost nightmarish or dystopic quality. Individually, the images are phenomenologically true, but edited together, they twist reality into a dreamscape that is at once reminiscent of a truth. However, at the same time the juxtaposition makes the viewer question if it is real.

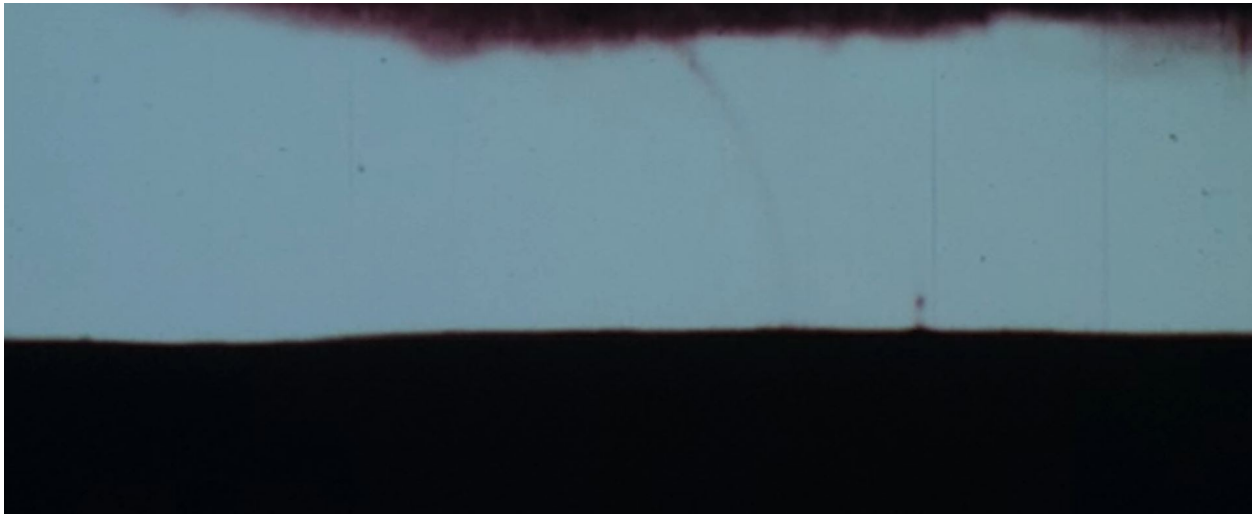


Figure 1. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

Working in Experimental Film

My filmmaking process and practice has also been influenced by several experimental filmmakers whose work frequently incorporates the acknowledgement of multiple perceptions as well as the intertwining of the present and history of specific locations.

In his film *Post Tenebras Lux* (2012), Carlos Reygadas creates a Gaston Bachelard-like reverie by intentionally leaving out a sense of concrete footing for the viewer. Reygadas accentuates the feeling by filming exclusively on 16mm print while also utilizing fisheye lenses and incorporating digital animation to blur the line between reality and dream. He ultimately also leaves the viewer wondering what is occurring as he takes the audience through the stages of life of one family while warping time and creating a differing, other worldly feel. Beyond sharing his inclination towards the interplay between the world of the mind and the external world, Reygadas' use of color, editing, and sound have profoundly changed the direction of my own filming practice.

Filmmaker Ben Rivers often depicts the quotidian stories of individuals and their relationship within their environments. Through a mixture of sound design and different film media, Rivers creates fictionalized or heterotopic filmic realities that are engrained in truth. The imaginary and the real coexist, but with tension, and the addition of sound morph his images into the new dimension. Consequently, Rivers' films have a dystopic quality, and yet reality is never too far away. For Rivers, the incorporation of film print is indispensable. As he puts it, "16mm print film allows you to capture those moments that you will never have again. Furthermore, the imperfection in the film tells its own story and allows the camera itself to tell its own story."⁵

⁵ William Rose, Interview with Ben Rivers, *Vertigo* (Summer 2006), p. 1.

Rivers then proceeds to explain:

I think about the possibilities of worlds that are deeply engrained in our psyche, coexisting with our everyday lives, in a way in which we allow them to. Many of my favorite writers are interested in this tension; they do something I would like to achieve with my films, which is pitch brazen possibilities against the so-called real, whatever that is. I want there to be a convergence between the actual world surrounding us every day, and those informed by our imaginations.⁶

In his experimental documentary, *Ah, Liberty!* (2008), a location study of a family in rural Montana, Rivers combines the portrayal of the quotidian routines of each of the family members, frequently in contrast with a disjointed sound design and variance in pacing of editing. Shot on black and white 16mm print, Rivers creates a disparate new reality through his use of anesthetization of place and layered sound design, while periodically returning to still shots of the vast natural landscape among the surreal imagery he edits and frames together. In this way, Rivers entices viewers to call on their imaginations to interpret the veracity of the film. As he notes,

As an aesthetic category, film could be interpreted with the ethical demands of nonfiction filmmaking as strict documentation; most notably the demands involved in making documentaries that deal with subjectivity as something real and tangible, and therefore antithetical to the categories of the imagination...but simultaneously one should entice the public to engage their imagination and dream-like deciphering.⁷

Given that the confounding of the dream and waking states is nearly a universal experience, perhaps even part of the collective consciousness, the idea of pushing the viewer to engage their “imagination and dream-like deciphering”⁸ while watching a film, is one that I share with Rivers. The intentional absence of temporality in my own films removes the context

⁶ William Rose, Interview with Ben Rivers, *Vertigo* (Summer 2006), p. 1.

⁷ Dara Wilson, "Nonfiction as a Speculative Mode of Inquiry: Subjectivity and the Films of Ben Rivers and Ben Russell," *Millennium Film Journal* (October 2017).

⁸ *Ibid.*

of present time. The mixture of archival footage and original print, which at times can be indistinguishable, does not allow the viewer to become anchored in a particular time. The choice of editing tempo and pacing add a layer of visual shock that gives the footage an almost nightmarish or dystopic quality. Individually, the images are phenomenologically true, but edited together, they twist reality into a dreamscape that is at once reminiscent of a truth. However, at the same time, the juxtaposition makes the viewer question if it is real.



Figure 2. Ben Rivers, still of *Ah, Liberty!*, 16mm film print experimental short, 2008.

Not unlike Rivers, and in order to heighten the experience of dreamscape, my sound design incorporates fragments of images that tap into the subconscious, recalling elements that have no proper role in the image being viewed. The soundscape becomes an additional character in the film, analogous to the mannerism in which David Lynch describes his own use of audio where “sound is used as an atmosphere, almost as a character, and is a memorable part.”⁹ In this way, viewers are left with the nagging feeling that they are witnessing a harmonious cacophony

⁹ Richard Barney, interview with David Lynch, in *David Lynch: Interviews* (University Press of Mississippi, 2009), p. 4.

that is at once logical or rational, but at the same time dissonant and otherworldly. In the end, the objective of my work and practice is to present the truth before the viewer and listener's eyes in a phenomenological manner that is as true as possible, allowing as such the entire spectrum of visual possibilities to reach the viewer. Yet, at the same time, the film also allows the true material to call forth the subconscious biases that reside within each of us, and in some cases all of us.

As an experimental documentarian, Deborah Stratman frequently combines archival/historical context of locations and individuals with footage she captures in the present, utilizing primarily 16mm print. I was first introduced to Stratman's work while attending a screening of her film *The Illinois Parables* (2016), where she also delivered a short artist talk in which she described how she fragmented the film into a re-collection of memories and segments of history, constructed from her own film work and combined with recounts of survivors and archival footage. Though *The Illinois Parables* can also be considered a historical experimental documentary, it presents itself in a more linear manner relative to my own work. However, Stratman's influence on my film work is analogous to her use of a combination of storytelling and memory fragments with traditional filming techniques, such as using spring motor 16mm cameras.

In her films, Stratman often juxtaposes the visual imagery both with sounds that are related to the landscape, but that may not actually be occurring at the precise moment, and oral storytelling. My own work also includes the use of dissonance between what is being viewed and what is being heard, and, like Stratman, has moments of diegetic sound that is at times harsh and jarring. Stratman frequently works individually on the sound designs in her films or in collaboration with other sound artists, such as Olivia Block for *The Illinois Parables*. Both artists

work in the re-purposing of found or archival tapes as well as exploring the dynamics of layering multiple sound fragments, which is a technique that I also implement in my own work and discovered independently. As Stratman notes in an interview, “Sound is what first attracted me to filmmaking,”¹⁰ a conclusion that I have drawn about my own practice.



Figure 3. Deborah Stratman, still of *The Illinois Parables*, 16mm film and archival print experimental short, 2016.

O'er The Land (2009), another piece by Stratman, further influenced my thesis film as this particular short speaks to the “possibility of personal transcendence,”¹¹ a concept that is at the core of most of my own film work. Stratman completed the camera work, editing, and sound design for this film, and once again shot the film exclusively on 16mm film print. Though the film relates to the theme of identity politics, which I have not personally explored in my own film work, Stratman further notes that “the film is concerned with the sudden, simple, thorough ways that events can separate us from the system of things and place us in a kind of limbo...the

¹⁰ Robbie Shutt, “Illinois Parables' explores many facets of the Midwest's past.” *Vox*, 5 March 2016.

¹¹ Deborah Stratman, “O'er The Land”, *Pythagoras Films* (2009).

film forces together culturally acceptable icons of heroic national tradition with the suggestions of unacceptable historical consequences, so that seemingly benign locations become zones of moral angst.”¹²

As Michelle Puetz, a media art curator, writes:

Deborah's films, rather than telling stories, pose a series of problems – and through their at times ambiguous nature, allow for a quite complicated reading of the questions she is asking...[O'er the Land] point[s] to the relationships between physical spaces or environments and the very human struggles for power, ownership / mastery and control that are played out on the land, meanwhile questioning elemental historical narratives about freedom, expansion, security, and the regulation of space.¹³

I have often described my own work as an attempt at creating a timeless, yet interconnected space suggestive of an unsettling unique reality and intended to rattle the viewer's perceptions. For this reason, I use a combination of tangible filmic mediums alongside layered sound designs, to nudge the viewer towards an exploration of how our perception of reality is shaped by both our collective consciousness and our subconscious.

John Smith is a more recent influence, particularly because he is heavily involved in re-purposing found materials both in terms of visual and sonic composition. Many times, Smith's use of sound does not correlate nor match the editing in his pieces, making the combination somewhat absurdist, but still somehow grounded in a perceptible reality. As I have previously mentioned, in my own work I often use dissonance between what is being viewed and what is being heard, but rather than creating an absurdist effect, I attempt to create the feeling of a different “other” reality.

Smith can be considered more of a humorous experimental filmmaker. That is to say, Smith targets absurdist elements of locations and people even in an installation setting. I find that

¹² Deborah Stratman, “O'er The Land”, *Pythagoras Films* (2009).

¹³ Michelle Puetz, *Cinema, Nature, Ecology Conference* (University of Chicago April 2009).

Smith's film *Lost Sound* (1998-2001) is most closely related to my work. Smith describes his film as:

Document[ing] fragments of discarded audio tape...combining the sound retrieved from each piece of tape with images of the place where it was found. The work explores the potential of chance, creating portraits of particular places by building formal, narrative and musical connections between images and sounds linked by the random discovery of the tape samples.¹⁴

The connection between Smith's work and my own revolves around the process of combining found footage and sound with images and recordings of my own making of locations that have been lost or forgotten.



Figure 4. John Smith, still of *Lost Sound*, 16mm film print short + sound installation, 2001.

¹⁴ John Smith, *Lost Sound*, 2001. Recordings can be found at www.johnsmithfilms.com/selected-works/lost-sound/

III. Balancing and Capturing the Visual-Auditory Poetics

Emergence of the Filmic Practice

My artistic practice truly started in poetic and creative non-fiction writing. I progressively began to transform components from my writings into visual and auditory lyrical short digital video pieces. Eventually, the practice started coming together as the creation of experimental films.

I initially sought to give my films a material and temporal quality that resonated with the work of experimental surrealist filmmakers, such as Stan Brakhage, Bruce Baillie, Ben Rivers, Maya Deren, and Carlos Reygadas. Because my first camera was digital, I started to experiment with pin-locked FD/FL mount Canon print film lenses, glass adaptors, and diopters to create a textural feel that removed me from the typical traditionally flat framed and adjusted color levels utilized to adhere to Academy standards and general television. I was also influenced by the surrealist writings of Andre Breton, particularly *Soluble Fish* and his multiple *Surrealist Manifestos*, as well as the automatic and absurdist animations films works of Jan Švankmajer and The Quay Brothers. The works by these filmmakers incorporate animation with or without 16 mm to create texture with visual material. They also include intricate sound designs that serve to enhance the feel of the works through a combination of instrumentals and modulated use of voice and language. What I gleaned from these works provided me with the impetus to create a sensory cinematic experience that is grounded in traditional technique but within an experimental context.

As I evolved within the creative process and started reading the philosophies of Bachelard and Foucault, I began to investigate how film and sound could be used to explore the continuum between reality as we share it among humans, the so-called collective consciousness,

the dream state, and individual perceptions. Given my interest in the relationship between humanity and the natural realm, I strove also to incorporate that theme into my explorations.

I started experimenting with different visual media, researching found footage and sound, alongside constructing my own lenses and shooting not only on a digital camera but on various Super 8mm and 16mm film stocks to uncover the materiality of the filmic medium. As I uncovered the potential of the medium, the images I began to capture revealed a feeling of vanishment as it relates to the idea of the changing natural landscape and the manner in which that change is reflected in collective human memory.



Figure 5. Mireille Heidbreder, still of *Surface Tension*, 16mm film print experimental short, 2017.

As my venture into the visual world deepened, the role of sound also began to play an increasingly more important role in my films. I not only started registering my own field recordings but came to discover the endless possibilities of found and archival sound.

My research also grew to include works from other surrealistic experimental filmmakers such as Jay Rosenblatt as well as sensory ethnographic and experimental documentarians Lucien Castaing-Taylor and Su Friedrich. Their influence led me towards location research, which soon became another critical aspect of my work. Of particular importance to me were landscapes and objects that had been disregarded or discarded, which would allow me to create through film and sound design an analogy between the degradation of the landscape and the experience of helplessness of the human consciousness.



Figure 6. Mireille Heidbreder, still of *Exulansis*, digital experimental short, 2018.

The combination of the techniques I was experimenting with together with the influence of the filmmakers and philosophers whom I was watching and reading eventually culminated in a digital experimental documentary film entitled *Petrichor*. My intent with this film was to capture the removed and haunted filmic reality that encapsulates the notion of loss and hope though the

scrutiny of Virginia landscapes and a mixed sound design comprised of oral histories and experiential recounts of these areas.



Figure 7. Mireille Heidbreder, still of *Petrichor*, digital experimental short, 2019.

Utilizing many of the same techniques, I worked on crafting another experimental film, *Vestige*, in which I combined visual mixed media, including archival film print, my own Super 8mm prints, and my own digital footage with a multi-layered sound design comprised of my own field recordings and found sound. By varying the filmic quality when capturing the images, the experiences of the ordinary natural and human world came to resemble discursive spaces. These spaces, in combination with the sound, allowed me to weave together a heterotopia, which at once somehow represents reality, but also lends a sense of otherness.



Figure 8. Mireille Heidbreder, still of *Vestige*, digital, Super 8mm print, and archival film experimental short, 2020.



Figure 9. Mireille Heidbreder, still of *Vestige*, digital, Super 8mm print, and archival film experimental short, 2020.

For my thesis work I have integrated the concept of *heterotopia* into an experimental short documentary film that explores unexplained and little-known natural and meteorological phenomena that occurred in the Mid-Atlantic region, giving special attention to the destruction caused by Hurricane Camille in 1969 and the record-setting Virginia tornado outbreak of 1993, as well as Virginia's recondite pseudo-active volcano, Mole Hill. The unprecedented and singular nature of these phenomena made them ideal subjects for a surrealistic exploration into the unpredictable impact of nature and the consequence to human life. The film is an amalgamation of true experiences combined with a sense of remembering or imagining said events as they pass through the different levels of our consciousness, leaving the viewer to wonder if our perception of the world and its phenomena can ever be direct. For this film, I once again tapped into the work of other experimental filmmakers, including Ben Rivers, Carlos Reygadas, Deborah Stratman, and John Smith. Their work has impacted my own by helping me to re-imagine specific locations while also incorporating their veridical histories. The film also probes the ephemeral materiality and perceptual nuances of capturing the image and sound of a certain location.

Throughout my films, I hope to nudge the viewer towards an exploration of how our perceptions can be shaped by both our unconscious and collective consciousness as well as how that correlates back to our unpredictable relationship with the natural realm.

Evolution of Practice

The evolving and sometimes new techniques that I incorporate in my filmmaking have allowed me to explore both audio and visual dynamics to truly capture a location across different dimensions and create a unique and comprehensive reality that underscores the connectedness of the location. In keeping with the idea of creating a sensory short film, I have experimented with various lighting techniques and in camera editing processes with more commonly used Kodak Color Negative, Color Reversal, and Black & White Negative Super 8mm and 16mm film stocks, using several different types of cameras one of which I primarily repaired and altered myself. Not unlike some of the experimentations I conducted previously with my digital work, I also altered different lenses with the 16mm cameras I utilized, one of which I adapted to allow for slippages of film and light into the print. These techniques underscore the importance of materiality within my work. In addition, my work rarely has moments of synchrony, which is an intentional function to create a sensory experimental and surrealistic experience that is still somehow grounded in consensual reality. This is one of the driving reasons for why I use mixed media and prefer utilizing more traditional and older filmic techniques.

When I was introduced to shooting on 16mm and Super 16mm film print, I became intrigued not only by the fact that I was not able to look back at the image that I was capturing, but also because I came to realize that any image that I was able to capture would never again be that same moment. In other words, once I had captured the image, it would disappear from the visual reality as the exact representation that I had captured. This struck me as a sort of filmic observer effect akin to what the Heisenberg Principle stipulates; that is, when we observe something, we change it.

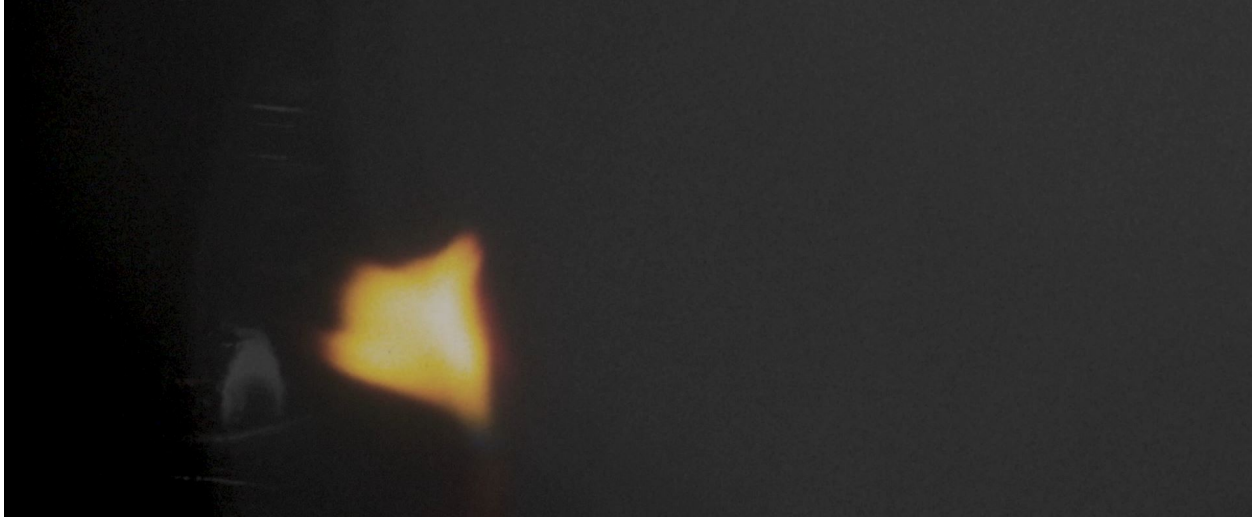


Figure 10. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print and archival film experimental short, 2021.

My decision to start working with Super 8mm was driven by the fact that there is a lack of information on the print; thus the image is distorted by the size of the film gauge and not fully representative of the reality at hand. In Super 8mm film, there is more grain present in the image, which at times could be perceived as poor in quality; however, is simply due to the human eye's registration of the emulsion disturbance within a frame less than a centimeter in width. Hence, by filming on a Super 8mm camera I was able to reimagine and reinterpret quotidian reality in a way that is recognizable, but not fully conceivable.

I also began to experiment with different color film stocks to lend to the image a patina from another time to lure the viewer away from the present even while the image was contemporary. In addition, I incorporated the slippages and incidentals that occurred during filming to further remove the viewer from the conventional perception of what I was showing them.

One of the new approaches I experimented with involved filming and capturing images on one of Kodak's sound recording Black and White 16mm prints (Eastman EXR Sound

Recording Film). My reasoning behind attempting to capture images on a sound print was to explore the possibilities of combining the two critical components of my practice, visuals and sound, in one poetic entity. In other words, the very sound and vibration of the location itself would hypothetically have an effect on the emulsion and eventually on the resulting print. The implementation of this film print within my own work, allowed me to position the image on the



Figure 11. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print and archival film experimental short, 2021.

cusps between artificial man-made material and the physical effect nature can have on it.

In addition to varying the filmic medium I use to capture images with the kind of texture that I am searching for, I have spent tens of hours sifting through archival footage in the Prelinger archives to create a filmic feel reminiscent of Joseph Cornell and Jay Rosenblatt. In my work, I combine my own footage with archival images that resonate with my own film print such that it becomes nearly impossible to distinguish between the two types of footage. This technique further blurs the dimension of time and creates what appears to be a holistic entity occurring in a singular moment; however, is timeless and dimensionally unbounded.

In sum, I have been able to collect an arsenal of tools and techniques that have allowed me to hone my practice of creating for the viewer the possibility of piecing together the elements of my film, which are part dream-like, part subconscious, and part of the viewer's present reality.



Figure 12. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print and archival film experimental short, 2021.

IV. What Sound Reveals to Our Eyes

In my filmmaking practice, the implementation of sound is as important as the creation of visual imagery. My sound design is not simply a collection of diegetic and non-diegetic sound fragments (recorded on a Zoom H4N as well as archival sound sourced from the Prelinger Archives and Freesound) combined with other musical elements that serves to accompany what is being viewed, but rather is intentionally crafted to play an active role in the film equal to that of any other character or element. In fact, the inclusion of musical elements and naturally occurring field recordings in my sound design that overlap in terms of the tonality of specific keys or chords creates a space that exists as its own entity and enhances the heterotopic world developed by the visual imagery. Together, the sound and the images feed the ears and the eyes of the viewer the information necessary to manifest a novel space that is at once surreal, disturbing, and transforming.

As a trained musician, I have always had a keen affinity for the soundtrack in films as well as an innate feel for the importance of how what one heard could influence what one saw. I was deeply affected by György Pálfi's film *Hukkle* (2002), a film with almost no human dialogue, but so rich in diegetic sound that the environment itself seems to speak to the viewer. As such, the first steps in adding sound to my films consisted of mixing diegetic and non-diegetic soundtracks and layering them together. I became particularly interested in combining sounds that did not necessarily belong together or that would ever naturally occur together, but that when brought together created an epiphenomenal experience that was completely different from the single elements. I realized then that I could use sound together with images to create a disparate yet interconnected realm.

Recently, I have started to incorporate musical components. The music that has most influenced my sound designs includes classical composers such as Frédéric Chopin, Sergei Rachmaninoff, and Erik Satie as well as alternative electronic and instrumental musicians Ryan Lott, Yoann Lemoine, Ryuichi Sakamoto, John De Buck, and Jean-Christophe Le Saoût. Other sources of inspiration have come from extensive research of the recordings available via archival platforms and resources.

I have also become interested in the incorporation of a musical soundtrack in my work that includes peaks and repetitions that correlate with both the natural sounds and other musical sounds I use in the piece. In addition, I have been exploring the possibility of recreating the sonic keys represented in nature through constructed music. As part of the sound design for my thesis film, I experimented with tonal sound bites from various instruments, sourced from archival libraries but also my own recordings of modulated chords and string plucking of a grand piano. By taking into consideration the mood, dissonance, and pitch of my own piano recordings, I wove together atmospheric sounds to allow for conflict to occur not only within the sound construct but also the visuals which never alluded to musical instrumentation or even the possibility of a more traditionally constructed film score.

Another experimental sound technique that I investigated in order to interweave my practice with meteorological science, involves the correlation between sound decibel levels (dB) and the meteorological measurement of decibel levels relative to the reflectivity coefficient of Z (dBZ). Given that my thesis project treats the subject of natural phenomena and meteorological events, I did not hesitate to explore the utility of the technique. The proportional dBZ value is a logarithmic, dimensionless technical unit traditionally used in weather radar to compare the

reflectivity factor (Z) of a remote object to a drop of rain with a 1 mm diameter.¹⁵ In my thesis work, I investigated the possibility of creating a comparison algorithm between normal decibel levels utilized in sound design and correlational values of dBZ while considering the atmospheric conditions and recorded values during the time of some of the meteorological events I researched and included in my film.¹⁶ This approach further emphasizes the relationship between both constructed musical elements and natural, atmospheric sounds in my film and research as a whole.

In addition to music and non-human sound, some of my pieces also weave in the voices of individuals who tell a story as part of the visual image. At times, I modulate the voices, not to alter their human quality, but to add a further dimension of sound that transports the viewer. The addition of the human voices to the sound design do not serve to narrate the action, but rather to tell a story or make a commentary that introduces humanity to the natural realm. Sometimes the voice will increase the tension and anxiety of the moment, other times it will bring the viewer back to a quotidian plain that reestablishes the familiarity of being human.

In my work I use sound not only to create dissonance between what is being viewed and what is being heard, but also to leave behind a paradoxical sense of nostalgia and unfamiliarity. My goal is to create a sound design that generates unease in the viewer as it transports them into a manifested world, the elements of which when recalled seem so recognizable, but upon thinking on them are difficult to place or describe.

¹⁵ H.W. Hiser, *Radar Meteorology*, 1970.

¹⁶ United States Department of Commerce, "Hurricane Camille Preliminary Report", October 1969.

V. Creating *NOX*

The idea of incorporating Michel Foucault's concept of heterotopia into filmmaking began with my candidacy film, *Vestige*. In order to create a world that somehow mirrors perceptible reality yet exists outside of it, I began combining digital, film print, and re-purposed archival footage together with multi-layered field recordings and archival sounds to achieve a sense of otherness. As I immersed myself in the different environments and waited for the world to reveal itself to me to capture the footage I needed for *Vestige*, I also began to learn how to become an optical and sonic researcher.

All of these practices together, including challenging natural lighting techniques, in-camera editing processes and print exposures, and utilizing several different types of cameras and print lenses that I reconstructed and adapted to enable their use on a digital camera, have been incorporated into my most recent work and thesis film, *NOX*. However, rather than creating a timeless, yet interconnected space suggestive of an unsettling unique reality as I did for *Vestige*, in *NOX* I use these techniques to achieve a specific, researched, multi-layered, sensory experience, the aim of which is to recreate an illusory representation of the natural world as a dynamic entity that has an effect both on the landscape and on humanity. Ultimately, *NOX* is a layered sonic and visual sensory study that brings to light the power of nature and underscores the powerlessness of humanity in light of a global climate crisis. In fact, in *NOX* I underscore the insignificance of humanity in terms of the world's natural history relative to the potency of nature by showing mostly fragments of human images, and only a couple of very briefly edited images of a full human presence. In addition, there is repetition of flames for a variety of

reasons, including the reliance of humans on fire for providing heat for survival and light, as well as to create a source of grounding back to present reality after a natural disaster has occurred.

For the filming of *NOX*, I utilized four different types of media, specifically Super 8mm film print, 16mm film print, digital footage as well as archival film sourced from the Prelinger Archives that was a combination Super 8mm, 8mm, and 16mm film gauges. The combination of Super 8mm and 16mm film prints permitted me to build on the materiality within my work, not only to create a textural element that adds to the sensory experience associated with shooting on film print, but also to take advantage of the fleeting temporality that this medium offers. In other words, unlike digital film, film print is fraught with uncertainty not only in terms of what the image will look like at that moment, but also how the image might be changed during processing. Whereas a digital image can be examined and retaken, even revised within that given instance, the series of images taken on film stock is a once in a moment opportunity. There is no ability to return to the scene, so to speak, or to repeat that exact event. Furthermore, the moment in time at which the image is captured is also affected by a variety of influences that have little to no effect when capturing a digital image. Print film can be affected by temperature, dust, moisture, and light leaks, all of which can have a profound effect on the emulsion and interact with the image that is the subject of that moment of filming. These conditions and situations yield an image that is locked in time and space and can be produced only once. In this way, the film is grounded in a specific temporal framework.

In *NOX*, I use a combination of Kodak film, including: Vision3 50D color negative Super 8mm and 16mm prints, Ektachrome 100D color reversal Super 8mm and 16mm prints, Double-X black and white 16mm print, Kodak Tri-X Super 8mm and 16mm prints, and Eastman EXR

3378E sound recording black & white 16mm print. Each of these film stocks has a particular and intentional use in the film.



Figure 13. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The Vision3 color negative film prints served as my more variable color stock, thus one that maintained a more neutral color palette leaning towards greens, blues, and browns to satisfy the color scheme of many of my landscape-based shots. *NOX* as a whole has a slight blue tint and neutral color saturation, again an intentional choice that is in keeping with the meteorological theme of the film given that it is the tonal color of meteorological weather events and also represents the reflectivity of the atmosphere. An example of the effect of using Vision3 film print starts at 2 min 30 sec in the film, which begins with a shot of a water tower during a tornadic storm alongside the same repeated pathway as part of my historic and meteorologic research, captured with a Canon 514XL Super 8mm camera. Seven seconds later there is an abrupt cut to 16mm footage, still Vision3 stock, using a Bolex H16 Reflex 5 16mm camera of the same tower during a sunny fall day, distant from the now dissipated tornadic structures. Both shots are heavily blue and green saturated with the first creating an almost black and white feel

due to a lack of information in the shot thanks to my decision to utilize an 8mm film gauge, and the second being brilliantly colored because of the increased clarity not only due to atmospheric conditions but also thanks to the switch to 16mm film print. Blue and green tones are also highlighted in many of the beach scenes throughout the film, as well as additionally in the archival footage of the same locations that I researched and collected.



Figure 14. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The Ektachrome color reversal film print lends *NOX* a very specific color palette in the pink/blue/purple spectrum for certain moments during the film. At different moments in the film the Ektachrome shot on a Super 8 camera gives the images a pink hue as is evident, for example, at 1 min 16 sec in a shot of row houses or at 1 min 19 sec in a shot of a wall that transitions from blue to pink. The Ektachrome on a Bolex H16 Reflex 5 also creates the illusion of a sunset on sea horizon in minute 4 min 8 sec. These examples are all products of the Ektachrome itself, which creates the illusions and provides me with the visual tools to lend *NOX* a surrealistic feel. It is worth noting that the fuschia-like hue at 3 min 40 sec, and which repeats itself throughout

the film, is not Ektachrome but Vision3 print and is due to a flare rather than the characteristics of the film itself due to my manipulations of film print exposures on both 16mm cameras that I utilized: the Bolex H16 Reflex 5 and Arriflex 16S. Finally, I had the intention to incorporate images I shot on a roll of expired color Ektachrome 160 Type A, as well as to experiment with color acceleration of a print that traditionally can only be processed as black and white due to lack of compatible chemicals as the line of Ektachrome 160 was discontinued in the 1980s. However, as is the risk associated with print film, the film was too brittle due to its age and disintegrated during the final steps of processing.



Figure 15. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The black and white footage in *NOX* was taken almost exclusively on Double -X black and white negative 16mm film print instead of utilizing the more common black and white reversal film stocks. I made this choice to ensure a greater level of saturation and black tones, and also to provide me with a higher film speed, higher ISO/ASA reading, which allows for

more flexibility in light sensitivity. I shot on this film stock with both the Arriflex 16S and Bolex H16 Rx 5 cameras. The footage I shot with the Arri 16S, also constructed with a variable speed motor allowing for additional alterations in interpretations and perceptions of temporality, depicts the scenes of the West Point Pamunkey River bridge in King William County, which was destroyed in one of the recurring tornadic paths during one of the more prominent outbreaks during the mid-1990s. The resulting footage shows a flicker flare that is an incidental from within the camera itself, an example of a moment preserved in print that will never be recreated again. In addition, at 7 min 26 sec, I incorporated a nesting technique in post-production (through Adobe Premiere Pro) that allowed me to layer footage of a flame shot on Double-X with the Bolex H16 Reflex 5 with footage of a flame shot on Vision3 with a Super 8 camera. The combination of both filmic media and switch from warm tonal colored prints to the harsh contrast that is the hallmark of Double-X film added to the *heterotopic* feel that persists throughout the entirety of the film and was compounded by layering spaces that in the film had been interconnected through fast-paced editing but not super-imposed until this culminating moment of the film. The latter part of the film is primarily comprised of Double-X prints shot on the Bolex H16 Rx 5. There were two reasons behind the decision to switch to black and white prints for this segment of the film. One was to highlight the cloud formations I was filming. The other was to create a dream-like reality construct of the Nelson County Rockfish Gap Valley location that was so strongly impacted by one of the natural disasters that was a component of my research, namely Hurricane Camille.

I used both Super 8mm and 16mm Tri-X black and white reversal film sparingly, specifically due to the presence of heavier grain typically associated with the print. For example, I used the Super 8mm gauge of the stock to capture a beach scene at minute 3 min 53 sec to lend

the film a sense of the hazy, air pollution and ash which follow shots of volcanic structures and explosions to underscore post-volcanic scenery.



Figure 16. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The post-volcanic scenery created by the Tri-X footage was a perfect segue for the Eastman EXR sound recording black and white 16mm print. I chose to use this sound print in order to experiment with the possibility of combining both sonic and visual techniques. The print is very slow in terms of film speed, with an ISO/ASA of about 12, and as a result is extremely light sensitive. It is also an orthochromatic film, meaning that it filters out all red wavelength spectral light. Furthermore, the film is sound sensitive, and as such, sounds at the scene in which one is filming can potentially have a direct effect on the film emulsion as well as affect the image due to it being originally used for direct sound recording. The transition from the black and white Tri-X film hint of post-volcanic scenery to the seemingly overexposed image (approximately 3 min 5 sec) captured on the sound print creates the impression of volcanic ash, thus underscoring the previous footage related to volcanic eruption. By filming on such a low speed, and therefore

light sensitive, film designed for internal sound recording or reprinting, the image captured at a particular location, when processed (which I processed as a positive print), will have incorporated the boundaries and audio wavelengths of sound recording on 16mm film alongside the overall spectrometry of shooting on regular black & white orthochromatic photographic film.



Figure 17. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The various film stocks were chosen for their ability to generate a feeling of past tense even in a present-day subject. The footage shot on the print film was further manipulated, primarily while filming versus in post-production, to make it nearly indistinguishable from the archival footage that was used in the film. The archival footage, once again sourced from the Prelinger Archives, is from the 1960s through 1970s with some footage from the 1990s. Many of the images used represent actual footage from the aftermath of Hurricane Camille during 1969 until 1975. Archival footage related to the tornadic phenomena in Virginia was from the 1960s-1990s and included both Public Service Announcements and government issued videos, alongside a short segment of my own camcorder footage of one of the outbreaks that I shot while

attending middle school in central Virginia. As for the volcanic footage, I used my own combination of Super 8mm prints and digital film of the volcano at Mole Hill in the outskirts of Harrisonburg as well as the volcanic structures at Natural Chimneys Regional Park in Mount Solon. Although there is no other existing footage to substantiate activity or even an explosion of the volcano at Mole Hill, historical data indicate that this volcano did explode hundreds of years ago, and the potential for another explosion still exists. Experts confirm that the volcano at Mole Hill could be reactivated at any point in time. Furthermore, the volcano coincidentally also was in the destructive path of Hurricane Camille, making it even more meteorologically relevant for the purposes of this film.

The few digital shots in *NOX* were used for transition as well as to provide a mixture of temporal connection between locations and adding to the heterotopic feel. What makes the digital footage I utilized in *NOX* unique is the fact that I almost exclusively utilized Canon FD/FL mount and Pentax mount manual lens and C-mount non-reflex lenses both of which are traditionally used with print film cameras. For example, I used a C-mount wide-angle lens typically used on 16mm cameras, such as the Bolex H16. With the aid of several mount and aperture adapters, some of which I constructed myself, I was able to mount these lenses onto my digital camera, a Nikon D5300. The compatibility issues between the lens communicating via the adapter to the body of the Nikon DSLR resulted in a shifted depth of field and once more incidental alteration of the image. An example of such an image can be seen at 4 min 19 sec. The captured image appears as an out of focus landscape because it is essentially the combination of two forms of image making. The coloration of the images captured, the curvature of the lens, and the discrepancies in aperture adjustments due to adapters, created digital images that were reminiscent of the visual aesthetic of film print. Furthermore, manually controlled light leaks into

the prism of the digital camera, as well as the antique nature of the lenses create the presence of a slight hue that is dependent on the angle of the light source and often added a yellow/auburn tint to my digital film, which enhanced the *reverie* like quality of the film.



Figure 18. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

Finally, some film print sequences captured on the Bolex were also affected by the atmospheric conditions themselves. Given that the Bolex uses a spring-loaded mechanism to power the spooling of the film while shooting, both temperature and altitude can affect the workings of the mechanism. The slight flash present at around 6 min 16 sec in the film is the direct result of the atmospheric conditions on the Bolex spring mechanism. Despite the fact that the camera is not variable speed, the change in metallic interaction and pressure release from the spring itself interacting with the current meteorologic conditions most likely caused a change in frame rate. This is yet another example of the ephemeral and unique quality that print film brings to footage.



Figure 19. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The choice of locations for this film, which on the surface recounts the effects of little-known meteorological and geological phenomena that occurred in Central and Southwestern Virginia, represents only a superficial reading of the intent of the film, and knowledge of the locations is not necessary to receive the full effect of the film. However, having specific locations allows the film to be grounded in a reality that existed, and as such, permitted me to play with the temporal and historical aspects of the representation that I wanted to show. In doing so, I attempt to take the viewer in and out of historical references, making the viewer lose the sense of temporality and subjecting that viewer to a new sense of time and place that captures the heterotopic and dystopic feel that I am trying to generate. The locations also served to instruct me on how editing would proceed.

Furthermore, though the meteorological and geological evidence provides a grounding for the work, the film can also exist without specifically understanding the historical underpinnings. Rather the historical references allowed me to challenge temporality thanks to the

carcass of the events left behind in the form of archival footage. As previously mentioned, the film is first and foremost a sonic and visual sensory experience that serves as a virtual metaphor for the concept of humanity versus nature with moments of surrealistic, dream-like escapism.



Figure 20. Mireille Heidbreder, still of *NOX*, digital, Super 8mm/16mm print, and archival film experimental short, 2021.

The sonic component of *NOX* is as important as the visual component. The sound design is comprised of layered field recordings that I recorded with a Zoom H4N as well as archival recordings and sound bites from the Prelinger Archives and Freesound. For *NOX*, there are times that I have chosen sounds that have nothing to do with the image at hand but are sonically relevant and have meaning that can be extrapolated to the visual moment. The combination of disjointed but coherent sounds and images is consistent with the idea of *heterotopia*. For example, during a moment in which I am shooting on the Eastman EXR black and white sound print (approximately 3 min 35 sec), I use a recording I made of a dog chewing a bone, which I then I modulated to sound like cracking rock and bones. This sound together with the visual

representation of what looks like ash provided by the sound print footage work together to emphasize the idea of post-volcanic eruption even though they are not contextually related. In other words, I was able to create a moment that could be sonically meaningful for the visual moment. However, there are obviously many sound components within *NOX* that are related and recognizable. For example, the repetition of the sound of water that is introduced a multitude of times throughout the film and is particularly evident towards the end of the film, recalls the very beginning of the film and connects the various components of the film. Thus, the audio-visual integration does not exist as a fully perceived reality, but rather serves to tie together segments of the film while heightening the viewer's sensory experience.

As a whole, I structured the sound design of *NOX* taking music theory into consideration, specifically a type of musical composition known as a *Rondo*. The film is divided into various distinguishable sections, noted as A-B-A-C-A-B-A, culminating with a *coda*, which is defined as the culmination of a musical composition that differs from the structure of the piece or movement as an entity. The film was also edited in this manner. The first portion of the film (A) has the fastest paced edits until a crescendo is reached coincident with a long take of a water tower shot on Vision3 Super 8mm film stock (2 min 30 sec) during a present-day tornado watch (filmed June 2020) in which tornadic funnel clouds and rotation were present. This first portion of the film relates to the tornadic outbreak from the 1990s. Tornadic storms in this part of Virginia typically follow the same path, moving from the west to east, primarily targeting the Petersburg/Hopewell corridor and then move out to sea. Why tornadic paths follow the same path remains unclear; however, it has been a noted re-occurrence that is frequently mentioned in Skywarn and meteorological classes, as stated by National Weather Service Chief Meteorologist

Mike Montefusco.¹⁷ This fact is one of the reasons I found them interesting, and relevant for the purposes of a film on the unpredictability of nature. In *NOX*, I include footage of remnants of the Campbell bridge in Patton Park, Petersburg, where the 1995 outbreak of tornadoes touched down, and which is the site of the repeated pathway of tornadic activity in Central/Southcentral Virginia. The film also includes shots of the area of Grandview Nature Preserve in Hampton, Virginia that also suffered the ravages of the tornadic activity during this period.

Immediately after the crescendo at the stormy water tower (2 min 29 sec), the film cuts to silence and a sunny shot of the same water tower (2 min 37 sec). The film then transitions to the second part of the rondo (B) and footage of Hurricane Camille which made landfall in 1969, devastating the Rockfish Gap Valley and other portions of Nelson and Augusta counties in Southwestern Virginia. The archival footage in this section of the film is actual footage from the Prelinger archives after the disaster. Hurricane Camille, a Category 5 storm, had the unusual trajectory of increasing in strength as it moved inland, and impacting a region that had never seen and never again witnessed a hurricane of that strength. The coincidence and relevance of choosing to treat the subject of Hurricane Camille together with the tornadic activity has to do with the fact that Hurricane Camille was upgraded to a Category 5 precisely at the same location, the Petersburg/Hopewell corridor, where the tornadic activity of the 1990s, specifically the outbreak of 1995, took place.

Finally, the third part of the rondo (C), is related to the volcano at Mole Hill, which remains one of two partially active volcanoes on the Eastern seaboard of the United States. Mole Hill is located in the same general area where Hurricane Camille had the greatest impact (Augusta County, Virginia). There is also geological evidence consistent with volcanic activity

¹⁷ Mike Montefusco, interview with Mireille Heidbreder, May 14, 2020

in this area in the form of solidified volcanic rock eruptions in Mount Solon also located in Augusta County. Although at these particular locations I utilized a combination of Super 8mm and 16mm color negative Vision 3 prints with digital footage, I also incorporated my experimentation with the Eastman EXR sound prints, filmed at York River State Park near Williamsburg, Virginia, to transition to the effects of the volcano. The images taken with the sound print serve as a metaphor for volcanic ash due to the white “overexposure” of the shots and depth of shadow of flora-like remnants on the beach. However, as the location itself was no longer Mole Hill nor Mount Solon, this transition served as the repetitive component (A) in the musical-rondo structure and back to the storm systems. The coast and riverbed of the York River were the last land points the tornadoes touched before either evolving into waterspouts or disintegrating due to the switch in meteorological potential energy. The archival audio present during the sound design for the footage of Mole Hill comes from government alerts and recordings from a volcanic eruption emergency in Hawaii during the 1980s. After this transition, the film fluctuates once more between segments of tornadic footage, returning back to the location and temporal presence of Hurricane Camille (rondo segment B), concluding with the final tornadic activity and the incorporation of visual fragments of human figures.

The *coda* or culmination is crafted with the creation of modulated low frequency wind speed, sheer, and thunderstorm activity field recordings. The frequencies, wavelengths, and tonalities of said recordings were constructed using a combination of mathematical equations derived from what is known as the decibel relative to Z, or dBZ, which is a logarithmic dimensionless technical unit used in weather radar to compare the reflectivity factor (Z) of an object to a drop of rain with a diameter of 1mm. In order to develop an algorithm to describe the relationship between the value of dBZ and decibel sound levels (dB), I researched the

meteorological conditions during Hurricane Camille as well as volcanic eruptions and estimated their reflectivity patterns by taking the derivative of the logarithmic functions. I was then able to determine that there is a relationship and variance of about -12 decibels between sonic dB levels and the meteorological measurement of dBZ. I then selected two sound fragments, one of storm systems that I recorded during the summer of 2020 and another from archival sound footage from Hurricane Camille. I mixed these together and then modulated and compared the sounds with a discrepancy of -12 dB, leveling higher and lower outcast frequencies. These calculations and modifications resulted in the sound which is the culmination (*coda*) of the film and arrives at the same moment as the sound print at the end of the film as it goes to pure white. This moment also stands as the musical *coda*. The film begins in complete darkness with a black screen, but ends in white, creating a juxtaposition, which at the same time maintains a sense of continuity because of the use of a quasi-solid color, moving image frame at both ends of the film.

Finally, in order to enhance the tension in the viewing experience, I also chose to morph each of the film stock into the cinemascope, also known as anamorphic format, aspect ratio. In other words, the footage in *NOX* was sized to the ratio of 2.35:1 versus the more conventional and commonly used widescreen aspect ratio of 16:9 or the traditional Academy aspect ratio of 1.375:1. The use of the cinemascope aspect ratio allowed me to add yet another layer to the message being conveyed in *NOX*. By utilizing this particular aspect ratio, I took into consideration more the width than the height of the cinematographic screen. With cinemascope, one has a narrow vertical height of the screen but wider horizontal presence, making it optimal for depicting landscapes. It also shifts the perception of depth of field in post-production. In addition, the anamorphic format added to the atemporality of the film by creating a feeling from another time. Though there might be some who argue that I should have considered staying true

to the aspect ratio of at least one of the filmic media I utilized instead of compiling and morphing all of them into a different format, I would argue that bringing all media into the same format allows for a continuity of sensation.

The format of the film also played an integral role when designing and constructing my exhibition space for the installation of *NOX*. I considered different immersive film installation techniques, including back projections, surround sound set-ups and even the possibility of a multi-projection installation. However, I decided that the film would be best served in a darkened, black-box cinema type of set up. To my mind, highlighting the power and presence of the soundtrack and being able to provide a large-scale projection of the film were the most critical components, and they governed the final choice for the design of the installation. Thus, the final thesis installation comprised a dark, immersive setting with high-powered amplitude left/right stereo speakers (Mackie Thump 12A) wired to a 6000-lumen projector (Epson PowerLite L615U). For the projection of the film, silver HD-3D reflectivity projector screen paint was applied to amplify the projected filmic image. Carpet tiling alongside acoustic paneling and noise-cancelling curtains were also installed to allow for better sound balance, bounce, and less bleed into the other installation spaces.

In closing, my decision for the title *NOX*, like the film as a whole, also has multiple layers of meaning. The most obvious is its meaning in Latin, a third declension nominative word for night, darkness, obscurity, chaos, and blindness. However, when notated NOx, the word also refers to Nitrous Oxide, one of the main greenhouse gases that is the direct result of human activity and is a major contributor to climate change due to its detrimental effect on the atmospheric ozone layer. Recent meteorological studies have determined that increasing levels of Nitrous Oxide have and will continue to contribute to the drastic change in developing weather

patterns, including intensified Atlantic hurricane seasons and more frequent tornadic outbreaks as just a few examples.¹⁸ Finally, when inhaled in concentrated form, Nitrous Oxide is also a sedative gas that can promote a state of reverie that is neither dream nor reality. The film *NOX* contains all of these elements in different forms to convey the unpredictability of the power of nature versus the powerlessness of humanity.

¹⁸ Dave Dempsey, "Description of the Atmosphere", *San Francisco State University Department of Geosciences* (Spring 2007): 1-3.

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