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UNIVERSITY OF CALIFORNIA, SAN DIEGO

*The Winter Stars*

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Musical Arts

in

Contemporary Music Performance

by

Rachel Beetz

Committee in charge:

Professor John Fonville, Chair  
Professor Amy Adler  
Professor Anthony Burr  
Professor Amy Cimini  
Professor Roger Reynolds

2017

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Chair

University of California, San Diego

2017

## TABLE OF CONTENTS

Signature Page .....	iii
Table of Contents .....	iv
List of Figures.....	vi
List of Supplemental Sound Recordings.....	vii
Vita.....	ix
Abstract of the Dissertation.....	x
Introduction .....	1
Chapter 1 – Creative Projects Before <i>The Winter Stars</i> .....	6
A. <i>Script-Rescript</i> .....	6
B. Catalysts.....	11
Chapter 2 – <i>The Winter Stars</i> : December 11, 2015 – January 9, 2016.....	17
A. Project Proposal .....	17
B. Reality of the Project – Improvising Solutions.....	18
C. <i>The Winter Stars</i> Routine .....	24
Chapter 3 – Realizing <i>The Winter Stars</i> into Sound.....	30
A. Score Making Process .....	30
B. Recording Star Trail Scores.....	40
D. Recording Snow Trail Scores .....	47
E. Realizing Cloudy Materials.....	49
Chapter 4 – Knitting Snowball Stars.....	53
A. The making of the snowball stars.....	53

B. Connection through knitting .....	58
Chapter 5 – Examining my practice in <i>The Winter Stars</i> .....	61
A. A larger goal made through repetitive actions .....	61
B. Physicality and Immersion .....	64
C. Practice Routines .....	65
D. Looking forward.....	67
Bibliography.....	69
Appendix A – The Winter Stars Scores.....	71
Appendix B – The Winter Stars Scores Used for Recording .....	102

## LIST OF FIGURES

Figure 1.1: Nichole Speciale’s <i>Repeat After Me #1</i> .....	7
Figure 1.2: Nichole Speciale’s <i>Script-Rescript #4</i> .....	9
Figure 2.1: Skammdegi Artists in Residence, demonstrating snow trails .....	23
Figure 3.1: Track Information Chart for <i>The Winter Stars</i> .....	31
Figure 3.2: December 25 <sup>th</sup> Score from Recording Session.....	32
Figure 3.3: Drawn Score from December 11 <sup>th</sup> .....	34
Figure 3.4: Snow Score from December 20 <sup>th</sup> .....	36
Figure 3.5: Snow Score from December 24 <sup>th</sup> .....	37
Figure 3.6: Score from December 31 <sup>st</sup> .....	38

## LIST OF SUPPLEMENTAL SOUND RECORDINGS

1. Beetz\_01\_TWSDec25\_Stars.wav
2. Beetz\_02\_TWSDec20\_Snow.wav
3. Beetz\_03\_TWSDec16\_Overcast.wav
4. Beetz\_04\_TWSDec17\_Blizzard.wav



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## VITA

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# ABSTRACT OF THE DISSERTATION

*The Winter Stars*

by

Rachel Beetz

Doctor of Musical Arts in Contemporary Music Performance

University of California, San Diego, 2017

Professor John Fonville, Chair

This dissertation examines how my instrumental performance practice informed the development and execution of *The Winter Stars* sound installation. Starting with concerns of this interpretive practice and the collaborative project *Script/Rescript*, the process of making *The Winter Stars* is examined in great detail, illuminating how natural forces and my own tendencies influenced the making process at each step. Special attention is also paid to the community fiber work aspect of the project. A final chapter evaluates the role of repetition, physicality, immersion, and performance in *The Winter Stars*.

## Introduction

*The Winter Stars* is a thirty-hour sound installation created during the winter of 2015-2016 in Ólafsjörður, Iceland. Making the installation involved several mediums: photography, field recording, photo editing, creating and interpreting graphic scores, studio recording, audio editing, and knitting, all of which extended and challenged my practice as an instrumental performer.<sup>1</sup> This document will examine how my practice developed from one as an interpretive performer to a creator in *The Winter Stars* through a detailed discussion of and reflection on the creative processes involved.

*The Winter Stars* is the result of the combination of two modes of art-making: I worked with the experimental music tradition of graphic scores to produce material for a multimedia installation. Each of these practice have a history that informs *The Winter Stars*. Experimentation in alternative forms of musical notation began in the post-World War II climate of experimental music in the graphic score compositions by Earle Brown, Morton Feldman, and John Cage. In these scores lines, graphs, and other visual gestures indicated musical sounds to be defined by the performer. Methods for performing these graphic scores varied widely according to instructions and practices specific to each composition. In Morton Feldman's *Projection 1* for solo cello from 1950, the score consists of a graph, each cell indicating a single beat in which sounds occur along the x-axis of the graph. Each sound's timbre (pizzicato, arco, and harmonics) and relative register (low, middle, and high) is determined by that cell's orientation on the y-axis of the graph. This

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<sup>1</sup> The collection of photo scores appears in Appendix A; representative samples of the sonic material are present in the supplemental material.

is in contrast to Earle Brown's *Four Systems* from 1952 in which very little instruction is provided, instead presenting the performer(s) with a visual stimulus consisting of lines of varying thicknesses and densities to be realized as sound in any way the performer(s) see fit. Further developments in graphic score notation can be found in John Cage's *Variations I-II* where pieces of transparencies including lines and dots are dropped on a neutral surface. The measured relationships of dots to lines indicates values of specific qualities of sound. All of these graphic scores involve varying degrees of preparation from the performer ranging from extensive measuring and interpreting in the Cage scores to the possibility for spontaneous moment realization in Earle Brown. How a performer approaches these graphic scores depends in part on their own practice aesthetics. One performer who was integral to these pieces and development of their performance practice was the pianist David Tudor, to whom *Four Systems* is dedicated. Tudor's process involved extensive pre-planning and often re-notating of the graphic scores given to him. In Tudor's creation of *Four Systems*, he measured each figure along the x-axis treated as time, and the y-axis treated as pitch, yielding a simple and concrete method of translating graphic gesture into sound; it is the same process that I used in both of my graphic score projects.<sup>2</sup> *The Winter Stars* project is rooted in this practice of reading graphic scores, especially in the performance practices from David Tudor.

*The Winter Stars* also connects to installation art in the creation of a three-dimensional space for the presentation of sound and images. In this genre of installation, the audience becomes visually and sonically immersed in an environment created by the

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<sup>2</sup> Extensive discussion of Tudor's processes and practices regarding *Four Systems* can be found in the research of John Holzapfel, in Chapter 4 of "David Tudor and the Performance of American Experimental Music, 1950-1959."

artist. There are specific installations which align with *The Winter Stars*. La Monte Young and Marian Zazeela's ongoing *Dream House* at the Mela Foundation in New York City is a listening and light environment which asks the listener to engage through the quiet exploration of multiple vantage points and can be visited for up to ten hours at a time. *The Winter Stars* is also a type of listening environment, meant to be explored over long periods of time and revisited periodically. Yayoi Kusawa's *Infinity Mirror Rooms* (since 1965) are visually similar to *The Winter Stars* in their suspension of LED lights in an expansive room, though the rooms can only be visited alone for one minute. Both *Infinity Mirror Rooms* and *The Winter Stars* give the imagery of being in outer space, transforming the two dimensional sky into a three dimensional room. Christian Marclay's *The clock* (2010) takes excerpts from 70 years of films which contain clocks or references to time, placing them together into a 24-hour presentation, matching the time in the video to the exact time of day. Each of the thirty hours of the *The Winter Stars* represents a specific photograph from a specific day, though is not as literal in its presentation of time as in *The Clock*. Another work by Marclay that connects to this project is his *Screen Play* (2005). This work is a set of found video images and animation that create a musical score to be interpreted by live improvising musicians. *Screen Play* approaches graphic score realization through the performative sound making practice of improvisation while *The Winter Stars* approaches it through the creation of a recorded object. Lastly, the work of Allan Kaprow in *The Blurring of Art and Life* (1993) and the *Happenings* of the 1950s and 60s present a connection between everyday objects and activity to art practice. The everydayness of the stars and snow and the routine process are transformed into a work of art. While Kaprow's work tended to be performance based, *The Winter Stars* stages as installation the

products of Kaprow-like processes undertaken by the artist. In making *The Winter Stars* it was necessary to step beyond the musical realization of graphic scores into installation art to create a listening space open for an extended period of time presenting a striking visual atmosphere.

This document begins with an examination of the work that I was engaged in that led to the development of this project. Coming from an instrumental performance background, *The Winter Stars* developed from constantly challenging my performance environment through the programming of physically challenging and long duration works, specifically with the project *Script-Rescript* in collaboration with visual artist Nichole Speciale. The challenges I presented to my instrumental practice in the concert hall served as a catalyst to making *The Winter Stars*. Both *Script-Rescript* and these catalysts are discussed in detail showing how they led to the creation of an installation work. I'll then go through the working process of gathering the raw material for *The Winter Stars* and how that material was transformed into the sound and visual material for the installation. Through this examination of the working process I will pay particular attention to how routines and small-scale decision making shaped the final form of the installation. The day to day practice of being an instrumental performer centers on multiple levels of routine and repetition. This way of working manifested in many other mediums throughout the process. Small decisions within these routines would have a big impact of the aesthetics of the final work. Finally, I will reflect on the entire working process from the vantage point of having exhibited the piece twice. This reflection will illuminate connections between the goals of my instrumental practice that led to the development of the piece and how they played out in this work.

There are specific elements of my practice which are illuminated through the detailed discussion of the creation process. The elements of tactility, physicality, routine, and immersion are present in both how I made the piece and how it is exhibited. Stemming from my instrumental practice routine, I found a way to insert a repetitive routine into the making of *The Winter Stars* on multiple levels. These routines involved a physical touching of the material through different mediums: digitally, with drawing, and with playing the instrument. These tactile processes are also physically challenging either in their number of repetitions required or in their long duration to completion. Ultimately, my work involves a process which is tactile and repetitive. A total core concept is essential to me to find how to make this repetitive process important to the work. Overall, tactility is very important to my work; whether it is through repetitions on the flute in the practice room or knitting small snowballs, I find a way to touch each part of my work, knitting the entirety together.



## Chapter 1 – Creative Projects Before *The Winter Stars*

### A. *Script-Rescript*

In the spring of 2013, Nichole Speciale had a mid-residency MFA show of drawings called *Repeat After Me* at UC San Diego's Visual Arts Facility. The drawings were made with colored pencil and embroidery thread on book end pages. She describes the process of creating these drawings as follows, "In each drawing, an initial geometric shape is drawn to point like a constellation, then using thread I translate that form."<sup>3</sup> This resulted in multiple architectural spaces popping out of the image according to the light and the perspective of the viewer. Figure 1.1 is *Repeat After Me #14*. For me, it was a similar expression of what often occurs in solo flute music – a combination of lines on a flat surface are asked to separate, interact with each other, according to the ear. What *Repeat After Me* did with light and the eye, many pieces of solo flute music aimed to do with sound and the ear. This inspired me to select a series of solo flute pieces which approached counterpoint from different directions. They were: Peter Ablinger's *Piccolo und Rauschen*, Franco Donatoni's *Nidi*, Morton Feldman's *Trio for Flutes*, Evan Johnson's *émoi*, Brian Ferneyhough's *Superscriptio*, and Alvin Lucier's *13 Degrees of Darkness*.

There are obvious methods of counterpoint in some of the above compositions: Feldman and Lucier are layered flute parts playing similar sounds. The Donatoni is more of a classic example of melodic counterpoint, more like Bach, where multiple voices are realized through register and harmony. The Ablinger is different in that the piccolo is in

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<sup>3</sup> "Repeat After Me," Nichole Speciale, accessed March 7, 2017, <http://nicholelizspeciale.com/repeatAfterMe.html>.

counterpoint to the “everythingness” of the white noise. Both the Ferneyhough and the Johnson were more focused on counterpoint within the performing body. Ferneyhough’s

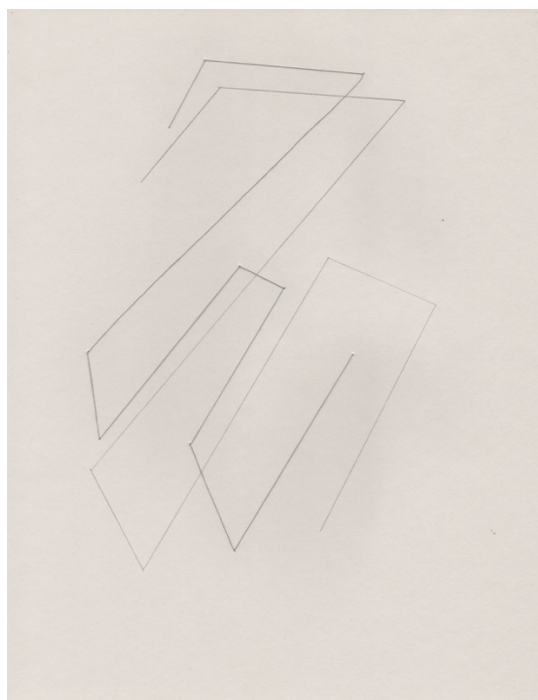


Figure 1.1: Nichole Speciale’s *Repeat After Me #1*  
Used with permission

counterpoint was in combination of different densities of texture via elements of articulation and dynamics, combining these areas in ways which stretch the physicality of the player. Johnson’s piece not only has multiple lines within a staff, but also multiple staves with multiple lines, requiring the flutist to find a physical journey through the material, sometimes leaving some elements of the score only to be performed mentally. These different approaches to melodic counterpoint were challenges on my singular physical being to express a multiplicity of lines.

This challenge was seen through multiple levels of the concert from the micro level of interpretation to how pieces were presented in the room. Each problem was

solved with a different approach, sometimes through duplication in having another flutist perform alongside myself, such as in the Feldman and Lucier, or in extremes of proximity to the audience, such as in the performance of the Johnson in the front row and the Ablinger in the back of the hall. The distance or proximity of the audience was meant to indicate a mode of listening. If they are closer, perhaps they will hear more detail than the larger picture which could be presented further away. The Ferneyhough and the Donatoni were presented in “neutral” spaces in the concert hall, at a distance that would be seen as normally acceptable, indicating a standardization of contrapuntal expression of their parts, even though the physical demands of the Ferneyhough were much greater than the Donatoni. Each of these concert locations were meant to emphasize how they were interpreted musically within this context of a contrapuntal challenge.

Recordings of each of these pieces were made and sent to Nichole who then responded by creating one drawing per piece. Figure 1.2 is *Script-Rescript #4*. For the live performance, in addition to the drawn responses, Nichole made a visual installation in the concert hall, responding with yarn to the lines of the music and the architecture of the room. This project of concert performance, drawings, and temporary art installation became *Script-Rescript*.

After this performance, Nichole asked me to translate the drawings back into sound. Initially, I was completely against the idea because I didn't know how to proceed. To me, without a clear way of working, it wouldn't “be fair” to Nichole's object. I decided to make my own set of rules for their realization, rules that would take the imagery literally.

Each medium present in the drawings was assigned a different flute timbre. A grid was placed on the drawings where the horizontal axis was time and the vertical axis was the complete range of the flute. The scale for each drawing changed regarding the vertical range, but the time was always within two minutes. I had a colleague create some sine tones and noise for me in Pure Data and then recorded flute sounds where appropriate. Each medium Speciale had on the drawings meant a different timbre. Each drawing became a two minute tape piece.<sup>4</sup>



Figure 1.2: Nichole Speciale's *Script-Rescript #4*  
Used with permission

Unlike realizing a John Cage transparency piece, the measurements of the drawings were not abstracted; they were not translated into values which were then

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<sup>4</sup> The *Script-Rescript* realizations can be heard at <https://soundcloud.com/beetzflute/script-rescript>.

applied as parameters of sound, but instead directly affected the outcome of sound. This meant there is a direct correlation between the visual and sonic gestures present; if a line goes up, so does the pitch of that timbre. Even with this pedantic literalness of visual to sound gesture, the multiplicity of layers and chosen timbres obscured the direct correlation. The result of this literal translation was surprisingly satisfying; it created a sound world of flute counterpoint that I hadn't previously experienced.

Nichole then invited me to join the Experimental Drawing Studio in the Visual Arts Department, a project led by Amy Adler to co-curate the series, "Drawing Sound" held April 8-17, 2014. This series of events included an exhibition of graduate students working with graphic scores, a presentation and lecture by Nina Waisman and a discussion with Charles Curtis and Liz Kotz on unconventional musical notations. These events were influential in how I saw the *Script-Rescript* project in the larger context of those working with graphic scores. *Script-Rescript* was exhibited alongside the work of Curt Miller, that was translating Yasunao Tone's *Solo for Wounded CD* into a mechanically transcribed drawing, the transparencies used in the realization of John Cage's *Variations II* by Dustin Donahue, and also selections of graphic scores from Earle Brown's *Folio* and Cornelius Cardew's *Treatise* among others. The discussion on unconventional notation between Liz Kotz and Charles Curtis was also influential in seeing certain assumptions I had made in the realization process, furthering solidifying my decisions in my own working methods in relation to other practices. Finally, the work of Nina Waisman showed how drawing and sound could collide in the physical world through her interactive installations and also her piece *Training/Dictation* where she embodies others footsteps through pathways on the floor. This series of events was a jumping off point for

my work as a realizer of graphic scores. Through seeing so much other similar work, I understood better where mine was placed and was a solidifying moment for wanting to move further in the direction of making sound through graphic scores with my instrument.

The *Script-Rescript* project exposes the physical limitations of complete representation of a score and how through the medium of recording these limitations can be further explored and heard. *Script-Rescript* included material and methods that I returned to in *The Winter Stars*: flute glissando and white noise, the literal realization. This was a model for translating images into sound. The process and result of *Script-Rescript* was very rewarding and was something that I was interested in continuing to explore.

## B. Catalysts

Specific artistic and musical experiences are essential to the development of *The Winter Stars*, starting with my practice as an instrumentalist. These experiences center around challenges to the concert event, each with a different approach.

As an instrumentalist, my practice has focused on learning scores which challenge my technique and performance style. Often the challenge is presented in a score which approaches counterpoint on a melodic instrument, similar to the *Script-Rescript* concert. Many of these scores notate every dynamic, articulation and specifics of a gesture, leaving little to be interpreted. The performer is meant to enact each of those instructions literally. David Behrman describes performing this type of this score:

Deviation in intonation, dynamics, timbre, etc., would merely obscure the structures extended to cover each of those parameters. So

the player of this sort of music had less to do than he had formerly: his job was now to obey the literal requirements of the score in a deadpan fashion. To make up for the suppression of interpretation, the specifications are more numerous and exacting than ever before. The degree of precision demanded was sometimes so high that it taxed the ability of the performer and led him to deliver what in fact was a subjective interpretation – to play in a way that would “sound as though” he were fulfilling the notation's demands.<sup>5</sup>

This controversial opinion echoes my experience: do (or attempt to do) everything indicated on the page and that is a sufficient performance. There is some comfort in this approach. With our brains and bodies fully engaged, instrumentalists were not required to think beyond these actions. What I take Behrman to mean in “deviation” is that because of the completeness of notation, subjective interpretation was not necessary. This is true for my approach: the amount of information was so encompassing that it required me to reorient my relationship to the instrument physically and mentally in order to represent the score as literally as possible.

Another notational influence was from observing Dustin Donahue create multiple realizations of Earle Brown's *Four Systems* and John Cage's *Variations II* and *27'10.554” for a percussionist*. While making these realizations, he would consult with me about his decision-making process: what measurements would indicate what values for which sounds. He made these realizations by taking each element of the score completely seriously in how they were meticulously measured and interpreted into values of sound. This approach to graphic scores mimics that of interpreting complex notation: each element of the page is an important element of the realization.

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<sup>5</sup> David Behrman, “What Indeterminate Notation Determines,” in *Perspectives on Notation and Performance*, ed. Benjamin Boretz and Edward T. Cone. (New York: W.W. Norton & Company, 1976), 74.

The work of Peter Ablinger continues to be a source of overall inspiration. How Ablinger thinks and speaks about his work and the culture of concertizing resonates with me especially with regard to the use of noise, his use of automatic transcription, his approach to listening, and the setting of the concert space.

For Ablinger, noise is the representation of all sounds, which has a history with humans older than music:

Noise is certainly one of the oldest sounds of which humans have become aware. A waterfall, the sea or a forest rushing can involve an experience comparable to the sight of a mountain range, the desert or the stars at night. Such experiences are as far as possible devoid of meaningful information yet they act like a mirror, they throw something back upon ourselves insofar as we read something into them, turn them into something which is anchored only in ourselves. Hence in such situations we experience ourselves.<sup>6</sup>

Being a natural phenomenon, noise is present in our everyday lives no matter our location (city streets or rural landscape). Noise is often unacceptable as a musical sound, when in reality it could be the first musical sound, depending on what the listener chooses to accept as musical experience. I have performed several of Ablinger's Rauschen pieces including *Piccolo und Rauschen*, *Flöte und Rauschen*, and *The Real as Imaginary* in addition to the concert, *Machaut + Rauschen*, developed with my duo partner, Jennifer Bewerse. This concert juxtaposes Ablinger pieces with arrangements of a single Machaut ballade, connecting the old world of two-part harmony with an even older world of noise.

Ablinger uses mechanical transcription in his works such as "A Letter from Schoenberg."<sup>7</sup> Here he analyzes the recording of Schoenberg's voice to get a specific

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<sup>6</sup> Peter Ablinger, *HÖREN hören / hearing LISTENING* (Heidelberg: KEHRER, 2008), 94.

<sup>7</sup> "A Letter from Schoenberg," Peter Ablinger, accessed May 6, 2017, [http://ablinger.mur.at/txt\\_qu3schoenberg.html](http://ablinger.mur.at/txt_qu3schoenberg.html).



range of frequencies in the the voiced speech. These frequencies are then mapped onto the keys of the piano, which require an additional mechanism to create the quickness and multitude of the needed frequencies of the speech beyond what is possible both humanly and mechanically with a disklavier. Having seen a presentation of the “A Letter from Schoenberg” in Darmstadt 2014, I can attest to the realness of the voice emanating from the piano, a realness that is lost in the recording documentation. Because Ablinger matched the recordings as exactly as possible in frequency, duration, and density, Schoenberg’s voice can be heard rising out of the piano as a ghost from our past. This disembodied voice of Schoenberg is truly creepy as the piano keys have more acoustic weight in its reverberation than the playback of a recording.

The literalness of Ablinger’s work music echoes his views on listening and what can be defined as a musical experience. “Listening is representing any type of perception, the ways in which we react to the world which we have to create through the same perception in the first place. Listening is thus the means of observing perception.”<sup>8</sup> Listening is a means of both interacting with our environment while simultaneously performing listening and understanding. Not much needs to be set up for this to occur; a simple set of instructions for listening could be presented such as one of my favorite pieces: *Hand Held in the Rain* (1983/2013).<sup>9</sup> To perform and hear *Hand Held in the Rain*, one performs the gesture indicated in the title while listening and experiencing.

This brings up an important issue for me, that of the performance in the everyday. It is important for me as a musician that pieces can connect to the everyday experience.

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<sup>8</sup> Ablinger, *HÖREN hören / hearing LISTENING*, 98.

<sup>9</sup> “Hand Held in the Rain,” Peter Ablinger, accessed March 7, 2017, [http://ablinger.mur.at/txt\\_hand-in-den-regen.html](http://ablinger.mur.at/txt_hand-in-den-regen.html).

This connection challenges the conditions of listening in our lives. In Ablinger's work he asks us to listen to our experiences as if we were in a concert.

What presents myself – in my work – as if it was from beyond the confines of the concert is actually not the outside but those very confines. It is the conditions of making music, the conditions of listening that are negotiated here. It is just that the usual concert situations do not allow for the creative reflection of their conditions and therefore banishes them to outside. This is the principal reason why the concert and other methods (installations etc.) appear to be fundamentally opposed to each other and partly incompatible with each other and why we think they are different arts with different social surroundings and contexts.<sup>10</sup>

One concert piece which both blurs the definition of concert and art installation and also plays with modes of listening is his *California Score*. In 2015 and again in 2016, I performed Ablinger's *California Score*,<sup>11</sup> where I placed objects from on blank sheets of paper. The performance occurs while the audience watches the performer place the objects on the sheets, creating the scores. The installation occurs after a short announcement of what is happening, inviting the audience to walk among the scores, imagining the sounds of the scores. The performance of the scores occurs within each individual audience member who hears the sounds in their heads, drawing from their own experiences in relations to the presented objects, recursively connecting the audience to their everyday lives; objects in the concert may remind someone of an event earlier in the day while later on those objects may remind that same person of that performance. My performance of this piece was an experiment in the social structure of the concert hall to see what would happen when the mode of listening for the audience was shifted from concert piece to gallery, to

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<sup>10</sup> Ablinger, *HÖREN hören / hearing LISTENING*, 87.

<sup>11</sup> "California Score," Peter Ablinger, accessed March 7, 2017, <http://ablinger.mur.at/docu05.html>.

see if it was possible to have an interpenetration of modes of listening in concert and life through the concert hall.

Concert length pieces are often considered immersive experiences. The pieces are so long, sometimes multiple hours, that the audience is “immersed” in the sound. In my extensive study and performances of one of Morton Feldman’s longest works, *For Philip Guston*, I do not agree that a long piece presented in concert can be defined as “immersive.” The term immersive means that the whole body and its senses are overwhelmed by the given experience in a way that confuses them, making it difficult to parse out specific sensations. Saying a long duration makes the experience less definable in the moment is only considering one dimension of immersion. Long pieces presented in a concert do not immerse me. Even the four and half hours of *For Philip Guston* are knowable. How the musical material progress through the piece is knowable; its duration can be learned and felt. This knowledge takes away the possibility of true immersion in its presentation. Even so, the desire for an “immersive” concert is one that has been important to me, the learning and performances of *For Philip Guston* as an attempt at experiencing this.

These are all ways of challenging the concert as artistic event and serve as catalysts for what comes in *The Winter Stars*. How this piece developed would have never happened without the above experimentations in performance. The exact literal realization of scores in a way that challenges the physical possibilities of my instrument presented in a room that is visually overwhelming for thirty hours while referencing a month-long lived experienced is *The Winter Stars*.

## Chapter 2 – *The Winter Stars*: December 11, 2015 – January 9, 2016

In 2015, I was given the Skammdegi Air Award from Listhús Artspace to live in Ólafsfjörður, a small fishing village in northern Iceland, during what is called the “dark days.” From December of 2015 to February of 2016, the sun does not rise above the fjord in Ólafsfjörður, leaving only two and half hours of daylight. My partner, Dustin Donahue joined me for this time and was an integral part of the process. The award was to make a project centered around the darkness that also involved the community.

### A. Project Proposal

The plan to create *The Winter Stars* began with the idea for taking a star trail photograph each night during the darkest moon cycle of the year, December 11, 2015 – January 9, 2016, and translating that photo into a graphic score that could be realized as sound. A good star trail photograph needs to be taken in a very dark location away from light pollution, making northern Iceland an ideal location. To capture the movement of the stars, I needed to take one hour of thirty-second exposures, creating 120 photographs that are then stacked on top of each other. The result is a single image that captures the movement of the night sky over the course of an hour. I also planned to also take a field recording during this hour of photography. The source material from every night for one moon cycle would total thirty hours; the final piece of *The Winter Stars* would also be thirty hours long.

Certain elements of the project had to be decided upon arrival, such as where to take the photos, what to audio record, and what to do in case of bad weather. Exactly how the scores would be realized was also left to be decided until later in the project. The project required a certain amount of improvisation in problem solving with the given location and circumstances.

There was also a community element to the project. I planned to hold knitting circles to get to know some of the local folklore while everyone made snowballs stars which would hang in the installation. Made with white Icelandic wool, the idea was to recreate the two-dimensional view of the starry sky in the three-dimensional space of the room, mimicking the celestial bodies and snow present in the photographs.

## B. Reality of the Project – Improvising Solutions

Because of weather complications, I did not arrive to Ólafsfjörður until the evening of December 9, 2015. Upon arrival, there were three immediate concerns: finding an appropriate location for the photography and field recording, a plan for how the project would work in bad weather, finalizing these decisions in two days' time before the project was to start with the new moon on the evening of December 11<sup>th</sup>.

There were several priorities in order to solving the problem of location: it needed to be secluded, yet not too far of a walk from my apartment. It must face the north star and present a rich sonic environment for the purposes of recording. Each of these priorities influenced the aesthetic outcome of the project. In order to take the most successful star trail photograph it needs to be as dark as possible; finding a secluded spot

away from lights was vital. Being not too far to walk was a practical matter of energy and safety. Various elements of gauging safety were at play. It was very dark outside most of the time and it was an unfamiliar place. I also didn't know how my body would react to being exposed to the weather for an extended period of time. Since Ólafsfjörður was so far north, the north star is higher in the sky, making it possible to capture more of the underside of the stars surrounding the north star. Placing the north star in the center of the frame meant that the photographed stars would trace concentric circles, but in order to do this, the location needed to have an open view to the north; the frame of the camera would directly affect the sound of the installation. While what to do with the field recording was decided much later on, it was important to have rich source material for later use, as both the photographs and recordings would place the project firmly in this specific location.

After walking around Ólafsfjörður for a couple hours, the best spot was on the last turn off towards the water on the road going north out of town. Here, across a small runoff stream, between a city maintenance building and the water was a small rocky beach. It was only a fifteen-minute walk from my apartment, on the edge of town, but not too far into the wilderness. Being north of town, the camera could face the north star without obstruction from the street lights. The waves coming into the fjord provided a rich sonic material for the field recording.

At the time, it was unclear how the choice to record the ocean waves would affect the sound installation; it only seemed good to have something to record since a field recording was an essential part of the project proposal. The sound of the ocean was definitely not an immediately desired sound; however, I thought the recording could still

be usable with some sort of filtering, mixing, or other modifications, and there was no pressure to use the recording if it turned out problematic. (For a discussion on how the field recording was eventually mixed and placed in the installation see the discussion see Chapter 3 Section E “Realizing Cloudy Materials.”) I decided to place the field recorder facing the water. Because the water was a fjord, the waves crashed from right to left of the stereo image, a detail unnoticed until much later in the audio editing process. Ultimately, these field recordings were a starting point for re-creating my listened experience later on in the mixing process.

The camera position was about ten yards to the north of the the audio recording device, facing north. I did not want the camera shutter clicks to be in the field recording so I chose to separate them. Had they been captured in the field recording, a click every 30 seconds would create a type of clock in the sound of the installation. At this point, I knew that I did not want any sort of clear reference of time or pacing in the sound of the installation, so it was important to not have the shutter clicks in the field recording.

It was difficult to place the camera correctly at the beginning of the project. Being so far north, the cardinal directions were disorienting; the north star was very high in the sky and difficult to identify through the camera lens. As a result, the first four nights of star trail photographs were off-center from the north star. After securing a better strategy of identifying the north star in the camera, the star photographs from December 25<sup>th</sup> and on have the north star centered in the frame. Having the north star in a different position in the frame drastically changes the star trails. An un-centered north star means that only part of the the concentric circles are present. The earlier star trail photos have the north star in the upper left corner of the frame. This means that for the most part of the first

quarter of the installation for these photographs, the flute glissandos are descending. This is unlike the later star trail photographs with a centered north star; in the beginning there are both ascending and descending glissandos. The later star trail sounds have both ascending and descending glissandos along with extended sections of very slow moving chords. Having only descending glissandos in the first four days greatly affects the ambiance of the sound installation; it is more downward and foreboding. It could have been decided to maintain the “incorrect” frame of the north star. But the ideal concentric star trail photograph was desired and so I embraced this modification after day one. The photo would look better and it would also sound better with multiple directions of glissandos present simultaneously.

Upon returning each night, I tried my best to place the recorder and camera in the exact same position. This was easy for the first few days where the marks in the snowpack could be distinguished. However, as the weather changed, the snow melted and more fell, it wasn't possible to match the placements exactly. The markings for the legs of the tripods were in the snow, which was no longer there. With the addition of GPS and a few other tools, perhaps a more exact location could have been made. But my human influence, with both the moving of the audio recorder closer to the rocks a couple of times and also my fallibility in identifying the north star the first few nights made it less exact anyway. In repeating these acts, they were never exactly the same, creating imperfect duplications of source material.

Solutions to the cloudy nights and precipitation lent themselves as the days went on. The first obstacle during the moon cycle was on the completely overcast third day. Since it was still manageable to be outside, recordings and photographs were still taken at



the chosen location, even though it seemed that “nothing” would come through on either device. However, on cloudy nights the field recording produced something unexpected: the low sound of the wind blowing through the fjord. In person, this sound is not very noticeable and was only really audible on overcast and windier days. These field recordings changed how I heard the live environment for the rest of the trip. The field recordings from the overcast nights became an essential aspect as the sole source of audio for the sound installation in those specific hours. Later on the cloudy photographs became more visually important; the camera would sometimes capture the aurora, invisible to the naked eye through the clouds. The aurora eventually became an interpreted element; it was essential to know when it was present. The photographs were the evidence of aurora that couldn't be recorded through observation alone.

The solution to snowy nights came unexpectedly. On December 11, 2015, there was a meeting of the Skammdegi artists in residence. As a part of this meeting there was the inevitable group photo posted to social media, shown in Figure 2.1. In this photo taken by fellow artist in residence Brian Chan, the snow looks like falling lines since the shutter wasn't fast enough to capture the instant of the moving snow. These lines traced the movement of the snow, and could be realized in a similar fashion as the star trail photographs.

The first night of snow was December 19<sup>th</sup>. The snow trail photographs required a bit of ambient light; the location for the star and cloud photos would be too dark. A



Figure 2.1: Skammdegi Artists in Residence, demonstrating snow trails  
Photo by Brian Chen, used with permission

successful shot was made between two street lights in the main intersection of Ólafsfjörður. Since the snow trail photos did not require the same process of overlaying 120 thirty-second exposures, the snow photos required both less exposures and less time. Several photos of snow were taken, but only one would be chosen for the realization score.

Since the snow photograph couldn't be taken at the same spot as the other nights, the field recordings were taken differently as well, because my equipment could not handle moisture. Nights when it was snowing were essentially spent indoors, so that is where the field recordings were taken. While staring out the window to see if the snow would let up to allow for a trek to the beach, I heard the pecking of the snow against the window pane. With two contact microphones taped to the window this “field” recording

captured not only the the snow hitting the window pane, but also the slush of cars driving by, the hum of the radiator, and the creaky wood floors of our apartment.

With all of the solutions to the problems of taking the source material solved, I was free to have a daily routine performance dictated by the weather. If it was clear, I would go to the beach location for an hour; if it was snowing I would step out quickly for a few shots. At this point, I became the interpreter of a performance which would end on January 9, 2016. This long-duration routine involved the everyday repetition of preparing the equipment for recording during the day and taking the source material at night. Sometimes, this routine proved to be physically challenging as the weather would test my tolerance for cold and wind at the photography location. This month-long routine is at the core of the experience of making and hearing *The Winter Stars*.

### C. *The Winter Stars* Routine

The routine of going to the same location on the beach almost everyday for a month revealed physical and environmental challenges in how the location slightly varied in each nights' circumstance. Joined by my partner, Dustin Donahue, each night we intended to enact the same process, though there were slight variances in our performance as well as the environment which influenced the outcome of the installation.

Physical challenges in the routine were in preparing to spend time out in the cold, the timing of the photography, and entertaining ourselves while the recorders took the material. The original plan was to start the camera shots at the stroke of midnight. Placing the photos at midnight seemed an important poetic to the project. The first few

scores were taken around midnight, but because of the other unexpected physical challenge, that of the time it would take to put on the warm clothing, the timing was not exact. The first night we went out, it took us forty minutes to suit up in long underwear and our snow gear, leaving only our cheeks and eyes open to the air. This process became less daunting as we practiced; eventually we developed the most efficient order of operations for suiting up. The nights where it was snowing ended up being a necessary relief from the process of suiting up and going to the beach.

Because this preparation took a different amount of time each night, the start of the photographs was not exactly the same. Going out so late at night meant we didn't get in the house until after one in the morning; it then took our bodies awhile to adjust back to being warm enough to fall asleep. Sometimes we wouldn't fall asleep until four in the morning. Because it was dark so much of the time, our bodies felt we should be asleep longer than normal. But falling asleep at four meant we would sleep in until it was light out after eleven, which felt awful; at this time of year there was only going to be two or three hours of light and we had missed some from sleeping. It became important for our mental health to spend those light hours awake and moving, meaning the timing of the night photography had to end early enough so we could get to sleep. Obviously, changing the time that the photographs were taken would affect the placement of the stars in the photograph, which would then affect the sound of the glissandos. However, the camera placement was already slightly different each night. Both of these variations were deemed subtle enough to not ruin the overall project. It was more important to be mentally healthy than be strict with the timing.

Another physical challenge of this routine was what to do during the sessions while the machines were recording. Once the recorders were on, there was nothing to be done but to wait until the hour was up. Not being able to sit down because of the cold ground, we had to find a way to stay awake on our feet. On clear nights, this was easy; there were plenty of stars and even though it was very dark, one could see the mountains across the fjord, and sometimes an incredible aurora. Cloudy nights were more challenging; there was little to keep us visually stimulated and often these nights were windier making it more difficult to stay warm. Sometimes we would do short exercise routines in our snow gear. Even though we tried our best to be quiet, the audio recorder did capture some of our sounds. On December 12<sup>th</sup>, my partner made me laugh very loudly, and you can hear my cackling like some strange bird on the field recording. Then on January 3<sup>rd</sup>, some policemen pulled over, lights flashing directly into the camera. We immediately thought we were in trouble, having not figured out whose land we were on. Instead, they were looking for someone who was lost and mentally ill. They were very thoughtful and apologized for invading the session. The entire conversation is on the field recording. These sounds are now little “Easter eggs” in the installation; they are present, but have been subtly inserted. Our routine and behaviors each night is now a part of the sound of the installation.

Suiting up to go out each night proved to be more taxing than expected. Snowy nights were a relief in that it meant the project would be much easier. It was surprising how taxing the month long process was to perform each night and made me realize how rare it is in my life to go to the same place everyday at the same time. How taxing it was also speaks to the idea of it being an evening length routine each night. Performing is

stressful on the body, even if it is as simple as this process. This simple action of showing up each night illuminated how a place, though it is the same as the night before, gradually changes overtime, along with my perception of it.

These slight changes in the location affected the sound over the course of the month. Depending on the tide level, the sound of the waves crashing was louder or softer. A couple of times the tide was particularly high, moving the rocks on the beach against each other creating a low rumble on the field recording. This low rumble was very beautiful to me and so I wanted to capture more it so I moved the field recorder closer to the water, capturing more of the rock rumble. The amount of wind each day would change the pitch and volume of it blowing through the fjord. The snowpack below the recorder completely melted and re-established itself twice over the course of that month, which must have also affected the acoustic quality of sound captured. The visual changes definitely affected the sound as well, even if indirectly through my interpretation. The position of the stars moved very slightly over the course of the month, shifting their orientation to the north star. Even though we were taking the same action on the days we could go to the spot (place the recorder, press start, place the camera, frame the shot, press start, wait one hour, and pack up) our actions changed according to the environment. No two visits were identical.

The weather of each night would indicate how the routine would be performed. This, in turn, dictated the sound of the piece. This trust in natural forces to give an interesting and varied result was largely successful, though there were some unexpected occurrences. Out of the 30 nights, only three were problematic: December 17<sup>th</sup>, 29<sup>th</sup>, and 30<sup>th</sup>.

Earlier in the day on December 17<sup>th</sup>, we visited Akureyri during the day. However, that day there was a terrible blizzard and the buses between Ólafsfjörður and Akureyri stopped running after two in the afternoon. We were stuck in Akureyri for the night far from the photography location and without equipment; there is no source material for this day. Having no material and therefore nothing to go off of, I was on my own to come up with an hour of sound to represent this night.

The other two problematic nights, December 29<sup>th</sup> and 30<sup>th</sup> were dangerously windy, but without precipitation. According to the rules of the project, we were still required to record. At the recording location on December 29<sup>th</sup>, the wind blew over the tripods, even though we were each holding one down. Both the images and the recording from this night were disastrous. The field recorder clipped and the camera shook during the long exposures, creating blurry images. I couldn't open my eyes enough in the wind to correctly frame the shot, which catches part of the mountain in the bottom left corner. In consecutive shots, the mountain moves as the camera was in a slightly different position for each photo even though it was being held down. We stayed as long as our bodies could handle the cold wind, giving up after thirty minutes. The following night, December 30<sup>th</sup>, had even stronger winds but still no precipitation. Given how difficult it was to gather the previous night's material for insufficient recordings, we decided to not go out and instead making a contact mic window recording as had been done for the snow days.

The routine of taking this source material mimics priorities of my instrumental practice. As an interpreter, I set up an overall working method which is realized through physical repetitions. This portion of creating *The Winter Stars* is exactly the same process. I

set up a series of rules which were followed according to the environment presented. How these rules were followed included repetitive gestures and an evening-length routine. The overall routine took a month of dedicated work to finish. My role as a listener during this routine was to take in the sounds each night, capturing them through machines, but also in my own body. This moment of capturing a listened experience proved valuable in my later sonic decisions in the making process. Because I had experienced this lived routine, I was better able to translate those sounds into the installation. As this portion of the project was complete, my task was to find a working method for the next steps: the creation of scores and their realization.



## Chapter 3 – Realizing *The Winter Stars* into Sound

The process of making the scores and recordings ran simultaneously from this point. The largeness of the project required multi-tasking; while one score was recorded, more were prepared. Even though these steps in the process were done simultaneously, it is necessary to discuss them in order of process: score creation then realization.

### A. Score Making Process

Once the source material was taken, scores<sup>12</sup> and a chart of the overall form of the piece could be created. Figure 3.1 below shows the overall form of the installation in the qualities of each day's source material. The appropriate graphic scores for each day were made from the photographed source material and then realized into sound. The star and snow trail photographs were created similarly by transforming them to black and white and inverting the image so they could be easily printed to have at hand in the recording session. Since these transformations were applied to every score, their influence on the final sound would be even throughout the project.

The star trail scores were created from 120 second-second exposure photographs. Each photograph was stacked in a program called *StarStax*, that applied the necessary filters to the stacking to create the star trails. Once the stacked image was created, it was edited to be black and white and placed on an A4 document to be printed, keeping correct

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<sup>12</sup> Appendix B includes the scores that were used for recording.

proportions. A graph was then measured and penciled over the printed score. The x-axis of the score was split into even increments of minutes. The y-axis was split into even half steps of a specific range of the flute. Figure 3.2 is an example of an ideal star trail score from December 25<sup>th</sup>. Once the grid was on the score, it was ready to be recorded.

Day	Date	Description	Photo Content	Recording	Pitch Score?	Clouds?	Aurora?
1	Dec 11	Partly Cloudy w/ Aurora	Stars, Clouds, Aurora	Field	X	X	X
2	Dec 12	Clear w/ Aurora	Stars, Aurora	Field	X		X
3	Dec 13	Partly Cloudy	Stars, Clouds	Field	X	X	
4	Dec 14	Overcast	Clouds	Field		X	
5	Dec 15	Clear w/ Aurora	Stars, Aurora	Field	X		X
6	Dec 16	Overcast	Clouds	Field		X	
7	Dec 17	Blizzard	n/a	n/a			
8	Dec 18	Overcast w/ Aurora	Clouds, Aurora	Field		X	X
9	Dec 19	Snow	Snow	Window	X		
10	Dec 20	Snow	Snow	n/a	X		
11	Dec 21	Overcast	Clouds	Field		X	
12	Dec 22	Overcast	Clouds	Field (rocks)		X	
13	Dec 23	Snow	Snow	n/a	X		
14	Dec 24	Snow	Snow	Window	X		
15	Dec 25	Clear	Stars	Field	X		
16	Dec 26	Clear	Stars	Field	X		
17	Dec 27	Overcast	Clouds	Field		X	
18	Dec 28	Snow	Snow	n/a	X		
19	Dec 29	Overcast, Windy	Clouds	Field		X	
20	Dec 30	Overcast, Windy	n/a	Window		X	
21	Dec 31	Rain	Rain	Fireworks	X		
22	Jan 1	Partly Cloudy	Stars, Clouds	Field	X	X	
23	Jan 2	Partly Cloudy	Stars, Clouds	Field	X	X	
24	Jan 3	Clear w/ Aurora	Stars, Aurora	Field	X		X
25	Jan 4	Overcast	Clouds	Field		X	
26	Jan 5	Snow	Snow	n/a	X		
27	Jan 6	Partly Cloudy w/ Aurora	Stars, Clouds, Aurora	Field	X	X	X
28	Jan 7	Snow	Snow	Window	X		
29	Jan 8	Overcast	Clouds	Field		X	
30	Jan 9	Clear	Stars	Field	X		

Figure 3.1: Track Information Chart for *The Winter Stars*

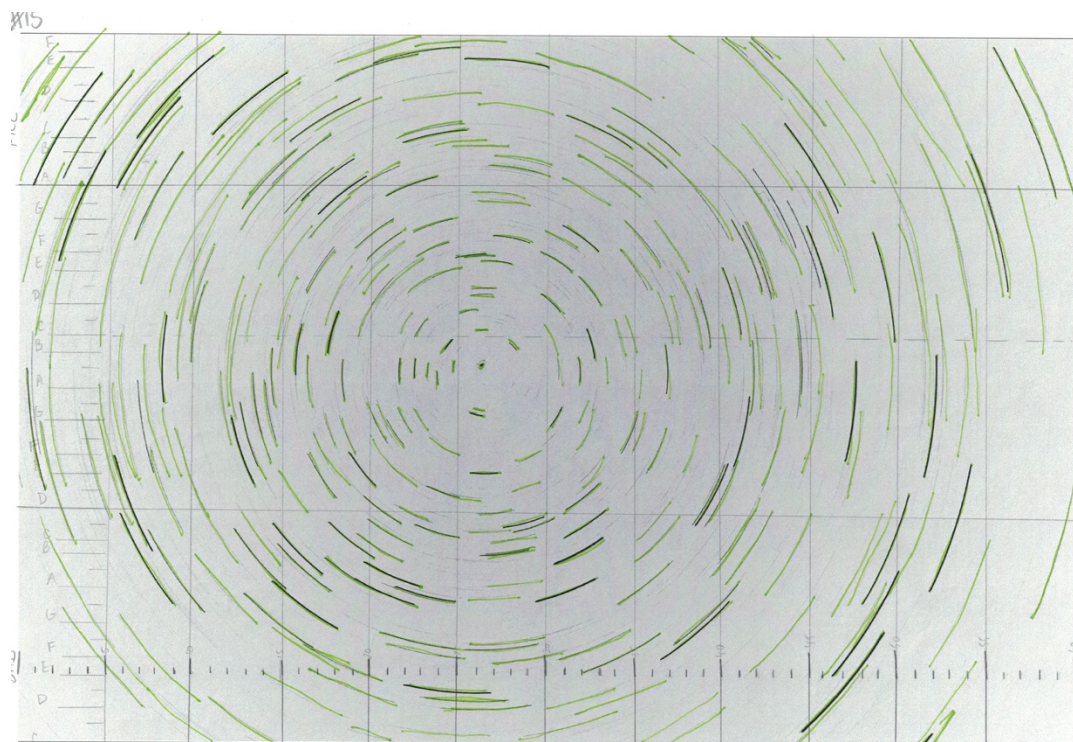


Figure 3.2: December 25<sup>th</sup> Score from Recording Session

The range of pitches to include in the realization was chosen from the lowest bass flute C to the middle F on piccolo. The transition between both bass flute to C flute and C flute to piccolo was chosen according to areas on the flutes that would be easy to glissando. This makes the majority of the range in C flute. Half of the page of each score is on C flute while a quarter each is on piccolo and bass flute. This balance makes the extreme ranges sound more different because of the different timbre of the piccolo and bass flutes. One could say the high sound higher because of the brighter timbre of the piccolo, and vice-versa for the lower bass flute notes. The whole range could have been done on only C flute, which would eliminate some of the lack of flexibility of glissando in the auxiliary instruments. This would have also had a more uniform timbre, but the

extended range and timbre of bass flute and piccolo was desired for variety in the glissando sound.

There were a total of eleven star trail scores, with 3 ideal photographs from December 25<sup>th</sup>, 26<sup>th</sup>, and January 9<sup>th</sup>. The score from December 12<sup>th</sup> is almost ideal, though the north star is slightly off center. The clouds partially obscured the stars on December 11<sup>th</sup>, 13<sup>th</sup>, January 1<sup>st</sup>, and 2<sup>nd</sup>. Unexpectedly, the northern lights also obscured the stars on December 15<sup>th</sup> and January 3<sup>rd</sup>, leaving only a few of the brightest star trails on the photograph. The aurora from January 6<sup>th</sup> completely covers the entire photo except for the north star. Dealing with clouds and aurora was an unexpected issue in the star trail days. If it was clear enough to see the stars, it was thought there wouldn't be any clouds obstructing the view. Without planning, the installation's beginning, middle, and end are star trails, creating some overall symmetry in the work.

The first star trail photograph from December 11<sup>th</sup> was the most problematic. For most of the photography session, it was a clear sky, but clouds would sometimes appear in part of the photograph. These clouds weren't seen with the naked eye, captured only in the photograph. When all of the photos were stacked, there was little left of the star trails. Wanting to have a star trail photograph very badly for the first day, it was decided to re-draw the trails in Photoshop into stacked sets of the photographs that could then be totally stacked together. Figure 3.3 is the drawn score from December 11<sup>th</sup>. This digital drawing enhanced the trails over the course of the 120 photographs that they could be seen “through” the clouds in the complete stacked photo. The first score is also a bit ugly because of the shoddy Photoshop job. The trails are disconnected, but of many colors from the moving clouds. This same process was also applied to the photographs from

December 13<sup>th</sup>, two days later. The process of making these two scores digitally was very tedious for little visual reward. It also forced the trails into the installation. This digital enhancement of star trails really affected the sound as each stroke of the mouse became a sound. Any mistakes in the drawing process would become part of the sound. Eventually the issues of clouds in the photographs became a separate element to interpret, and later obscured star trails were not digitally enhanced.

At this moment the act of drawing became a physical part of the process. Later on, these drawn star trails would also be drawn in sound with the flute and also, highlighted again with a pen to indicate their completion into sound. The physicality of drawing in both with my hand and translating with my instrument is an essential part of the process. These actions are a circular physical routine: drawing, reading, playing, drawing, reading, playing, drawing...

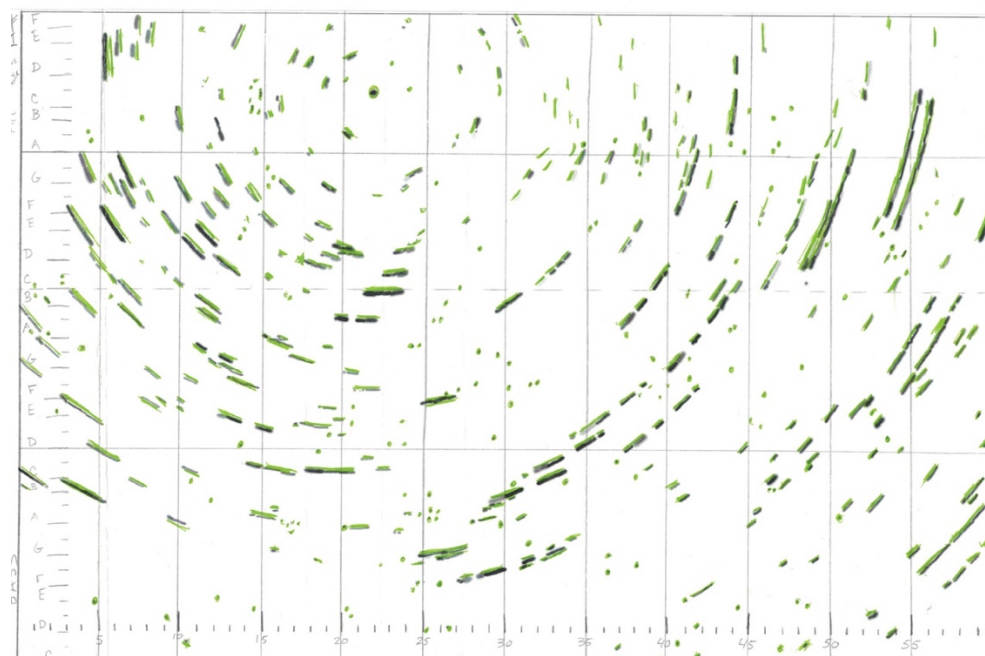


Figure 3.3: Drawn Score from December 11<sup>th</sup>

The scores to December 11<sup>th</sup> and 13<sup>th</sup> would be very different if they had been made later on in the process. Since it was the beginning of the project, the presence of star trails was very important because there was no other plan for how to interpret the photo without them. Once those other plans were made, the project became more open and flexible to the circumstances of the environment. The initial decision to make the star trail happen through a tedious process shows my tendency to solve problems through small repetitive gestures which add up to the desired goal. The fact that I gave up this process in later obscured star trail photos shows the real-time evaluation of this tendency towards tedium and how I adapted the process, improving both the visual imagery and the final product of sound in a way that was truer to the project and also kept up the momentum of the realization process.

There were a total of eight snow scores. Over a dozen photos were taken each night it snowed and one of those photos was chosen for its interesting composition of snow trails. Once the snow photograph was chosen, the image was edited to be black and white and inverted so the trails would print as black with a white background. The printed scores were measured in the exact same fashion as the star trails scores with the x-axis split into even number of minutes in an hour and the y-axis split into even increments of half steps in the same range of the flutes as the star trail photographs.

Ideal snow trail photographs occurred on December 19<sup>th</sup>, 20<sup>th</sup>, 28<sup>th</sup>, January 5<sup>th</sup>, and 7<sup>th</sup>. Figure 3.4 is the snow score from December 20<sup>th</sup>. The images of the snow trails from December 20<sup>th</sup> and January 7<sup>th</sup> were angled opposite from the rest of the snow photographs. This is probably because the camera angle wasn't always the same. Capturing the snow trails was a haphazard process of pointing between and around two

street lights, making the direction of snowfall inconsistent. To compensate for this difference, these two images were flipped horizontally so that the direction of the snow trails matched the rest of the photographs. The flipping of these two days affected the

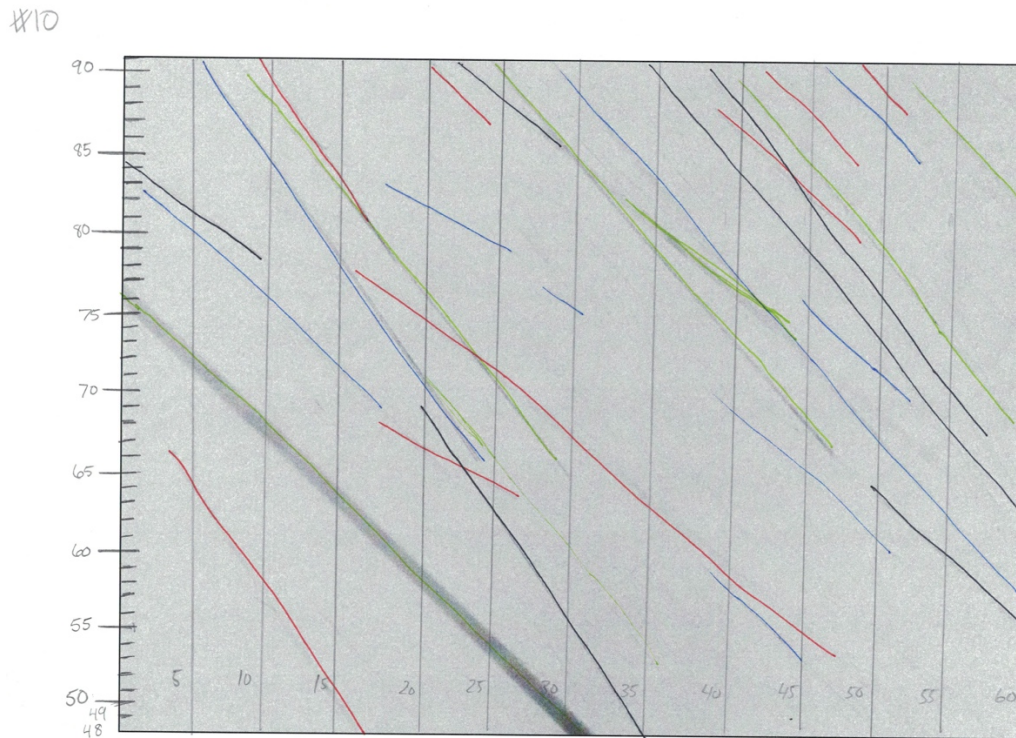


Figure 3.4: Snow Score from December 20<sup>th</sup>

direction of movement of the band pass filters. If left, they would be the only days where the band pass filters in general started low and gradually ascended. This direction wouldn't sound like “falling.” Since snow falls, it was important to keep that gesture also in the direction of the band pass filters.

The images from December 23<sup>rd</sup> and 24<sup>th</sup> are the densest of all of the snow photographs; each of these images required an additional run through the patch to

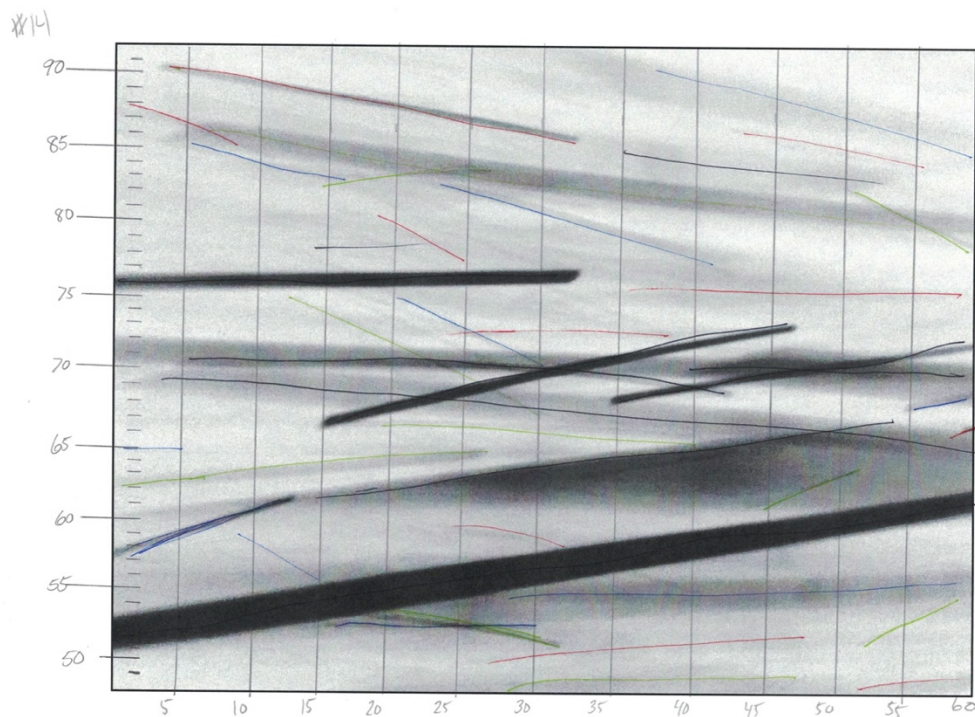


Figure 3.5: Snow Score from December 24<sup>th</sup>

the snow trails that were “rising,” this photo was not transformed to make the snow trails “fall.” Often the snow would fall horizontally because the wind would be so strong, so this was less of an unnatural phenomenon than snow “rising.”

The biggest outlier of the snow scores is from December 31<sup>st</sup>, shown in Figure 3.6 where it rained heavily the whole evening. The rain made it challenging to get a decent trail photo for two reasons: the second the camera was out to take a photograph it got very wet and the rain did not reflect as much light as snow. Even though it was raining heavily, it was difficult to get a single photograph with multiple trails of rain. The photos that were taken were stacked like the star trail photographs in the *StarStax* program to create the snow score. Figure 3.6 is the score from December 31. Because of the filters of in the program, the rain trails look the most unnatural of all of the images. Nothing



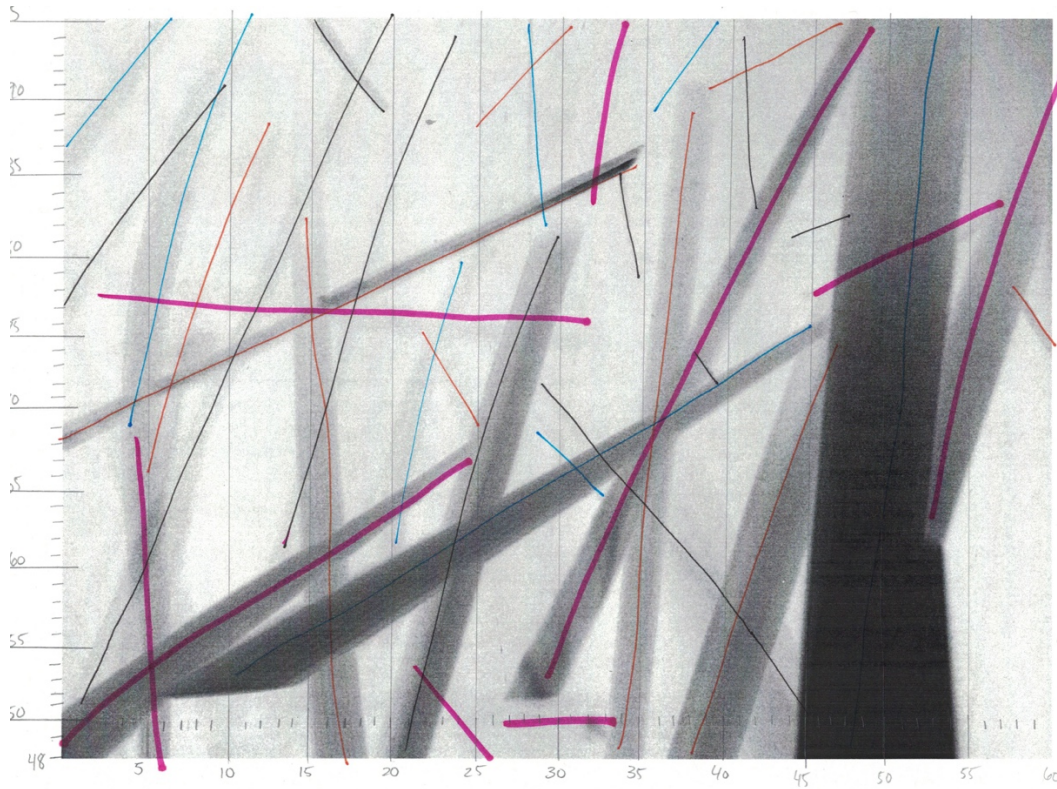


Figure 3.6: Score from December 31<sup>st</sup>

special was done to sound the difference between the snow and the rain here, which was maybe a lost opportunity. The decision to stack this photo is an interesting exception. Even though the rain was falling steadily, the camera did not capture the rain's density. Stacking the photos compensates for this by placing the shots together, matching a visual density of both the experience of the rain and the snow trail images.

The cloudy scores are not really scores in the same sense as the star and snow photographs. They were not edited, printed, and measured. The cloud photographs were taken at the same photography spot as the star trails and revealed images that weren't seen with the naked eye: a very clear movement of clouds in the darkness and sometimes northern lights just beyond the cloud cover. The scores presented as a part of the album

in Appendix A for the overcast nights represent the complete documentation of the project and were not used in a detailed making of the sound. The cloudy images presented in the book of scores are a single snapshot of the 120 long exposures, but weren't essential to the realization of the sound for those nights. When these shots are stacked in the same manner as the star trail photographs, they become completely white because as the clouds move over the shot, the stacked photos capture the complete movement. The reason for seeing the cloud movement at all is because of the ambient light from Ólafsfjörður's street lights. Had this been a more secluded location, probably much less light would have been captured.

There were a total of nine cloudy nights of photography. December 18<sup>th</sup> was particularly special in that there is a dim green glow just underneath the clouds. No northern lights were visible to the naked eye that night, but the camera captured them anyway. December 29<sup>th</sup> is also interesting in that it was so cold and windy, the shot couldn't be framed properly; the side of the mountain at the end of the fjord is at the bottom left corner of the image. The clouds in this image are also blurry because the wind moved the camera during the exposure.

Two nights do not have photos: December 17<sup>th</sup> and 30<sup>th</sup>. On December 17<sup>th</sup>, we were stuck in Akureyri because of a blizzard without equipment and on December 30<sup>th</sup>, the wind was too strong to stand being outside as it was worse than the previous night's failed photographs. Each of these nights without photographs were solved differently. A field recording was taken in the apartment on December 30<sup>th</sup> for its source material and a recording of performances of a multiphonic were recorded for December 17<sup>th</sup>.

These photographs illuminate a movement of the night sky that is not visible to the naked eye. The method of taking these photographs was developed to create a graphic score. The terminology is interchangeable; The photographs are scores. Photographs taken at night are also individual days in a specific moon cycle. These photographed days are translated to hours of the installation, making a terminology family of photograph, score, night, day, hour. Each of these terms are almost interchangeable when discussing this project.

How these scores were setup blurs the images and their relationship to time. The star trail photographs took an hour to take; the snow trail only a moment. Each of these while representing different amounts of time, were realized into the same amount of time: one hour. Visually the star trail photographs represent time in circles around the point of the north star, but time is realized left to right on the x-axis. The moment captured in the snow trail scores is expanded to an hour. These conflicts in time are never resolved in either the working method or the presentation of the project; they are left open. This creates an interesting conflicted dimensionality: a project that is specifically one time and place, but expressed in multiple levels of focus. Even so, after making these scores it was time to create the 30 hours of sound, a task which also took an extensive amount of time and re-evaluation of process.

## B. Recording Star Trail Scores

The overall goal in making sounds from these scores was to be as complete as possible in translating the visual gestures on the page into sounds. The process was to be

as literal and exact as possible, making myself into a type of machine that would act out its directive in the recording studio. Taking rules set out for each type of score, I would perform them exactly and as efficiently as possible. The large-ness of the project became very clear at this part of the process as circumstances of the residency meant limited time in the recording studio. This eventually led to a change of recording location and approach to the score realization.

My initial recording studio was the Tjarnarborg Cultural Center, a community hall that held a diverse range of events from card games to exercise classes. Because it was a shared community space, the recording equipment had to be set up and taken down around each session. In the middle of the room a desk was setup with with a stereo pair of mics on a short kick drum stand next to the audio interface and computer. Sitting at the desk with all of the equipment, microphones slightly above the computer screen, it was possible to control the computer while simultaneously playing. Once this recording studio was set into motion, it was time to begin making sounds.

Recording of the first star trail score from December 11, 2015, began the week of January 4, 2016 with the initial approach of tracking each star trail individually. The hundreds of stars in the image were categorized according to their brightness (actually darkness since the image was inverted). Four categories were created: black, dark grey, light grey, and light. Each of these four categories had specific tracks in the session where the star's notes would be placed. These tracks would later be spatialized in the corners of the room, evenly spreading the star trails in the space for the duration of the hour. As a star was tracked it would be colored on the score page to indicated it had been tracked. Each star trail note was several minutes long, making it necessary to crossfade between

breath-long notes. Tuning and editing the crossfades was done after a single take of one note. Sometimes the star trail notes were very long and slow, so a sustained pitch was added between each glissando take, extending the note for the appropriate duration. With the angle of the star trail as a guide, the sharpness of the glissando would either alternate with a sustained note, a glissando immediately from the previous take, or sustain a pitch for several takes.

The decision to not circular breath these glissandos was made for three reasons: I didn't have the ability at that time, the sound of circular breathing would bring a human element into the sound, and cutting takes between notes allowed for smoother glissandos across trickier areas of the flute. Having since developed a circular breathing technique, this decision to not circular breathe is sound. The result of crossfading the takes created a more inhuman sound, in that it lasts longer than anyone could play. This distances the flute as a source. Furthermore, if it had been done with circular breathing, there would still be areas where playing a glissando would not have been smooth on the flute.

Allowing specific takes of glissandos compensated for areas of the flute which is difficult to smoothly glissando because of limitations in open holed keys and and embouchure. In this crossfaded sound, the flute is closer to a sine tone because of the lack of breath and the compensation for limits of glissando of the instrument. The lack of human-ness and flute-ness in the installation was an overall positive quality, transforming the flute sound away from its breath source.

The main issue with this approach was that it took a very long time to complete recording the individual star trail glissandos. The tracking of star trails from December 11, 2015 was not finished until January 18, over two weeks after the recording process

began because of the tedious method and the limited access to the recording space. During the recording sessions, the same notes were repeatedly tracked; the trails were always covering a similar range. These duplicate takes lost a lot of time. Eventually, sustained notes were copied and pasted when possible into the appropriate place. As the recording progressed through the score and the number of takes multiplied, it became difficult to remember where a specific note had been tracked in the session. Sometimes it was easier to do another take than to search through the session for a note. It took five or six recording sessions to complete this score, spread over the course of the two weeks because Tjarnarborg was often not available. I calculated it would take twenty weeks to track the star trail scores alone, not including realizing the other nineteen days of scores.

A new workspace with more access was found at the Natural History Museum. This museum was a collection of taxidermy animals, mostly from Iceland, housed on the third floor of the bank in the main intersection of town. The room had wood floors, a nice acoustic, and, most importantly, was closed in the winter meaning I had the space to myself. Even with this new workspace, there still wasn't enough time to finish recording during the remaining four weeks of the residency; a new recording strategy was also necessary to finish the project.

Since it had been discovered while recording the first star trails how inefficient it was to track each trail one at a time, it occurred that it would be possible to record a catalog of flute glissandos of various rates and directions, then editing the trails together outside of the recording studio. It was a bit of a risk; It would take a day or two to make the catalogs. If this method didn't work, that valuable recording time would be lost. Five different types of catalogs were made: quick glissandos up and down, slow glissandos up

and down, and one with steady notes lasting several minutes. Markers were placed in the session to identify locations of specific pitches so they could be quickly found. After making this catalog, the second star trail photo was edited together by copying and pasting the appropriate glissandos from the catalog into a new session. It took only 10 hours to edit together the second star trail day, making it possible to finish one star trail day in one working day! Supplemental audio recording track, `Beetz_01_TWSDec25_Stars`, is a twenty-minute excerpt from the beginning of the realization of Figure 3.2, the ideal star trail score from December 25<sup>th</sup> made with the catalog.

It was now possible to realize a star trail score in one day outside of the recording studio. No more time in the recording studio was required for the star trail scores. There was a concern that changing the recording location from Tjarnarborg to the museum would affect the overall evenness of sound in the installation. If the tracking method had not also been changed, infinite recording locations would have been required because of the massive amount of hours required to complete the star trails in that method. The closeness of the mics compensated enough for the room changes so the difference between the recorded sound of the first day and the rest is minimal. This eliminated the anxiety of discovering a missing recording or other error, requiring more recording back in San Diego.

One thread of the project is the repetition of duplicate action. The catalog method transformed the repetitive action from performing glissando on the flute in the recording studio to a copy and past gesture done with a computer mouse and keypad. Had this method not been adapted, the star trails would have taken over a year of steady work to

complete, and probably would have never been finished. It was better to get as much tracking done in Iceland as possible so when normal life returned in San Diego, it wouldn't distract from the completion of the project. It was important to find a way for the other types of scores to have a similar solution that could be recorded completely in the museum, saving the editing and mixing for San Diego. Once the catalog of glissandos was sorted for the star trails, it was time to decide on how to realize the north star and the aurora, two elements that stand out visually. While both of these elements were treated carefully the method of their realization creates a conflict in oppositions of time and visual presentation.

The north stars were a special part of the photographs because they were the only star that did not create a line. All of the star trails circled around this point, which was imperfectly dotted upon itself; the north star moves very slightly around itself. A similar sonic weight was desired to this significant visual weight in the score. The north stars were recorded at their indicated pitch according to the graph range, but with a single breath of fluttertongue. The fluttertongue timbre distinguishes the note from the rest of the glissando notes. The recording of this note plays back through the center channel of the installation, also weighting it in the room. This special moment goes by very quickly compared to the rest of the installation.

If northern lights were captured in any photograph, a special track was made taking the field recording with all frequencies above 500 Hz cut out and flipped it across its middle frequency axis. Essentially, it is the sound of the wind through the fjord present in the field recording but at a higher frequency. The track is placed in the center channel of the installation and plays back for the entire hour of the photographs presence.



The realization of the north stars and the aurora brings up a conflict of time. Visually, the north star is the most stable on the page; in life, it is a very bright star, often still possible to see in cloudy conditions. The aurora when seen is fleeting. Sometimes only a camera can capture it beyond cloud cover. But the realization does not mimic these elements in their presence, it opposes it. As a single breath length and fluttertongue, it is the shortest event in the entire installation. The aurora sound is one of the longer higher sounds heard in the entire installation making it very obvious to the listener. In retrospect, these interpretations could have been flipped: the north star could have been a sustained note playing through the duration of the hour of star trails and the aurora could have been a fleeting sound fluttering through, almost to be missed without careful attention. This swap would have more carefully echoed these elements' visual presence.

This flipping of affect in life attributes vs. their interpretation is a symptom of the long-exposure photography. In the long-exposure photograph, the aurora becomes a wash over any place it occurred during a single exposure. When the exposures are overlaid, the entire photograph becomes an aurora. The north star in these long-exposure photos is stable, a singular moment, unrelenting in its position. The camera captures it over and over in about the same position. While making the realization, much attention was paid to the overlaid photograph score, which is really removed from the reality of its source material. Because this was the score, the elements of the north star and aurora were interpreted opposing their identity in real life.

## D. Recording Snow Trail Scores

The snow trail photographs are similar to the star trails, though different in their gesture. Instead of concentric circles, the snow trails streak in angles across the image, tracing the movement of the falling snow. The making of the catalog of sound from the star trail realization influenced how the snow trails were realized. The catalog for the snow trail was a collection of recordings of every standard pitch in the same range as the star trail catalogs, but with an airy sound for the length of a breath, about ten to fifteen seconds. Each airy pitch was crossfaded with itself to create an hour long note. Each note was multitracked to create an hour of airy mass of flute sound. The goal of making this recording was to then put it through band pass filters in a Pure Data patch created by Dustin Donahue.

This patch included twenty filters, ten for the left channel and ten for the right. For each filter there was an input of pitch, duration, and an input for width of the filter. Time and MIDI parameters were input according to each photograph score and width of the filter was interpreted in proportion to the snow trails in the photograph. Each score had its own duplicate patch with the appropriate saved numbers for each parameter. Once the values were entered and “record” pressed, Pure Data would run the air flute mass file, only recording the filtered sound. Each score needed two runs through the pd patch to complete the number of snow trails and a few needed a third and fourth because of a higher density of snow trails. It took two to four hours of mostly inactive work to complete one snow trail score. Supplemental sound recording track 2,

Beetz\_02\_TWSDec20\_Snow, is a twenty-minute excerpt from the beginning of the realization of Figure 3.4, the ideal snow score from December 20<sup>th</sup> using this patch.

This process was incredibly productive. Since Pure Data could record on its own, it was possible to work on other parts of the installation simultaneously. One concern with this method is that when there were a lot of snow trails, they added up and the sound is mostly of the original track, making the distinguishing band pass filters less individual. However, when a new filter starts it is a bit jarring and directional in an un-directional noise mass sound, which has a similar effect to being hit with snow; generally, one feels being snowed on, but sometime how a single flake hits the skin is jarring.

One problem with the result of the snow trail realizations is from the tracking of the airy sounds. In the complete air mass sound, there are some toned pitches that briefly appear out of the air sound. This is because of when the low bass flute air sounds were recorded, they were not completely air sound. Sometimes a little bit of tone was also captured. This tone carries through the bass pass filters especially when there was a wide filter in the low range of frequencies. This human error was, in the end, positive for the installation. The low undulation of the tone mimics the low wavering sound from the waves and wind present in the field recordings that are prominent in the cloudy score realizations.

Like the star trail glissandos, the band pass filters of the airy flute sum recording obscure the sound source of the flute. The balance of the non-flute sounding noisy air plus the human error of performing inaccurate air sounds creates a similar ambient world as the cloudy hours in the installation.

## E. Realizing Cloudy Materials

For cloudy days, there were no lines in the photograph scores to be interpreted so the field recording became the sole source of sound for those hours; nothing was tracked specifically for cloudy scores in the studio beyond the initial field recording. Throughout the scores, if clouds were present on any photograph, the field recording would be included. With all of the completely cloudy days, the field recording has several manifestations: as it is, in a frequency sum filter, and a filter that cuts about frequencies above 500 Hz. These three sounds were then mixed to create a desired sound of noise.

The filtered tracks were created in Mammut. The sum track, was made by having Mammut analyze all of the frequencies in the field recording and then playing them all back randomly. This created a track of noise. The other track cut out the frequencies above 500 Hz. This created a track that could be played back louder than the original field recording in order to emphasize the lower frequencies, avoiding amplification of the higher partials that included the waves. Each stereo track was placed in the installation twice to make four channels. The duplicated field recording stereo image was reversed so that the waves crashing right to left were moving in the opposite direction in the back two speakers. They were played out of sync so the start of the waves happened at different moments. This balanced the movement of the waves in the room so that the sound wasn't always starting from one side of the room. Supplemental Sound Recording track 3, *Beetz\_03\_TWSDec16\_Overcast*, is a twenty-minute excerpt from the beginning, representing an ideal mix of tracks from the overcast night on December 16<sup>th</sup>. The image from this night can be found in Appendix A.

The combination of these different washes of sound were to hide the reference to the waves in the field recording. While the field recording was taken on a beach, the moments of the cloudy nights were not enjoyed as one enjoys a “beach.” In order to capture that ambience of a cold, stark, cloudy night, it was important to hide the waves in the noise. The noise sum track successfully covers the waves from the field recording; if properly mixed, the waves affect the sum track just slightly, without becoming “waves.” The low frequency track still contains the waves in addition to the sound of the wind through the fjord. This proved to be a valuable track, emphasizing the low undulation from the field recording without the higher partial waves.

The mixing of these tracks recreates my listening experience from when I took the source material. It emphasizes parts of the heard experience that were most beautiful and interesting to me. In taking the source material, I preferred to not focus in on the crashes of the waves, but all of the other hidden sounds of the wind through the fjord, the rumble of the rocks all parts of the experience that were less in the foreground. This listened experience was also further pressed by the doubling and flipping of the tracks into rear speakers, making a sort of double shore-line in the installation room. This takes that listened experience and moves it into an imagined space; moving my most favorite sounds from my experience and doubling them into a richer, fuller environment.

In comparison to the other types of realizations, the cloudy scores do not involve intricate detail work. The process of making the cloudy score realizations was broader in the making of the different filtered tracks. This was very quick work. Even so, there were two problematic source materials from two different days. On December 29, the wind was strong enough to clip the mic. The heavy winds that night made it very

uncomfortable to be outside. It was much colder than normal and the wind pushed the air through any small space between your clothes. It was impossible to face the wind and we went home early. For this night's realization, the same filtered tracks were created from the clipped recording, which was then mixed down in the playback. It was briefly considered to take a previous cloudy night's field recording for this hour in the installation, though was unnecessary since the tracks from the clipped recording were of sufficient quality to play. The other problematic recording was from the following night, December 30. This night's only source material is a "field" recording taken with contact mics on the window in the bathroom of the apartment. Even though there was no precipitation that night, it was decided it would be better to stay in considering the previous night's awful experience taking the field recording. This is the only contact mic recording that is included in the installation. The same processes of the noise sum and low frequency filters were made and mixed accordingly. The only real problem with this is that since no photographs from this night were taken, it is impossible to know if any northern lights were present beyond the clouds, which would indicate an additional track for the installation.

Since the process of realizing the cloud hours was less tedious it was thought that this was a weaker point in the rules of the installation. Upon further examination, that is definitely not the case. The whiteness of the cloud photos and their potential stacked complete white frame mimic the white noise presented in the mixing of the field recordings. Essentially, whenever a cloud hour occurs in the installation, white noise plays. White represents all colors; white noise represents all sounds. In the end, the realization process of the cloud hours is quite theoretically cohesive. There is a nice play

between the completeness of the white noise combined with it being heard as obscuring specific sounds. This relationship directly mimics the experience of taking the source material during cloudy nights: it was a complete experience, but clouds obscured the view.

There is one final hour that needs to be discussed, that of the hour of missing source material from when we were stuck in Akureyri on December 17<sup>th</sup>. Having no source material to work with for this moment of the installation, I decided to make a piece based on a flute technique that is unpredictable. Supplemental sound recording track 4, *Beetz\_04\_TWSDec17\_Blizzard*, is a fifteen-minute excerpt from the beginning of the result of the following process. While improvising, I came across a multiphonic that oscillated between two notes at a small interval, beating with itself. This multiphonic was multitracked in four different registers: bass flute, C flute, piccolo, and piccolo whistle tones. The composite multiphonics beat and oscillated unpredictably over the four registers. The highest register of the piccolo whistle tones in the overall sparse texture created an ambiance similar to quietly waiting out a blizzard from the safety of an old house. This is one of my favorite moments of the installation; it is also the only moment in the installation where there was absolutely no source material. It was completely composed by myself through a combination of improvisation and recording.

## Chapter 4 – Knitting Snowball Stars

The visual element of the installation was a collaboration between knitters from both Iceland and USA. The goal was to make 500 snowball stars, because that is about how many stars were in a photograph from the clear night on December 25, 2015. In the end, only about 220 were made which still filled the space in the full installation.

Including a knitted element in the project was for three reasons: knitting is a hobby of mine, it is a tradition in Iceland, and the artist residency required that each project engage the local community. Knitting is a very clear representation of the physical processes present in my work.

### A. The making of the snowball stars

My mother taught me to knit when I was around six years old. At the time, my mother stayed at home, tending to the garden to supply food throughout the year while also sewing and knitting garments for the family, while recovering from cancer. She also made some extra money sewing for a basket company on the side. As I was growing up, she taught me how to tend to a home, knit, sew, and garden. I didn't immediately follow in my mother's image. It was only in graduate school that I came back to knitting and other skills she taught me in my youth. I turned to knitting as a way to cope with the stresses of graduate school, finding the repetitive work familiar and meditative. The steadiness of the process and its long duration until finished product elided with elements of my instrumental practice, but did not have as much pressure for success: if the garment



did not come out, it could be frogged (ripped out) and started again. Essentially, knitting was a similar process as flute playing, but with less pressure.

Knitting in Iceland is a national pastime. It is still taught in schools at a young age. Most Icelanders can knit, even if they remember little of how to do it.<sup>13</sup> The sheep in Iceland are also special in that they were brought over with the Vikings and produce a specific type of wool that is lightweight, water proof, moisture wicking, and incredibly warm. Without sheep, Iceland would have been uninhabitable.<sup>14</sup> For centuries, all clothing and household items were knitted, made not just by women but also small children and men as they were walking to and from pastures. Since all garments were knitted, everyone needed to make garments.<sup>15</sup> The lopapeysa sweater made from Icelandic wool with its color work yoke imitates the snowy mountain landscape and is seen as a national garment, even though its design is more recent.<sup>16</sup> Icelandic wool is easy and affordable to purchase in Iceland; it is available at most grocery stores, including the one in the small town of Ólafsfjörður. Part of the intrigue for me in going to Iceland was to work with Icelandic wool. The company Ístex purchases wool from farmers, processing and distributing it worldwide, while also preserving traditional knitting patterns.<sup>17</sup> While not impossible to acquire in the states, it is more expensive and difficult to find. The idea of going to the grocery store to get the essential food for the week along with the essential

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<sup>13</sup> “Notes on the Icelandic Knitting Heritage,” Hélène Magnússon, accessed May 6, 2017, <http://icelandicknitter.com/en/mag-posts/the-icelandic-knitting-tradition/>.

<sup>14</sup> “The Icelandic Wool,” Ístex, accessed May 6, 2017, <http://www.istex.is/english/the-icelandic-wool/>.

<sup>15</sup> “Notes on the Icelandic Knitting Heritage.”

<sup>16</sup> “The Icelandic Wool.”

<sup>17</sup> “Ístex,” Ístex, accessed May 6, 2017, <http://www.istex.is/english/>.

yarn and lopapeysa pattern was exciting, and was definitely a delightful weekly endeavor for me while in residence.

The pattern for the snowball stars was developed from two different patterns found online. These two patterns used different techniques to create a ball; I combined the techniques in a way that I thought would be the easiest for all levels of knitters and also the easiest to repeatedly open and close for access to the lights. Once a suitable design was made, the knitting instructions were translated into Icelandic with the help of a native speaker. The pattern would take about thirty minutes to make one snowball. The yarn was sourced from the local grocery store which had a selection of different weights and colors. The un-dyed, off-white léttlopi was chosen for its ease of use versus the more economical, but fragile álafoss lopi.

Two knitting circle events were held in Ólafsfjörður: one at the Hornbrekka Retirement Home and one at the local library. Many of the elderly Icelanders did not speak English. Using the Icelandic pattern and given materials, five women at the retirement home joined to make some snowball stars. Unfortunately, I wasn't able to really get to know them very well because of the language issue, but the ladies seemed to enjoy making their snowballs. One woman, a nurse at the retirement home, Rósa Kristín Óskarsdóttir, was very excited about the project and asked if she could have more yarn to make more at home. I gave her all the yarn that I had, which was about ten skeins. A week later, while working at the library, the librarian returned a bag of snowballs to me that Rósa had made and relayed the message that she wanted to make 100! Buying the grocery store out of this yarn, I delivered enough yarn to Rósa to make a total of 100

balls. In the end she managed only 76 because my time at the residency was cut a week short.

The second knitting circle held at the library was unsuccessful: no one showed up! One woman who worked at the library joined in, making five snowballs while she sat at the desk in the library. Attempts were made to connect with other knitters at the bi-weekly knitting circle at the library in nearby Siglufjörður, but in-climate weather prevented me from attending the event. The night of the knitting circle I took the bus to Siglufjörður, having planned to purchase more supplies there, it turned out the grocery store in Siglufjörður did not supply yarn. At this point, the roads were getting very bad and so I hitchhiked back home with a stranger.

These efforts to meet and interact with strangers challenged me socially. It was very important to be to have locals involved, to learn more about the culture and their background in knitting. It seemed that if I had stayed a bit longer, more interaction would have happened as word was just beginning to spread about the project just as I was leaving. Even so, I learned a lot about the community and myself in the process.

Still wanting to make 500 snowballs, but not having very much time to make them myself being busy making the rest of the installation parts, it was time to ask friends back home.<sup>18</sup> I sent my mother and friend, Christine Tavalacci one full box each of léttlopi yarn to make snowballs. My mother managed to knit sixty-two snowballs and Christine about twelve. After returning to the US, I asked a couple other friends to join

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<sup>18</sup> The complete list of knitters is: Stephanie Aston, Sara Ballance, Rachel Beetz, Sharon Beetz, Hrönn Hafþórsdóttir, Alda Ólfjörð Jónsdóttir, Leslie Leytham, Michael Matsuno, Rósa Kristín Óskarsdóttir, Christine Tavalacci, and Alda María Traustadóttir

in, making about fifty more. In the end there were about 220 snowballs. While the effort to make 500 snowballs failed, the amount I had was more than sufficient to fill the presentation space.

The snowballs made by different people look quite different; their maker is identifiable by the the expression of the stitches. The balls of the more experienced knitters were even orbs of a medium size, where others were tiny and tight in their stitches or uneven and gathered awkwardly at the two poles. Even though each person used the same pattern and the same needle size, the snowballs turned out very differently because of the tension and experience of knitting in the hands; the cumulative life of experience shown in the stitches. Not everyone took 30 minutes to make one ball; some took 15 and others over an hour. The installation represents hundreds of hours of work from an international community of knitters.

After they were knitted, they were stuffed with polyester filling and one white LED light. Monofilament line was tied to the top at different lengths, then wrapped around a cardboard to keep in from tangling. An ornament hook was tied to the other end of the monofilament line that could hook onto the lighting grid of the room. The balls were hung to fill the space in all three dimensions, some very low to the ground and others very close to the ceiling. Because of their saturation and even distribution in the room, the lights created a sense of vertigo and spatial disorientation. The knitted balls successfully represented both snow and stars. In the room, it seemed like it was experiencing outer space, that you were walking among the stars. But it could also be that you were suspended in time, as if the balls were falling snow, moving so slowly that it couldn't be noticed.

While other areas of the installation trace the movement of the natural world, these snowballs trace the social activity of their creation and are remnants of others' labor in the space, though, their presentation is not obvious in the current exhibition plan in their abstracted anonymized state. A potential way this could be remedied is by having knitting circles coincide with the exhibition with the making of more snowball stars. This would enhance the visual power of the listener by their understanding of the creation of the knitted snowballs as a community effort. There is currently nothing inherent in the exhibition of the piece which references this communal effort, a knitting circle coinciding with the exhibition would be an attempt at emphasizing this element of the work during the exhibition.

## B. Connection through knitting

Knitting became a way for me to connect to a part of the Icelandic community, where I had no other way of doing so. Though it was socially challenging, I was able to connect with some Icelanders at the local retirement home through knitting some balls together. Questions about the project were asked and answered through physical example, instead of language. Even if they couldn't participate in the act of knitting due to arthritis, camaraderie through the gathering of people was found through this shared activity. Even with a language and age barrier, we were able to connect to each other through knitting.

Knitting is in the category of "women's work." In her article "A note on the division of labor by sex" Judith Brown defines women's work as that which is compatible

with childcare: “Repetitive, interruptible, non-dangerous tasks that do not require extensive excursions are more appropriate for women when the exigencies of child care are taken into account.”<sup>19</sup> This is true to my experience of knitting. Growing up, my mother would knit as she raised me while my brothers were at school and my father at work. She would also participate in other women’s work activities such as caring for a small garden, sewing, and maintaining the cleanliness of the home. She passed all of these skills to me, which I continue to do in my own home. The qualities of this type of women’s work is present in my instrumental practice: it is repetitive, interruptible to some extent, and non-dangerous. Knitting specifically contains small physical gestures akin to how I view playing the flute as a set of small, repeatable physical gestures. These repetitive actions and their traditions connect me to my mother and others who share these traditions.

Knitting as a form of connection between groups recalls recent events and activist groups. For instance, the group Knitted Knockers<sup>20</sup> is a volunteer group that provides prosthetic knitted breasts to cancer survivors who cannot afford reconstructive surgery. The so-called “pussyhats”<sup>21</sup> worn at the recent Women’s March on Washington<sup>22</sup> on January 21, 2017 is another example of people connecting through knitting. Strangers knitting a project together as representation of a united community is also present in Iceland. In October of 2010, two tunnels were opened connecting Ólafsfjörður and

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<sup>19</sup> Judith Brown, “A Note on the Division of Labor by Sex,” *American Anthropologist* 72 (1970): 1077.

<sup>20</sup> “Knitted Knockers,” Knitted Knockers Organization, accessed May 6, 2017, <https://www.knittedknockers.org/>.

<sup>21</sup> “Pussy Hat Project,” Pussy Hat Project, accessed May 6, 2017, <https://www.pussyhatproject.com/>.

<sup>22</sup> “Women’s March,” Women’s March on Washington, accessed May 6, 2017, <https://www.womensmarch.com/>.

Siglufjörður. Previously, driving between these two towns in the winter would take over six hours, but with the tunnels, it now takes only a few minutes. These tunnels attracted more tourists and interactions between the towns. To signify this new physical connection a local artist, Frída Gylfadóttir, had the idea to knit a scarf that would run through the tunnels from Ólafsfjörður to Siglufjörður. Over 1,000 men and women aged ten to ninety-four from all over the world knitted a 11.3 kilometer scarf that ultimately stretched through the 17 kilometer tunnels between the two cities. After its installment, the scarf was cut into pieces and donated to charities.<sup>23</sup> This project connected a diverse group of people through knitting to celebrate the new access the tunnels gave to the very community I was in residence. Knitting could be seen as an isolating activity, but when done together for a specific goal, it brings people together from around the world.

While the knitted objects in *The Winter Stars* are not politicized, they do connect a disparate group of people through fiber arts in service of a larger goal. Most definitely, it would have taken years for me to knit the snowballs myself; I could not have done it alone. It was more rewarding to include others in the project. Everyone's participation was crucial to the project; the final installation became a representation of the work of a global community of friends and knitters.

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<sup>23</sup> "North Iceland Scarf Tunnel Completed," Iceland Review, accessed May 6, 2017, <http://icelandreview.com/news/2010/10/05/north-iceland-scarf-tunnel-project-completed>.

## Chapter 5 – Examining my practice in *The Winter Stars*

### A. A larger goal made through repetitive actions

The process of knitting echoes throughout the working method of the project on multiple levels. Small gestures are repeated, duplicating a product; each result adds up to create a larger whole. The individual gestures often retain their uniqueness in the expression of the final project. Literal knitting was involved in the installation in the making of hundreds of the snowball stars, themselves requiring hundreds of individual stitches to create their orb. Furthermore, each knitter had their own amount of knitting experience that was expressed in the balls: the more knitting experience, the more even the product.

Many other aspects of the project were knitted together, such as the method of realizing the star trail photographs, and the overall collection of each element of the project. Each star trail photograph itself is the single expression of 120 total photographs taken over the course of an hour. These photographs as a whole were translated into sound by copying and pasting the corresponding glissando gestures into an audio session. The catalog of glissandos is another expression of knitting in that each take was eight to twelve seconds long and was cross-faded with the next take, making one continuous string of notes knitted together. Once each photograph was realized in its full hour, each hour was stacked and faded into each other making a string of hours forming the complete audio of the installation.

The realizations of the snow photographs and cloud materials are an interesting play on this knitting process. In the snow realizations, the flute air sound mass track was



created by meticulously overdubbing single takes of single notes. This track, while created through the small piling up of sounds, was then operated on as a whole with the band pass filters sculpting out essential frequencies and durations. In contrast, the cloud hours were created by quickly editing new tracks from the field recordings and mixing them together, making this part of the realization process the least like knitting of all; it was instead a mixing of sound to mimic a specific aesthetic without a tedious process.

Circumstances of the residency and the largeness of the project required adaptation of the working processes. The dissatisfaction of the given work space forced new collaborations with local people and establishments and altered my own working process. Once a sufficient work space was acquired, a process was developed which required much less time in a recording studio. The catalogs of both the glissando and the white noise allowed the project to be completely tracked while in Iceland during the last month of the residency. Though the process was modified, they still involved extensive repetitive gestures.

This repetitive process has its origins in my working methods in my general instrumental practice. Each day, I repeat the same set of warm-ups (sometimes changing one set out for another). If there is a difficult passage, I repeat it over and over at different tempos in order to iron out the technical kinks. Or if a passage is particularly fast, I will repeat it as well, gradually increasing the speed of the metronome. Though these small gestures are an important part of my working process and understanding how they connect to the larger work is essential. In order for me to dig into the focused, repetitive work, I first must understand why that work is essential and where it fits into the larger scope of the project. In a larger scale, each hour of of sound was created according to the

rules of the overall project. In the end, the installation is a piece of hour-long increments that are knitted together to make the thirty-hour whole. This same process is present in the *Script/Rescript* project: first the general goal of the project, finding pieces which dealt with counterpoint on the melodic flute, was clear which then paved the way for smaller details to be decided, ironed out, and weighed against the overall goal. This is also how I program concerts; first a larger concept is developed, then individual pieces are chosen which complement and/or challenge the larger concept.

As a performer, it has been my practice to interpret and perform scores and notation, therefore *The Winter Stars* project was setup to have a set of rules and scores which were to be interpreted accordingly. The strict set of rules in *The Winter Stars* replaced the composition and interpretive performance practice, making the source material of audio and photographs from nature the score being read through myself as interpreter. By setting up this larger structure, I was able to make decisions based on the goals of the project and not only my own subjective aesthetics. This required trust in the overall project and the variability of the natural environment to create enough layers and complexity to create an interesting result. Inevitably, because it was me making those decisions, my style and aesthetics do come through, but they essentially relate to the aesthetics of the overall project. Considering the larger structure of the piece at all times was a way of changing the question from “What do I want or like?” to “What does the project need?”, allowing me to evaluate priorities freer from my own subjectivity. Ultimately, this trust in the larger project rooted in the natural environment resulted in a final product that is much larger than myself.

## B. Physicality and Immersion

It is important to note the absence of a performing body in *The Winter Stars*. The physicality of playing the flute has always been an important topic and concern in my performances, but in this project the flute is not physically present for the exhibition. Often people expected me to be performing in the space, but that never seemed to be appropriate to the expression of the project.

In instrumental performance, the audience is always experiencing the performance vicariously through the performing body. Instead of experiencing sound through a surrogate, as is the case in watching a live performer, they experienced the room for themselves, the room which was made through the interpretation of an outdoor space.

It is surprising to me that as a performer who is very concerned with physicality on the instrument pedagogically as well as interpretively, I see my most successful projects as ones where the body is absent from the presentation. The absence of the surrogate performing body allows two essential elements that make these projects more potent artistic expressions. First, the absence of a body requires the musician to create an environment other than the audience sitting watching the performers on stage. Secondly, the absence of a body allows the audience to become the primary bodies that experience the sound, not secondary to the sounding bodies. These conditions empower the listener to perform listening for themselves; their connection to the material is more direct.

In *The Winter Stars*, the flute is involved in ways that a live body cannot recreate. The glissandos of the star trails last several minutes, covering a range of the flute that is

very difficult to connect. The sheer number of glissandos is also overwhelmingly impossible for a single live performer. The airy sounds of the snow hours could only be recreated by the same number of flutists as present pitches. In the end, both the glissandos and the airy sounds are not immediately recognizable as a flute. The glissandos are often mistaken for sine tones and air sounds as white noise. People are often surprised to hear that these sounds were made with an acoustic instrument. The extension of possibility through technology is that which makes the flute unrecognizable, transforming the sound of the instrument. Through the use of recording technology, I was able to go beyond the boundaries of live performance.

### C. Practice Routines

The working process of the making of *The Winter Stars* was developed out of the kinds of routine I use as a performer. As an instrumentalist, my work centers on a practice routine which involves physical acts of repetition, the translation of images to sound, and a close examination of listening to myself play in a space. Adaptations of these repetitive practices were essential to the making of *The Winter Stars* in every stage.

Taking the source material required a daily routine of packing, recording, and photographing each night. Each day for thirty days, I planned my day according to the project and the weather presented. This routine was similar to the one I have as an instrumentalist; it shaped how I spent the rest of my day and my sleeping schedule just as preparing for an important concert would.

The act of making the glissando catalogs and editing their audio also took the form of a practice routine. Each time I made a star trail edit, I was performing a gesture from the score. The star trail recording included the cyclical transformational act of reading, playing, drawing, in the first days' realization and later in the act of reading, copying, and pasting. This routine developed a momentum through its repetition. The snow and cloud realizations also developed their own realization routine, which was again cyclic. Each type of material was transformed into sound for the installation through its own routine.

My modes of listening shifted between stages of the routines in the project. In the first routine of taking the source material, I listened to the environment surrounding the camera and field recorder. In the creation routine of the mixing stage, I listened carefully to the field recording tracks to emphasize the remembered listening experience from the beach. This is not far from a performer evaluating a recording from a previous practice room experience. There was a way that I heard myself that I wanted to translate into the installation.

Knitting as a practice is built around its own routines in ways that could be understood as mimicking instrumental practice. Most of the time a knitter is working with a pattern. Each stitch relates to a specific row that will become a physical part of an object. This could be understood as similar to the process of learning to play a piece. The score is presented in its full state and the performer puts it together line by line. One action results in a physical object that can be seen out of time and another is a series of vibrations heard consecutively, but both are based in a repetitive process over time.

This repetitive routine is how I learned to make music as an instrumentalist. It is also how I managed to conceive of making this large project: first I made the pattern and then each stitch in its own line. At certain points, more economical ways of working were developed in addition to the call for help from my community. For this project, knitting the pieces together was a natural working process. My disciplined process was a way of translating a performance practice into a creation practice.

#### D. Looking forward

After making this document, certain lessons from making this project have become clear. The largeness of *The Winter Stars* and its circumstances forced me to reconsider my tendency toward tedious working methods. I had to adapt my processes to include more open working methods in order to finish. The moments from the installation which involved more open processes resulted in equally rewarding sounds. The overcast hours truly deny the listener an experience of time in its stark noise, but are still not only noise; the barely audible undulations of the waves and wind in the mix create a reason to stay and listen. The only hour of the installation that had no source material, the blizzard of December 17, 2015, is one of my favorite moments of the whole project. The lack of source material invited me to create a piece of my own that explored the performance of a single beating multiphonic. In the future, I hope to develop these less process-based ways of working.

The use of technology in this project never replaced the importance of a physical challenge to the instrument: it enhanced it. Through technology, I made some of the

longest tones on the instrument I've ever heard. This has challenged me to learn circular breathing, a technique which could have been useful at the time of making this piece, even if in the end another technique was chosen. I also hope to develop a more even glissando technique. Retrospectively, I see how important the physical challenges of instrumental technique were to the source of the project and can see how further developing my relationship with the instrument can bring other projects to fruition. I also look forward to exploring more technological techniques and sounds with the idea of physical challenge in mind.

Much artistic work aims to evoke the world in some fashion, but little of it attempts to re-create it, or define itself as a lived experience. Making *The Winter Stars* required a commitment to the simplicity of literal re-creation, commanding a trust with the raw material to bring the necessary complexity of viewed interpretation. It was bold to re-present an environment so explicitly and literally, but it was in the commitment to exact representation that gave the work its power.

Lastly, the importance of a larger idea is now extremely clear to me. I now see its presence in every single one of my projects. Even writing this paper was done in that fashion: an enormous general outline was the first step, then each section meticulously drafted and edited, only coming together after the smaller sections were complete. Identifying a central concept is what gives me a reason to make a concert or a piece; it is the driving force of my daily work.

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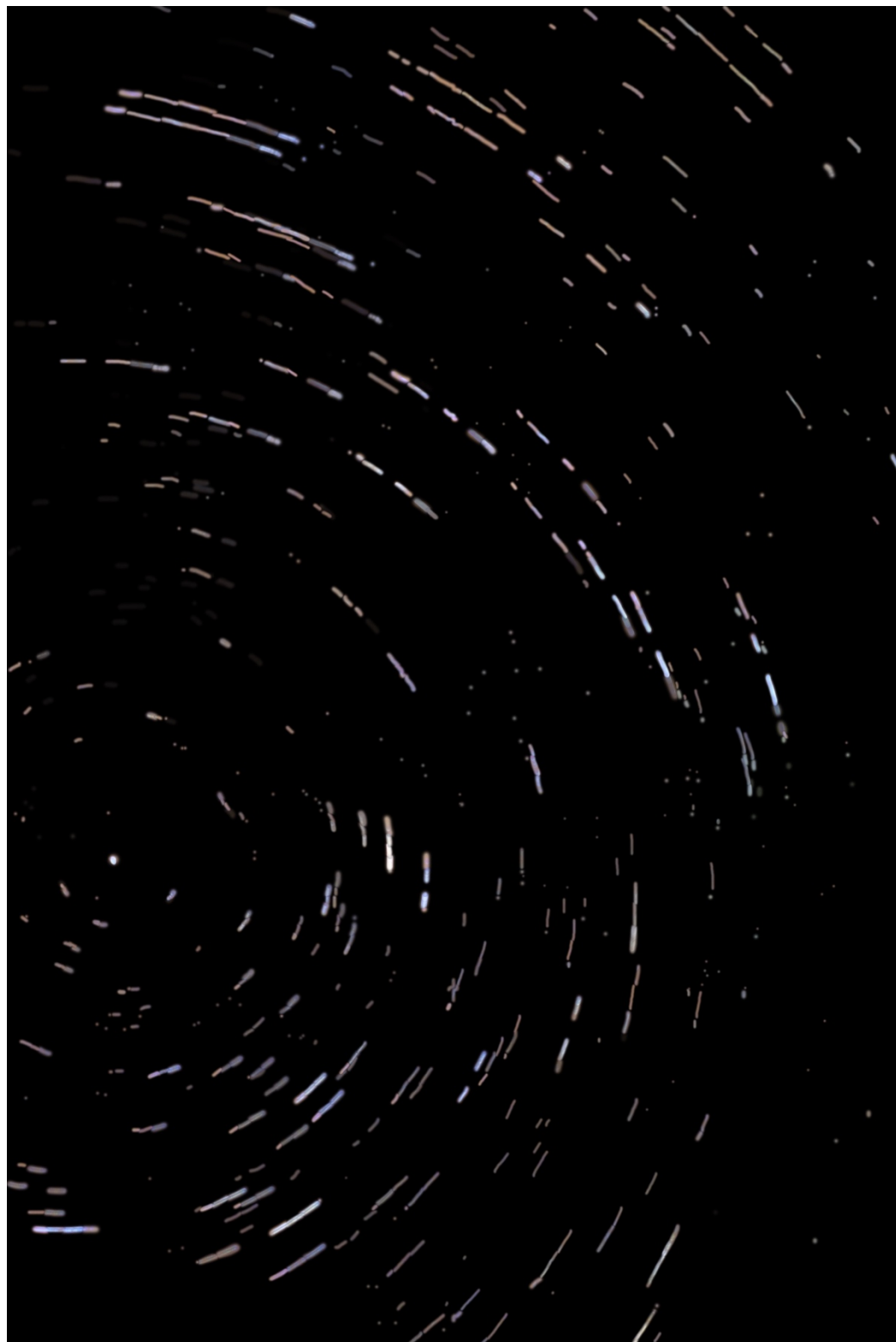
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## Appendix A – The Winter Stars Scores

The following set of images are the photographs chosen as scores for each day of *The Winter Stars*.

December 11, 2015 – Stars & Aurora



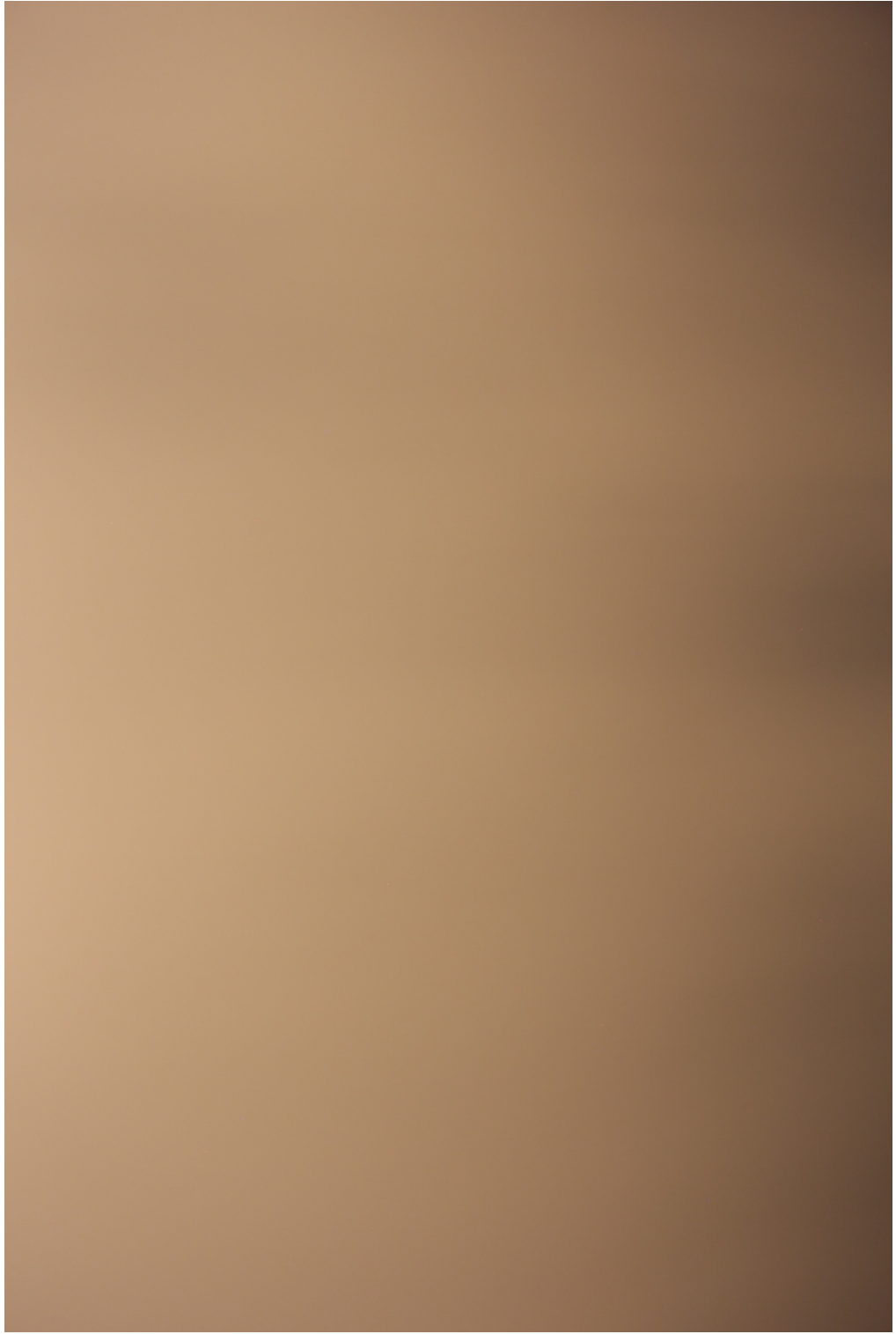
December 12, 2015 – Stars & Aurora



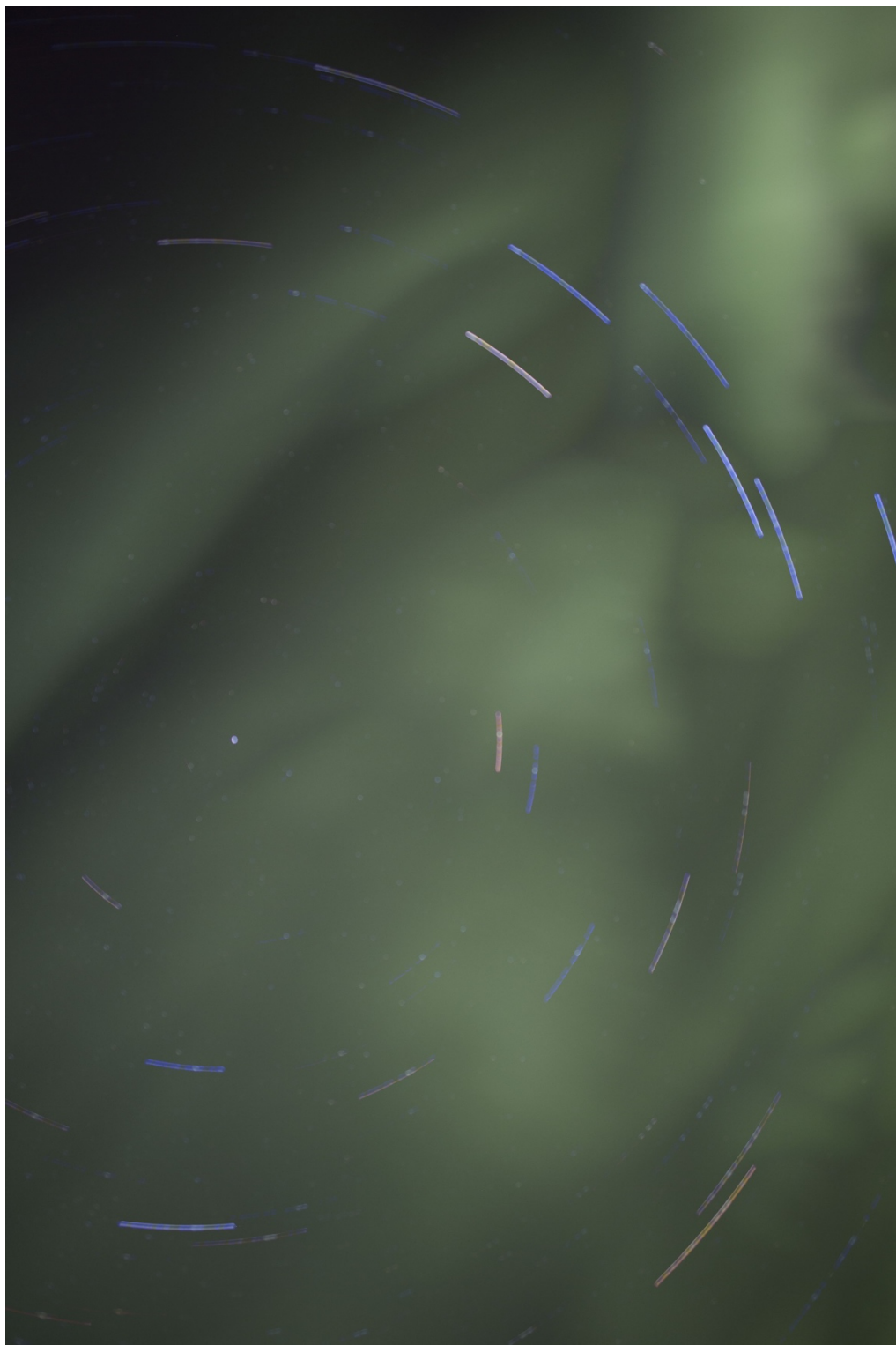
December 13, 2015 – Partly Cloudy



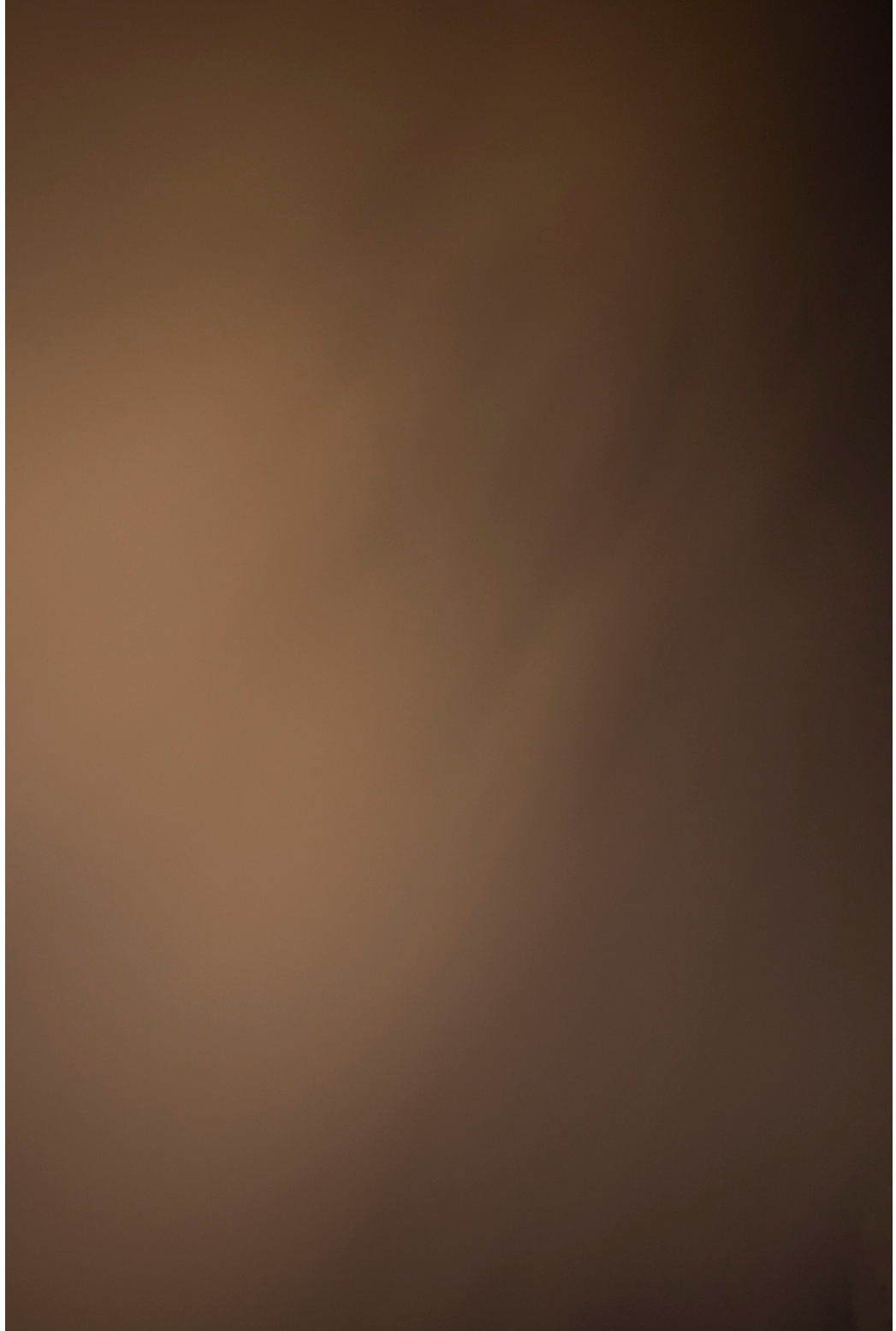
December 14, 2015 – Overcast



December 15, 2015 – Stars & Aurora



December 16, 2015 – Overcast

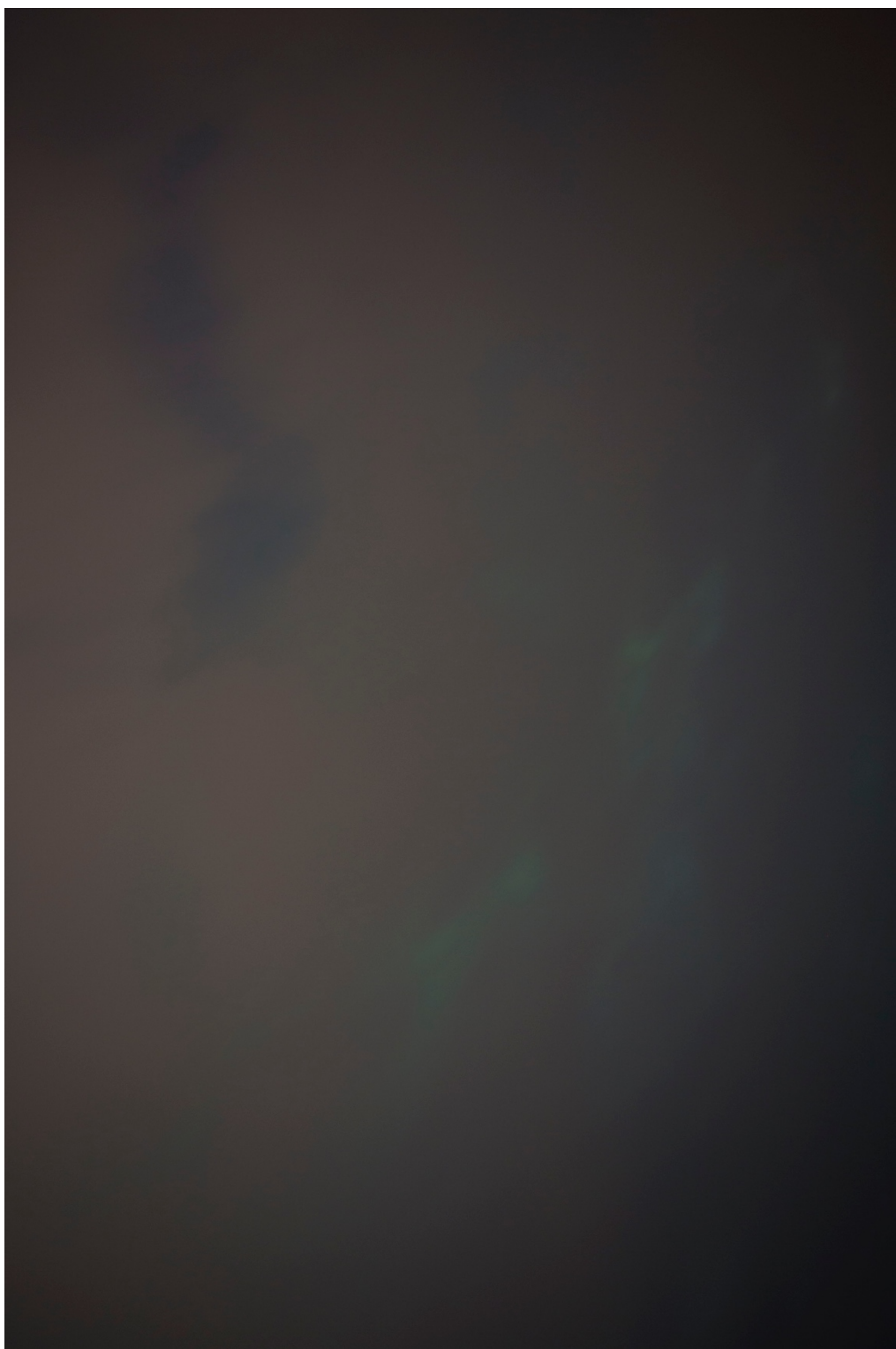




December 17, 2015 – Blizzard

There is no photograph score for this night as I was stuck in Akureyri without my equipment.

December 18, 2015 – Overcast with Aurora



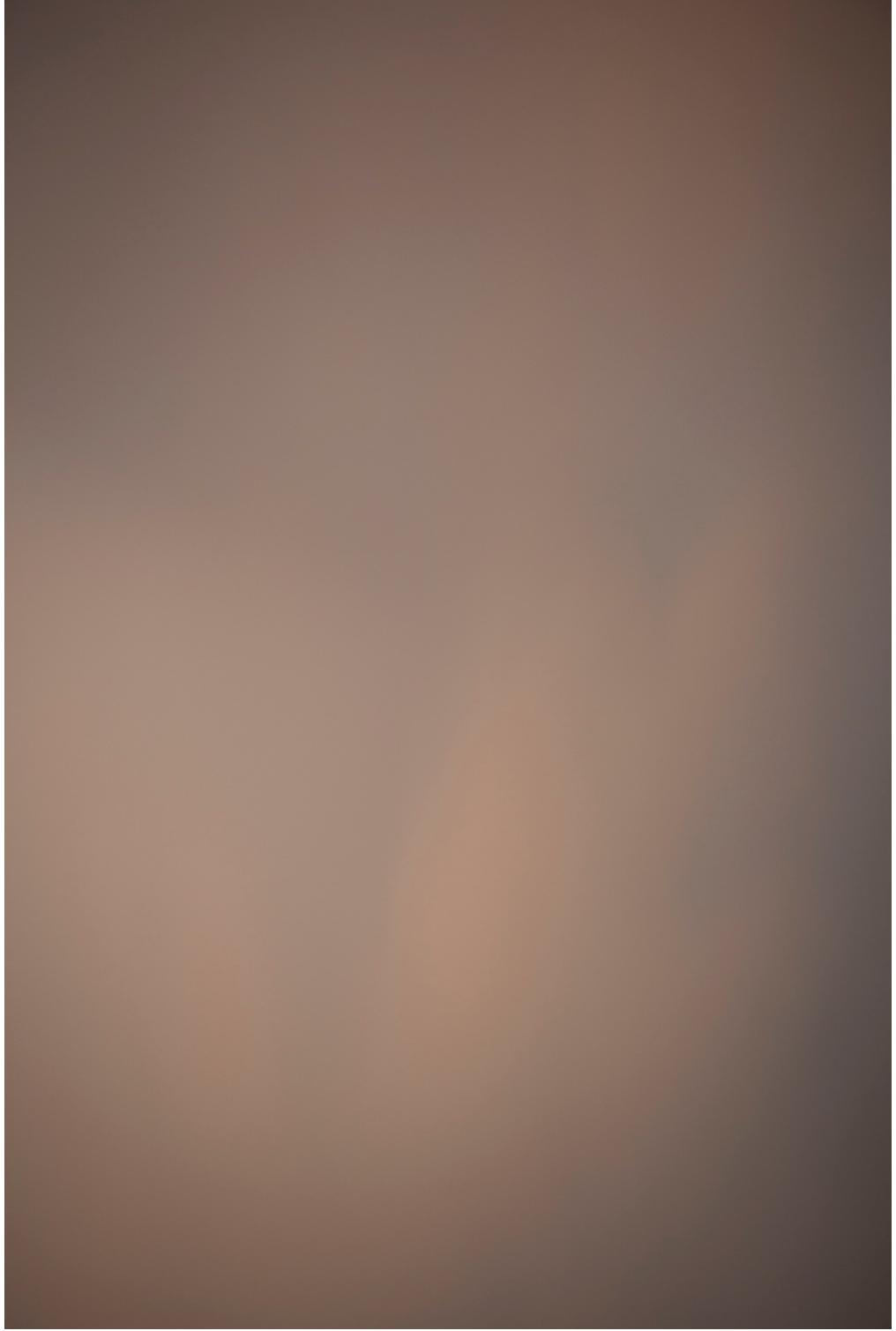
December 19, 2015 – Snow



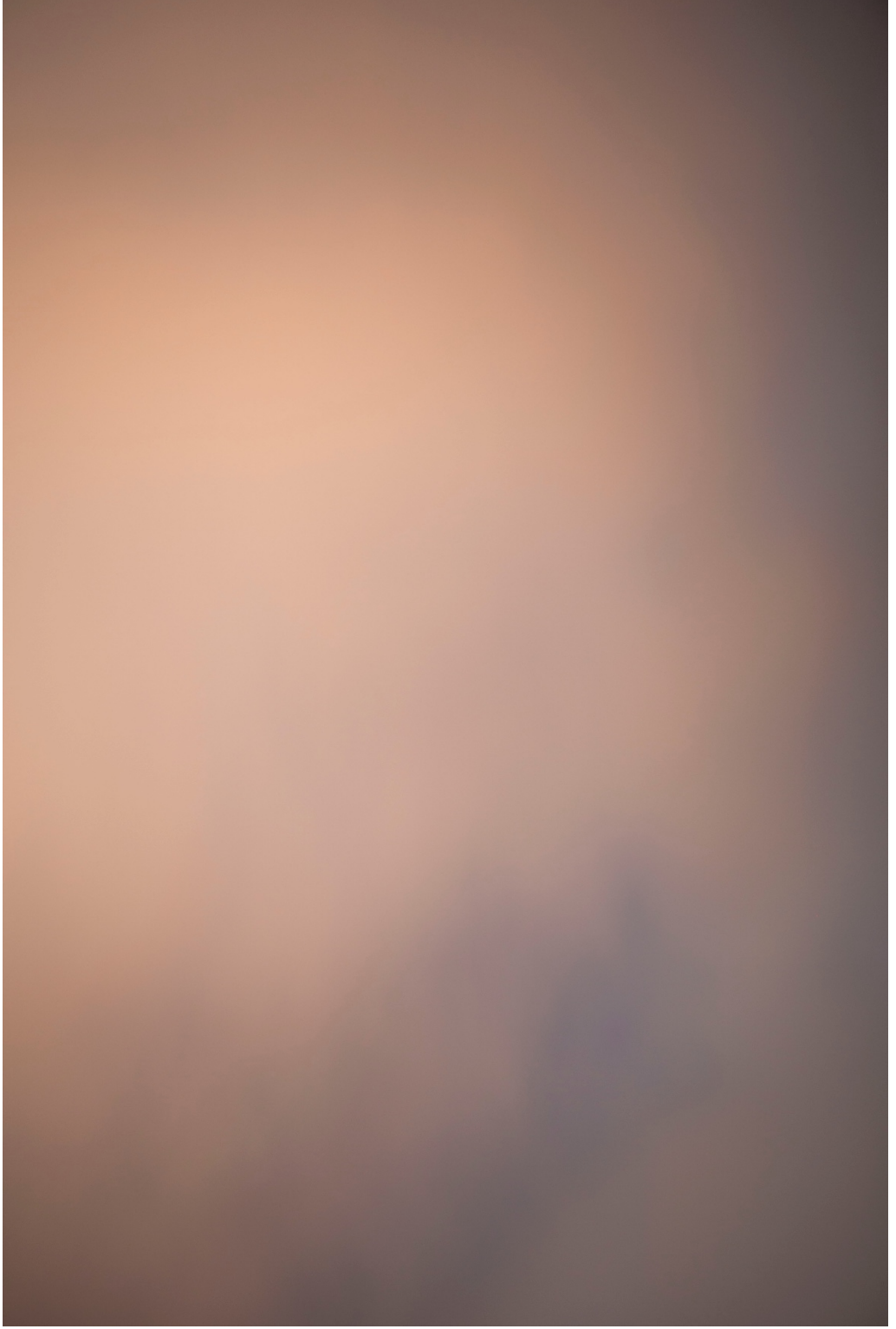
December 20, 2015 – Snow



December 21, 2015 – Overcast



December 22, 2015 – Overcast



December 23, 2015 – Snow



December 24, 2015 – Snow





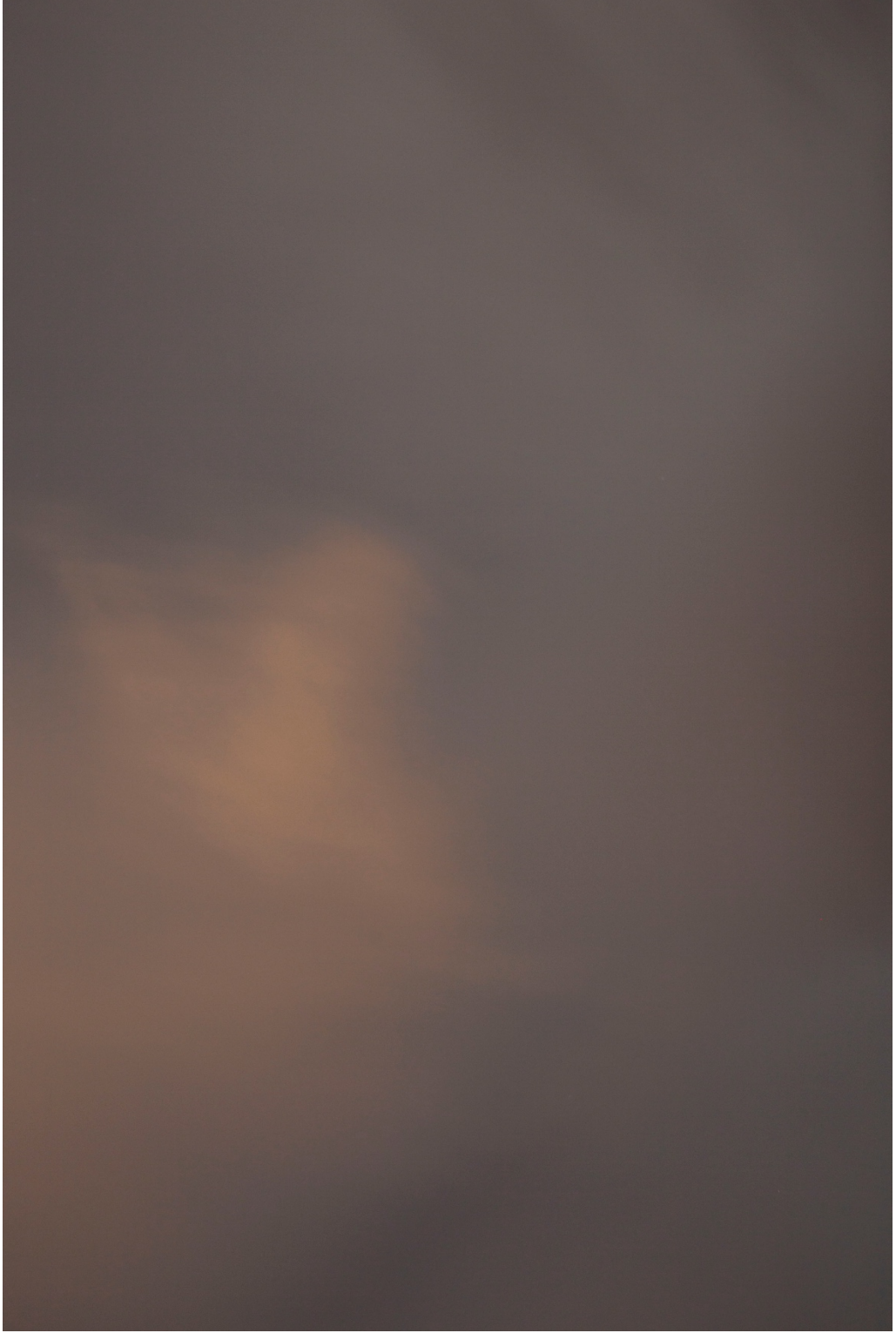
December 25, 2015 – Stars & Aurora



December 26, 2015 – Stars



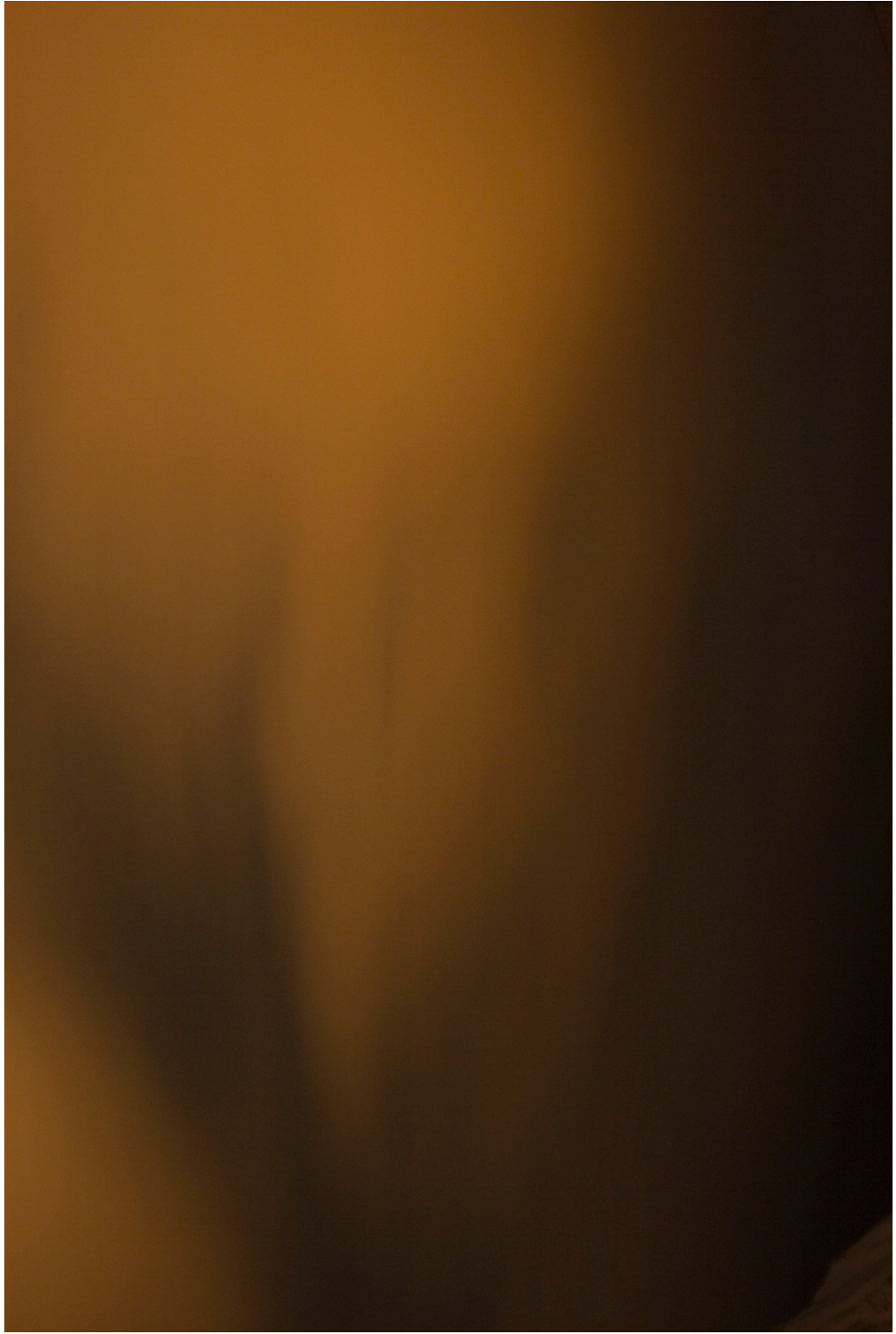
December 27, 2015 – Overcast



December 28, 2015 – Snow



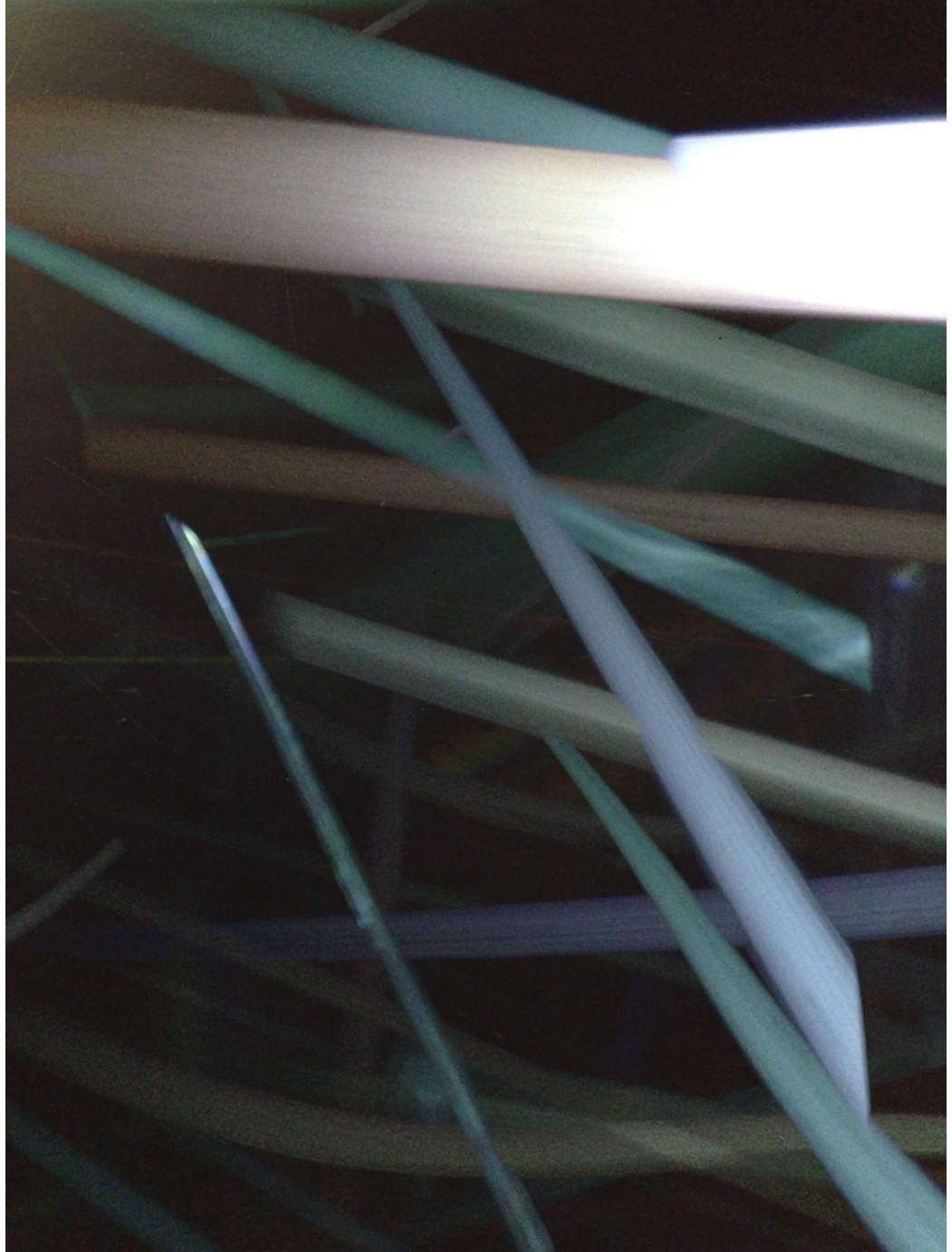
December 29, 2015 – Overcast & Windy



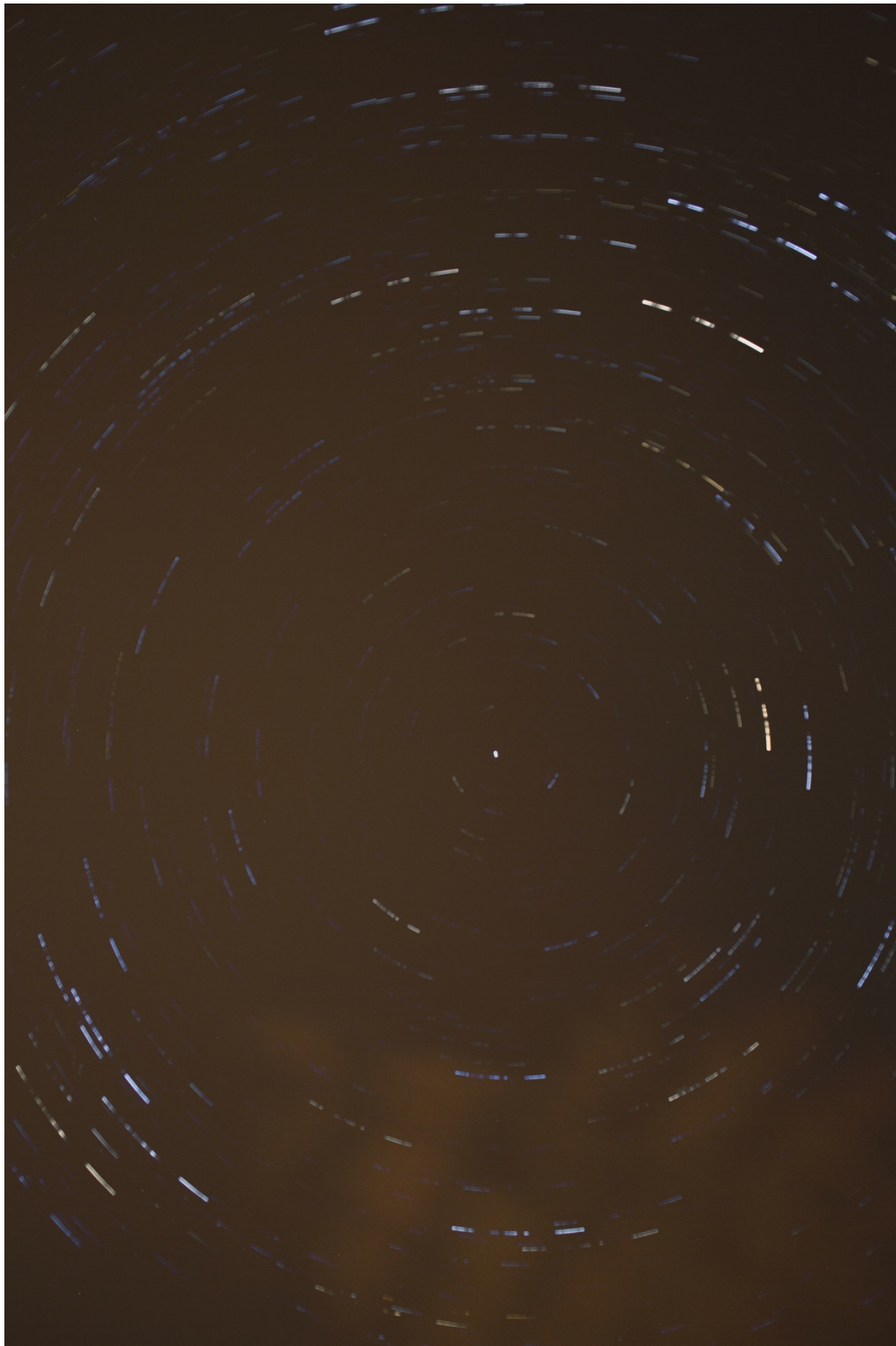
December 30, 2015 – Overcast & Windy

Because the previous day's photograph was difficult to talk with the wind, it was decided to not attempt going out this evening.

December 31, 2015 – Rain



January 1, 2016 – Partly Cloudy





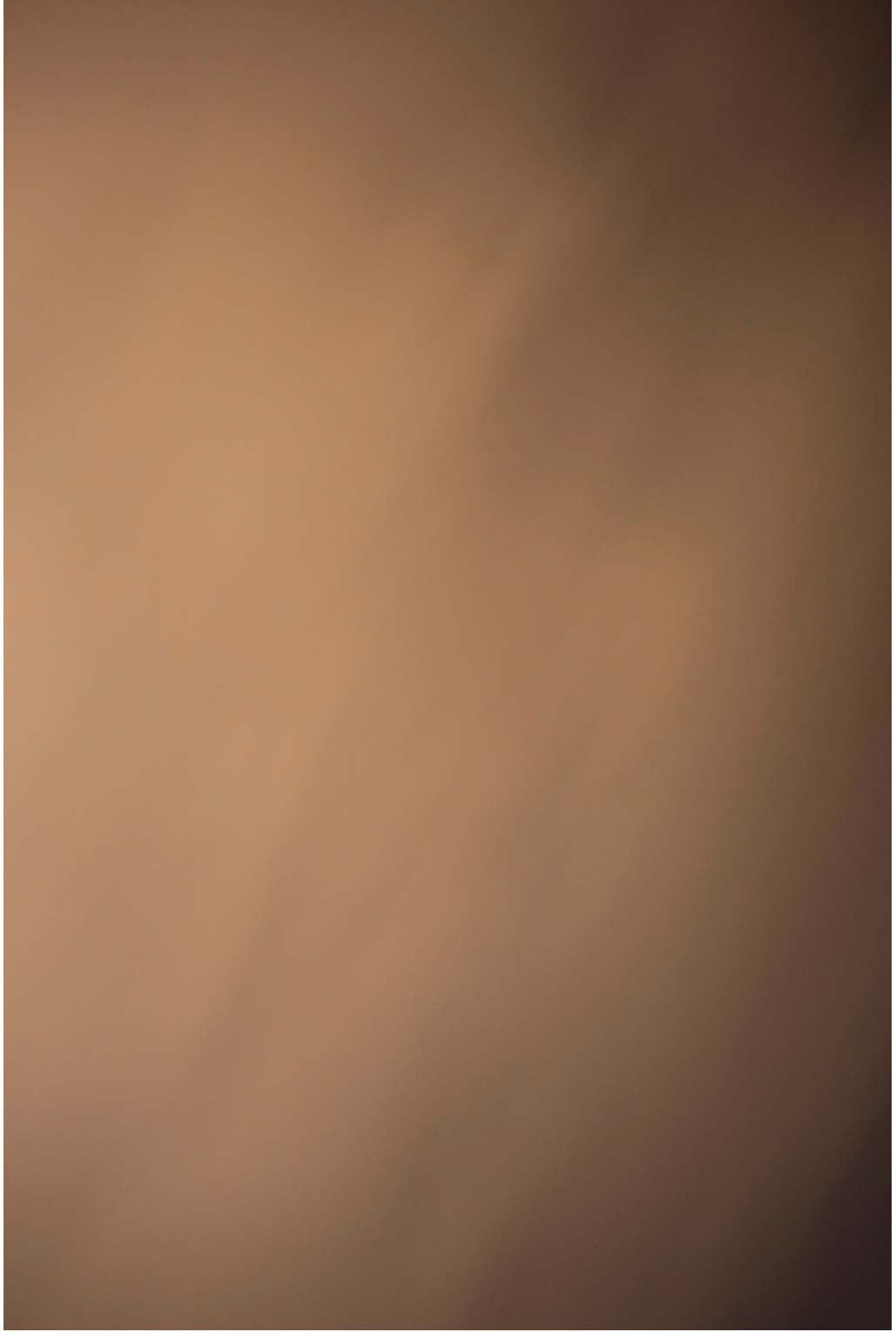
.January 2, 2016 – Stars



.January 3, 2016 – Stars & Aurora



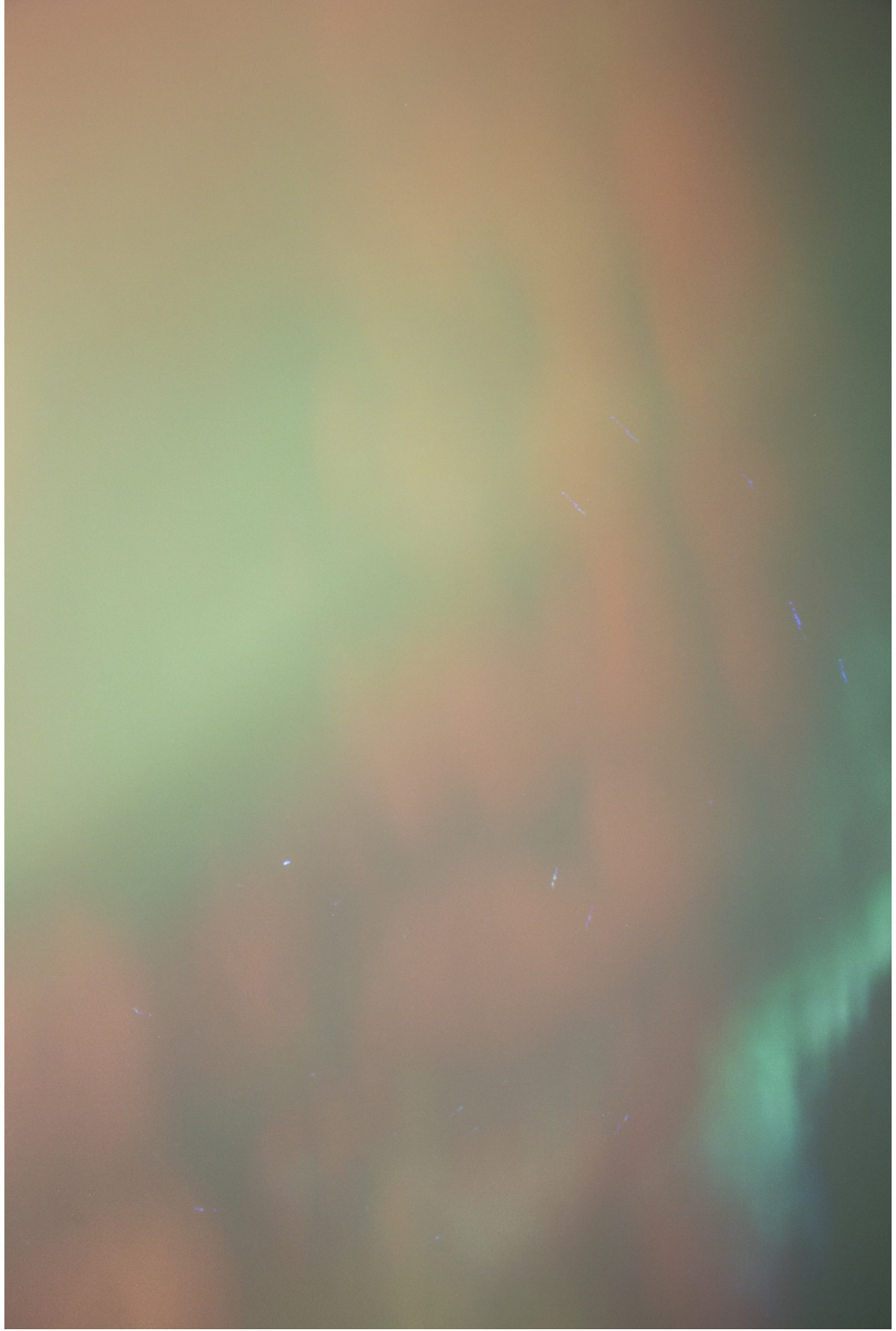
January 4, 2016 – Overcast



.January 5, 2016 – Snow



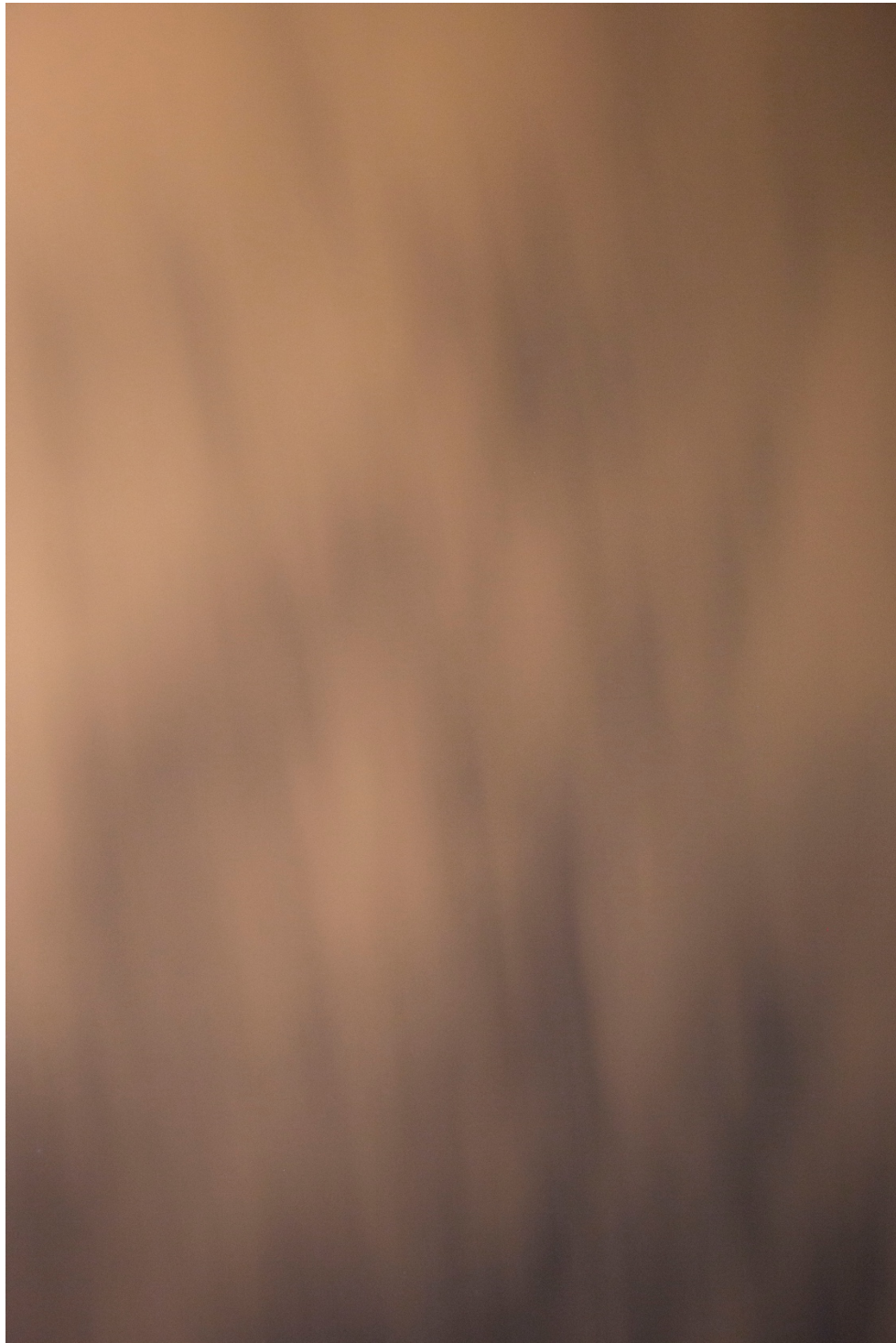
January 6, 2016 – Partly Cloudy with Aurora



January 7, 2016 – Snow



January 8, 2016 – Overcast



January 9, 2016 – Stars

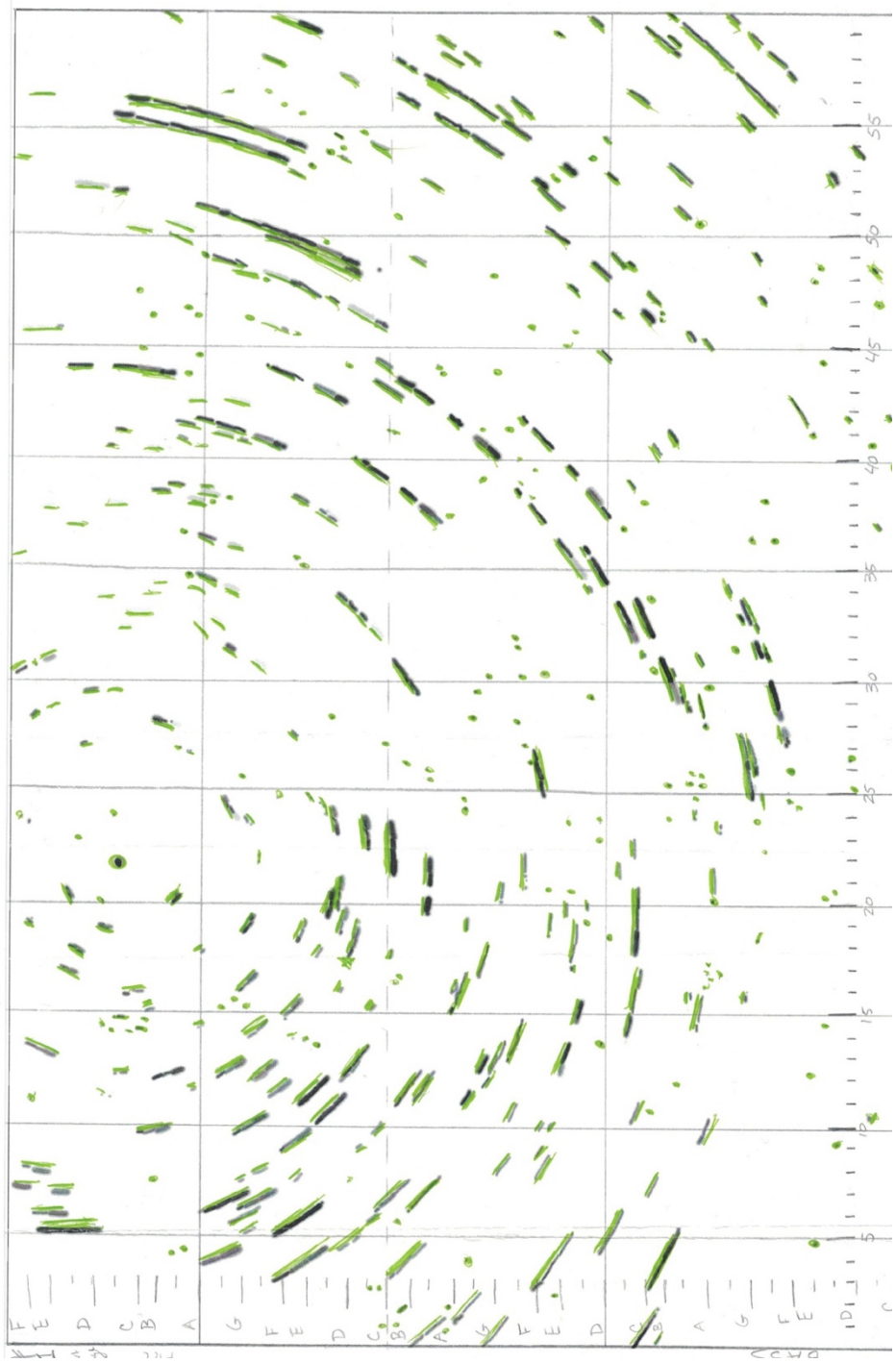




## Appendix B – The Winter Stars Scores Used for Recording

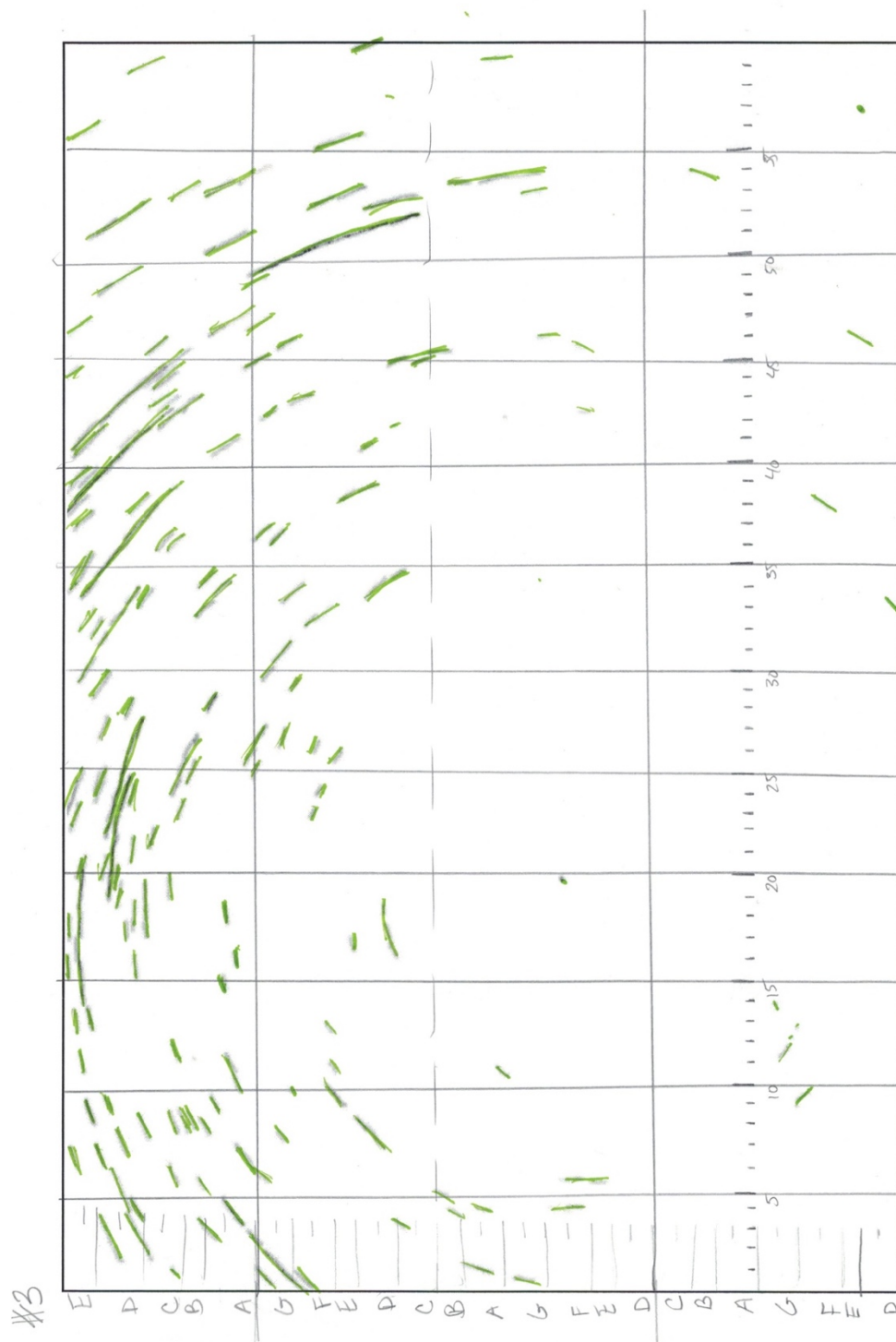
The following set of images are the scores that were printed, prepared, and used in the recording sessions in the making of the *The Winter Stars*.

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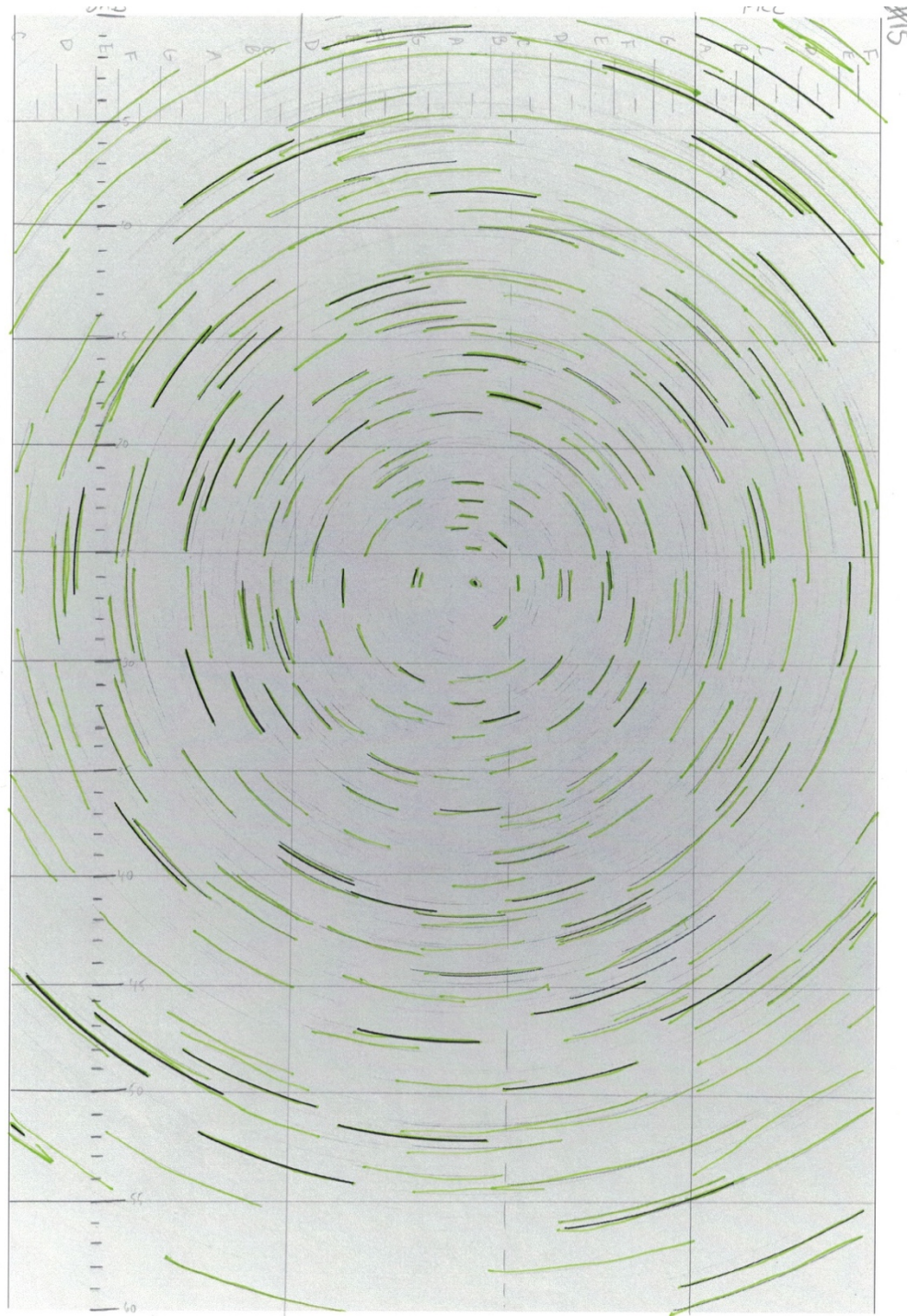




December 13, 2015

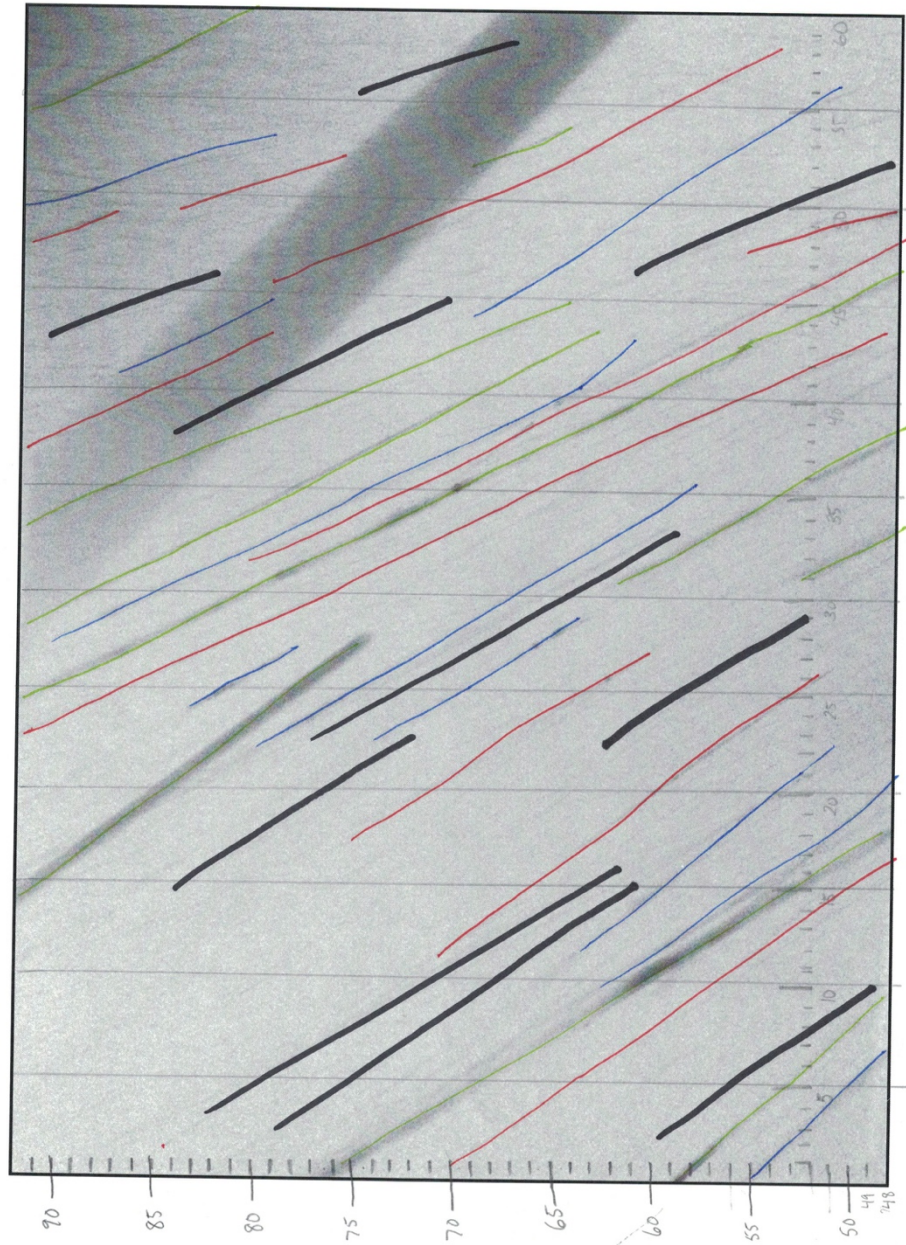


December 15, 2015

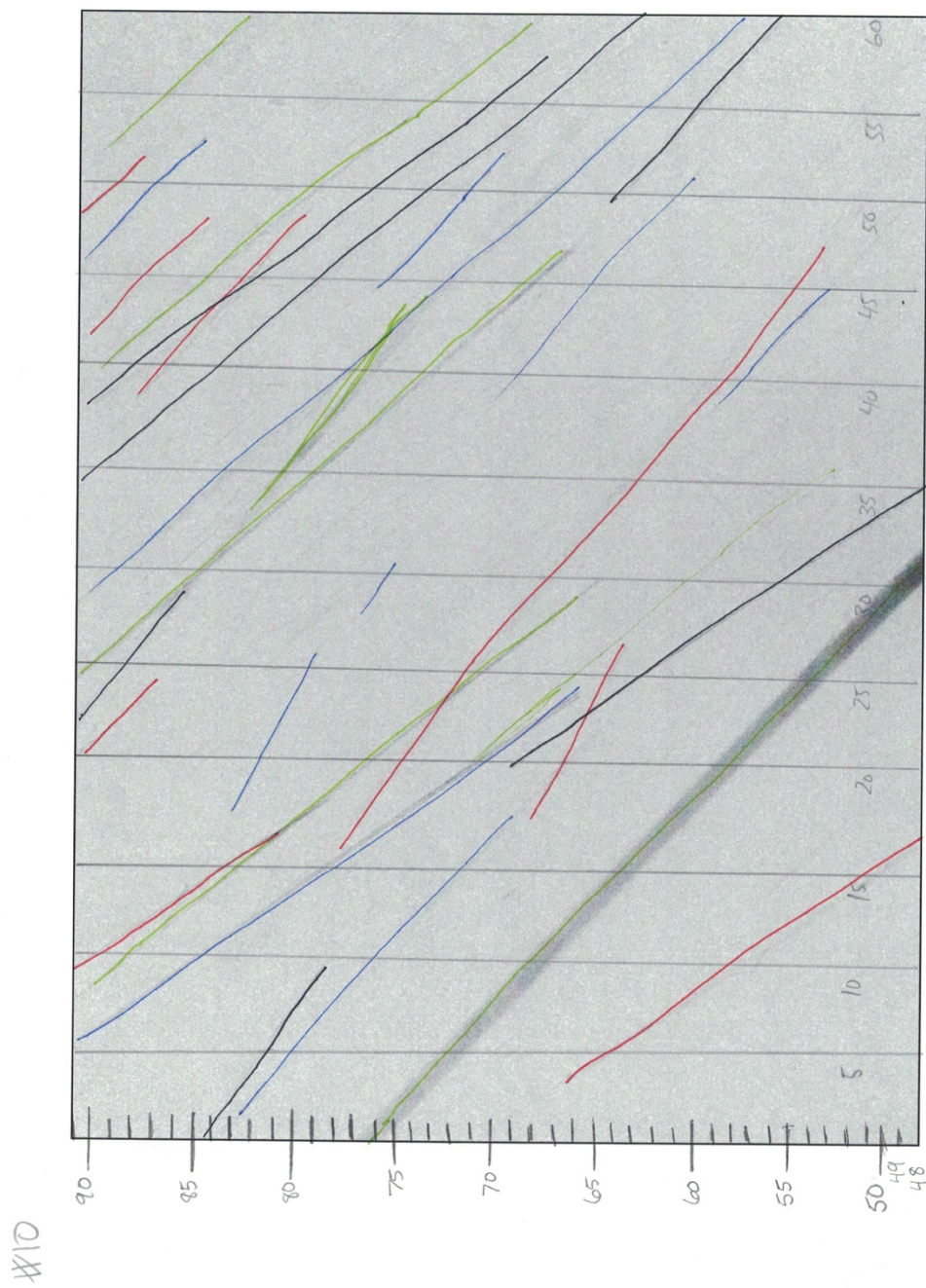


December 19, 2015

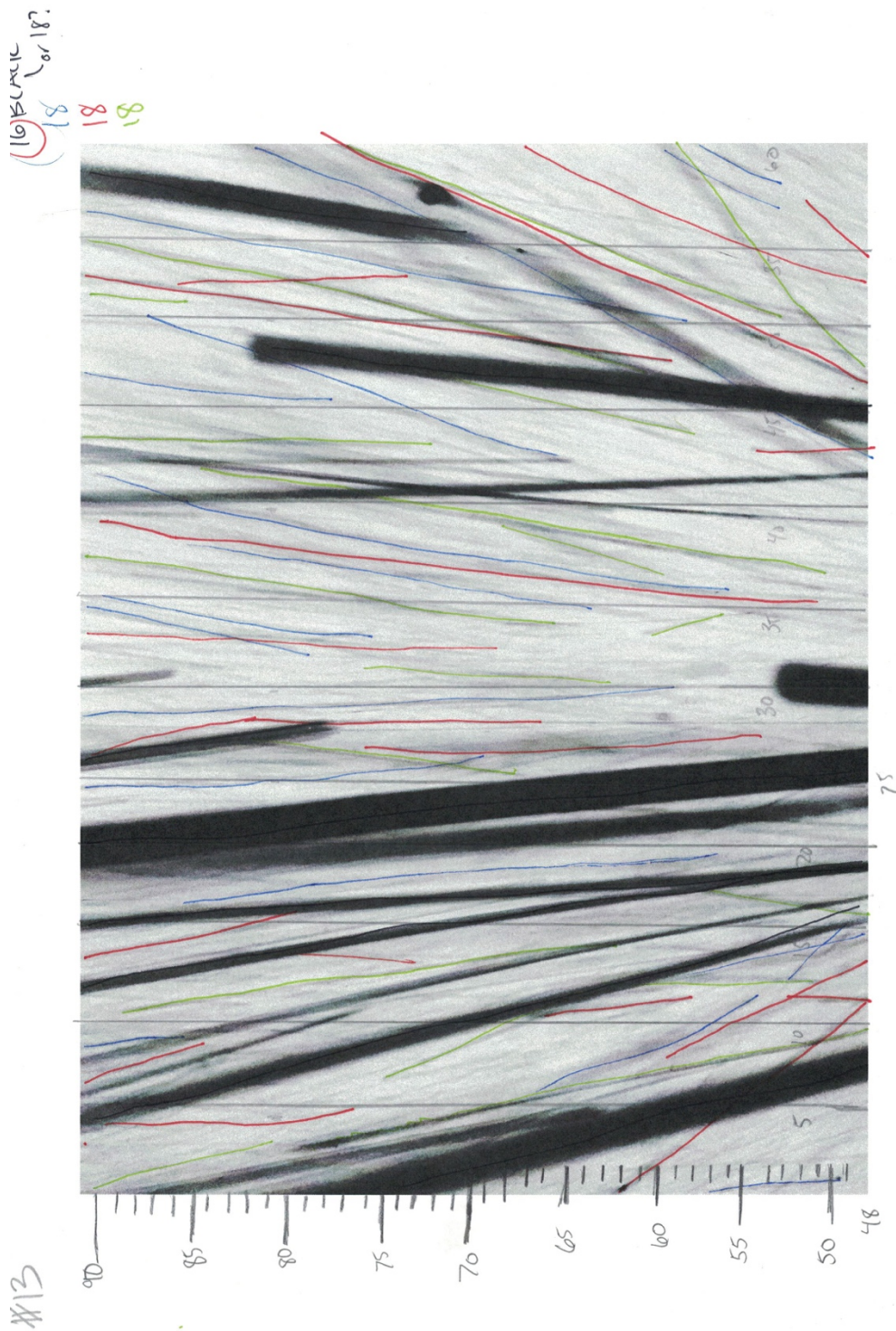
#9



December 20, 2015

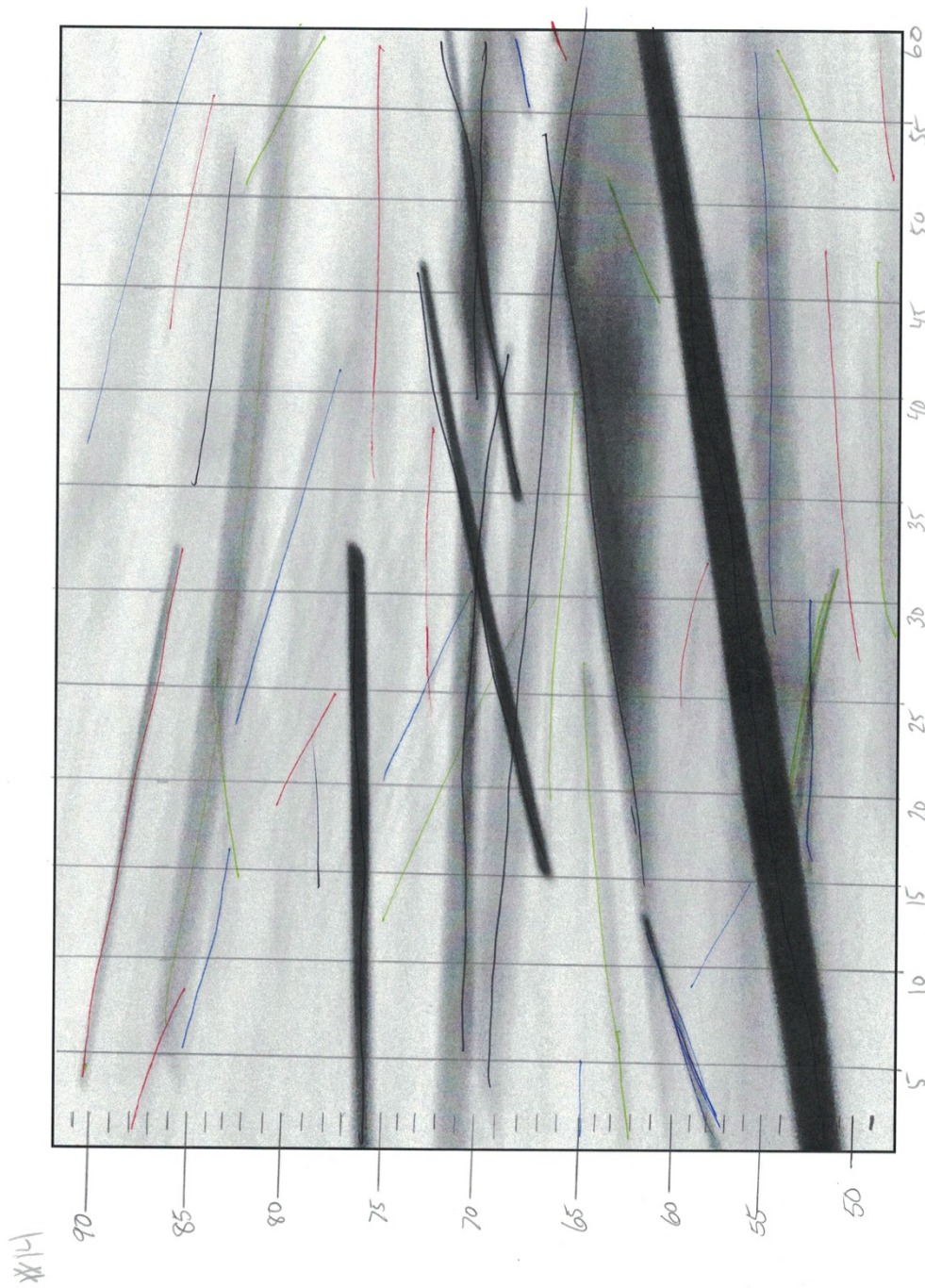


December 23, 2015

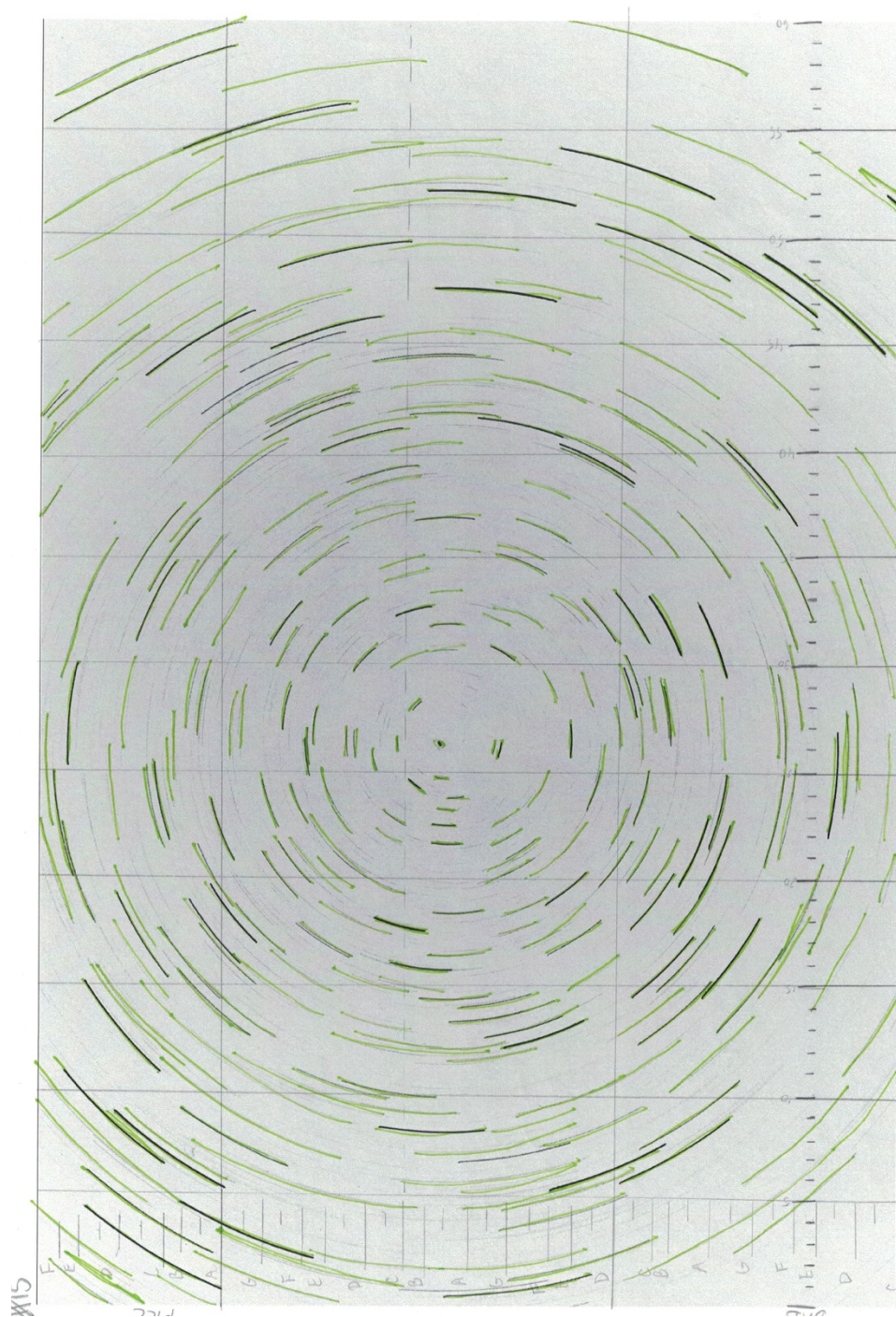




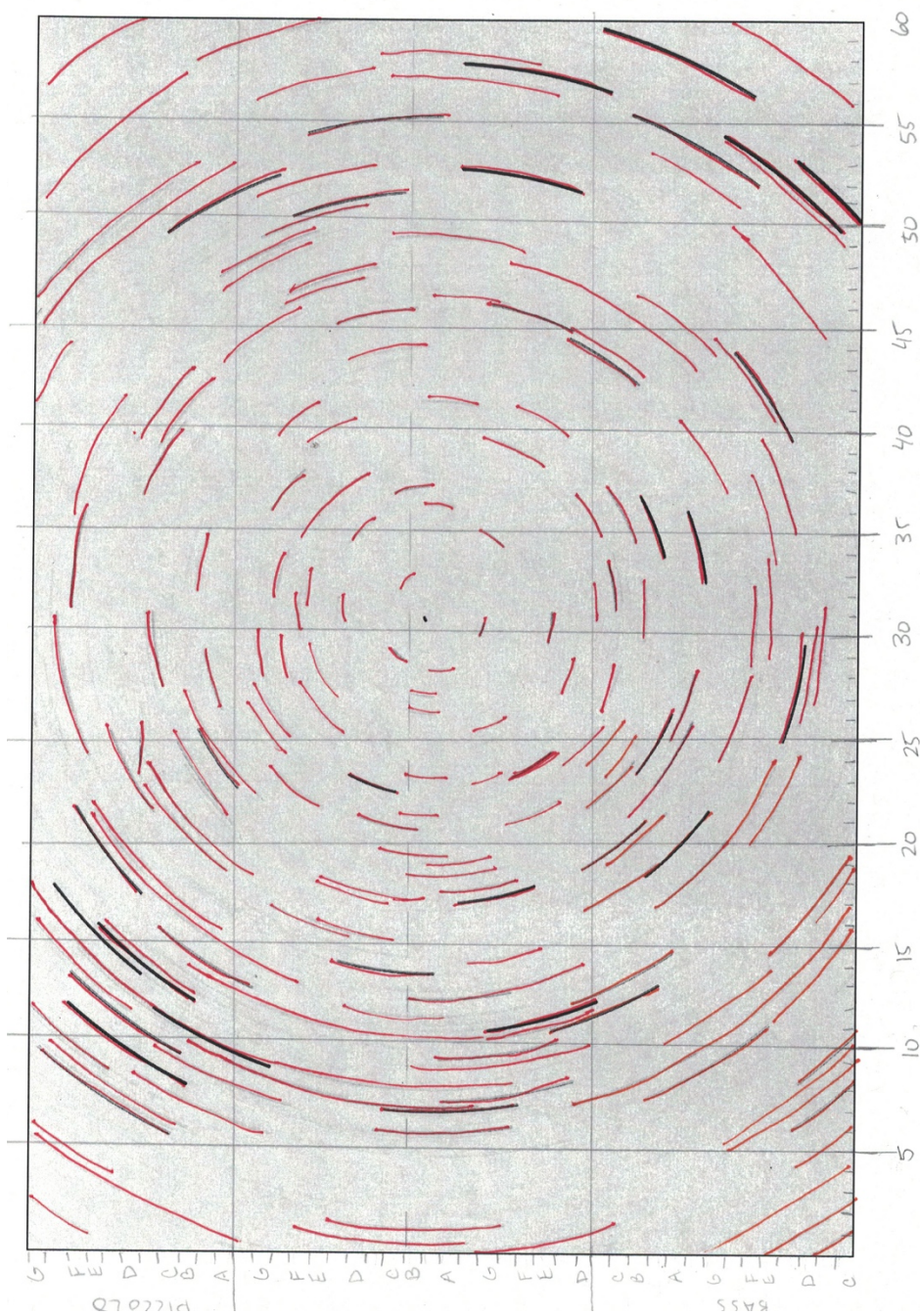
December 24, 2015



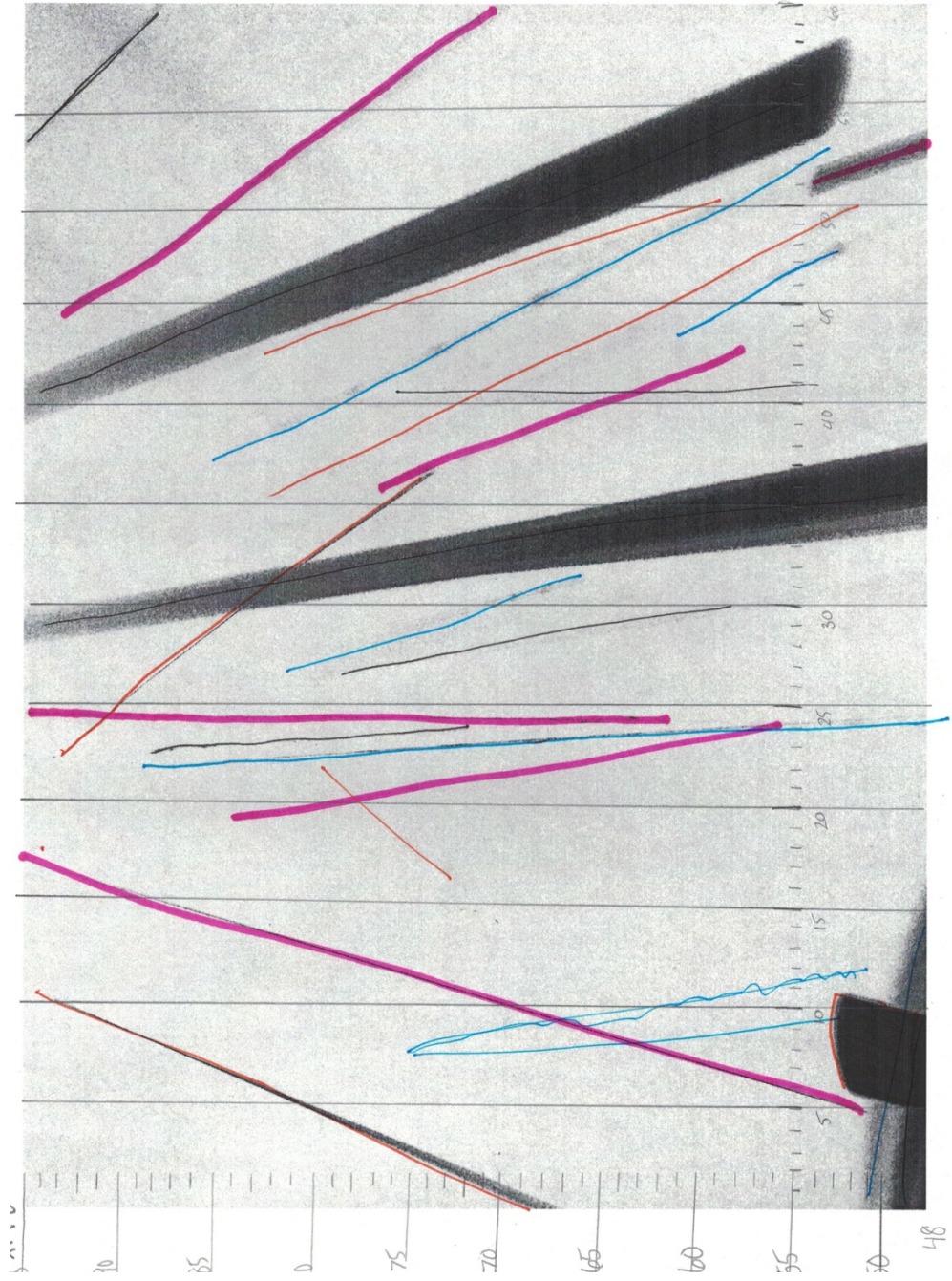
December 25, 2015



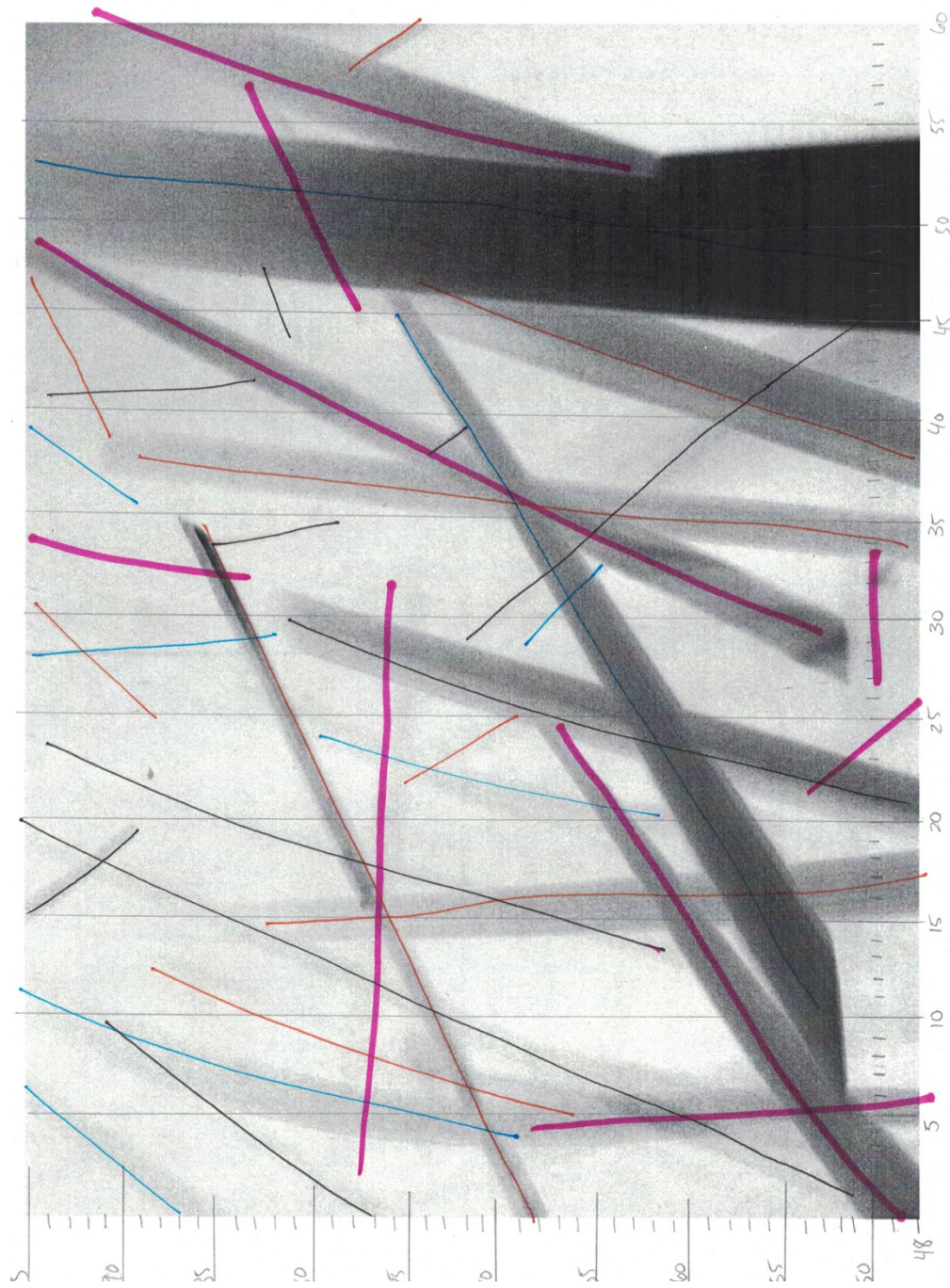
December 26, 2015



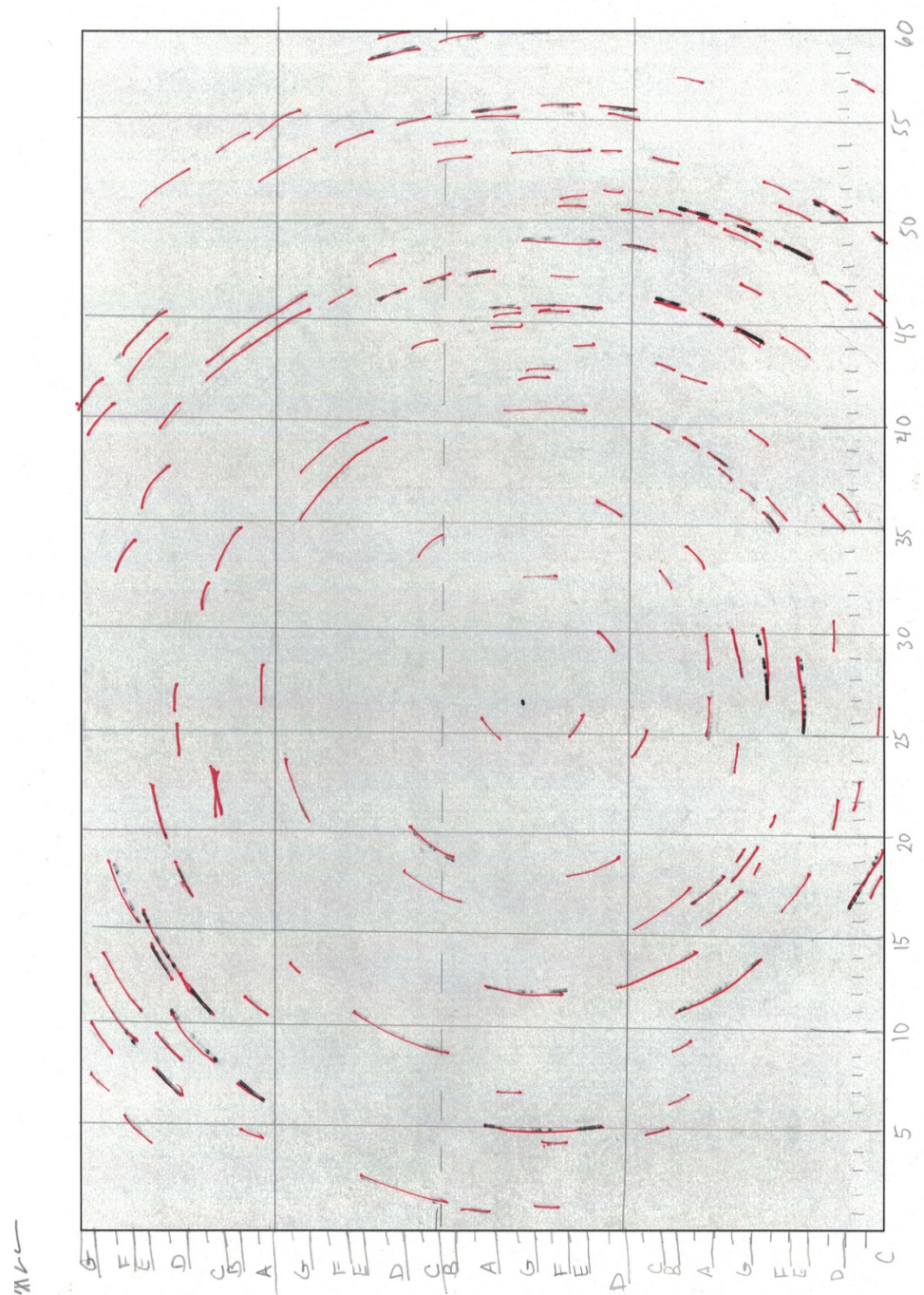
December 28, 2015



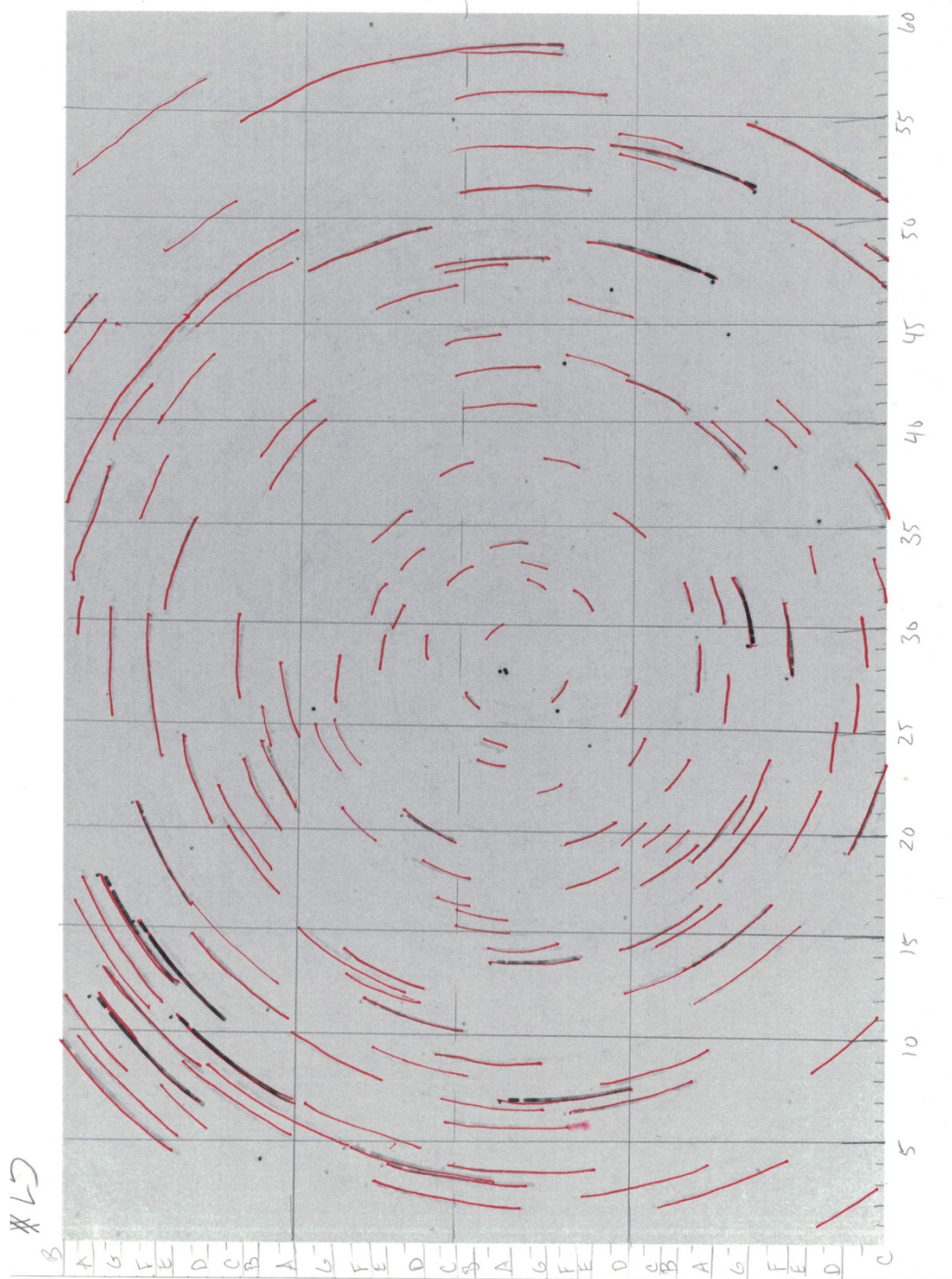
December 31, 2015



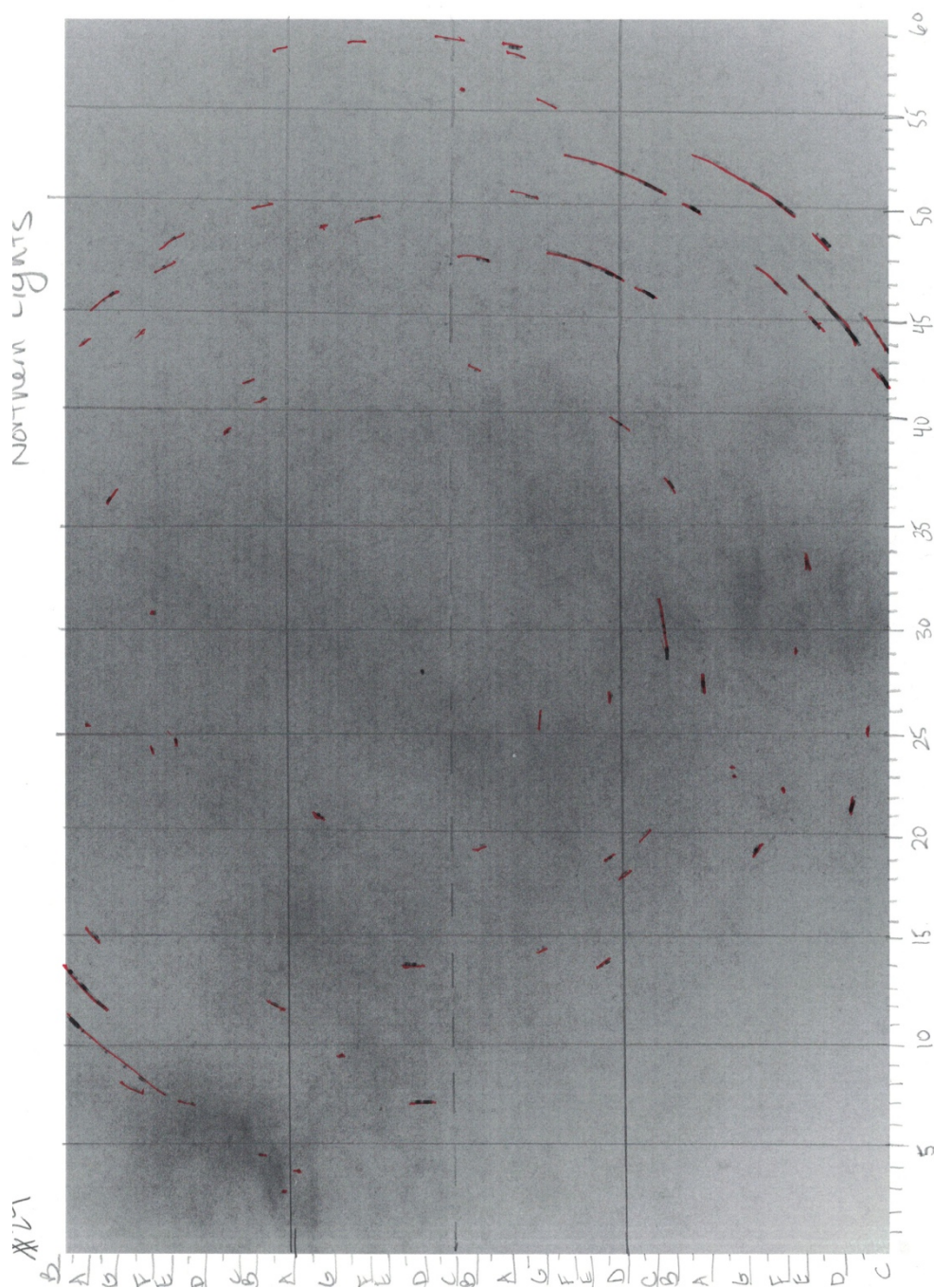
January 1, 2016



January 2, 2016

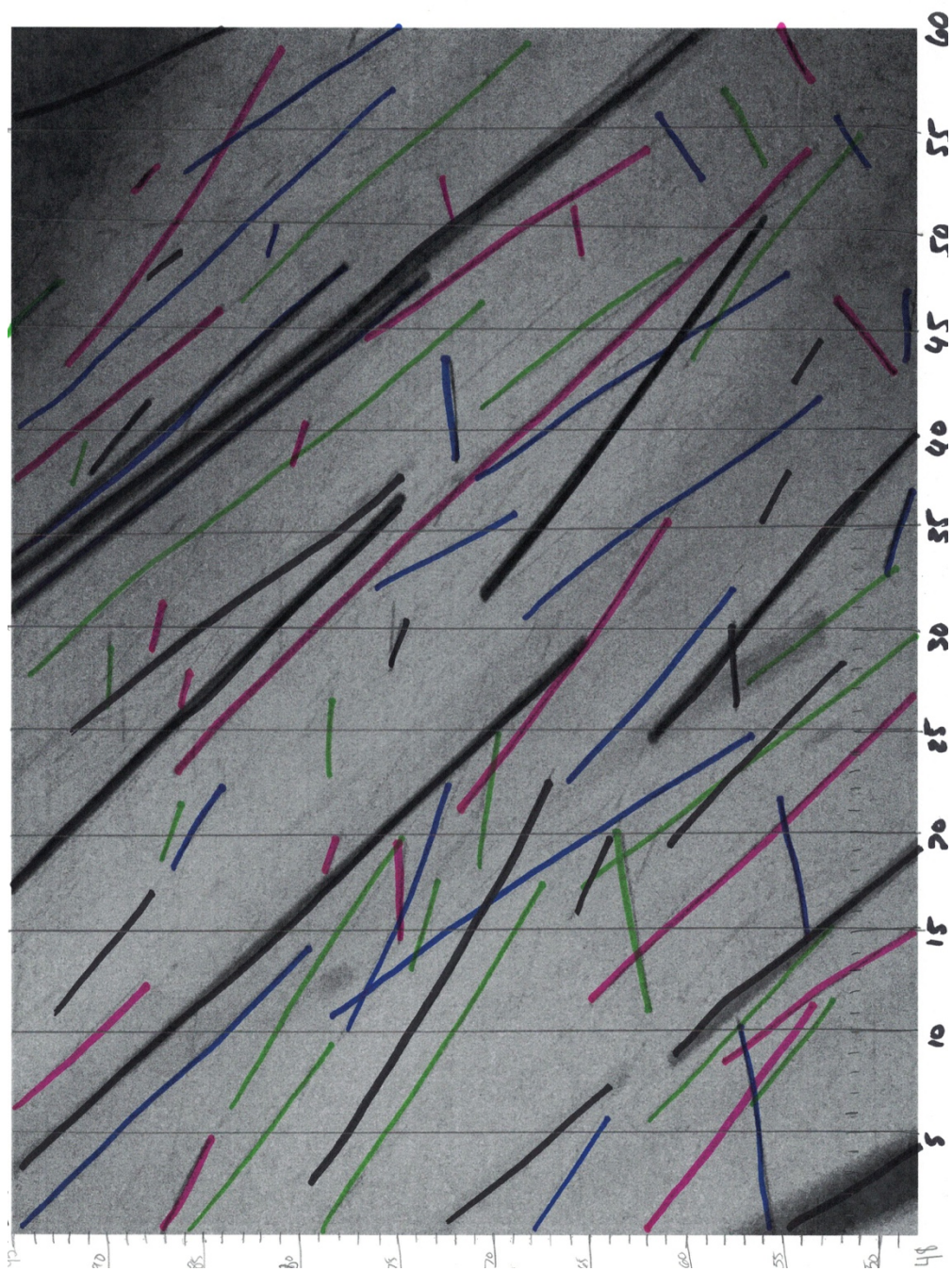


January 3, 2016





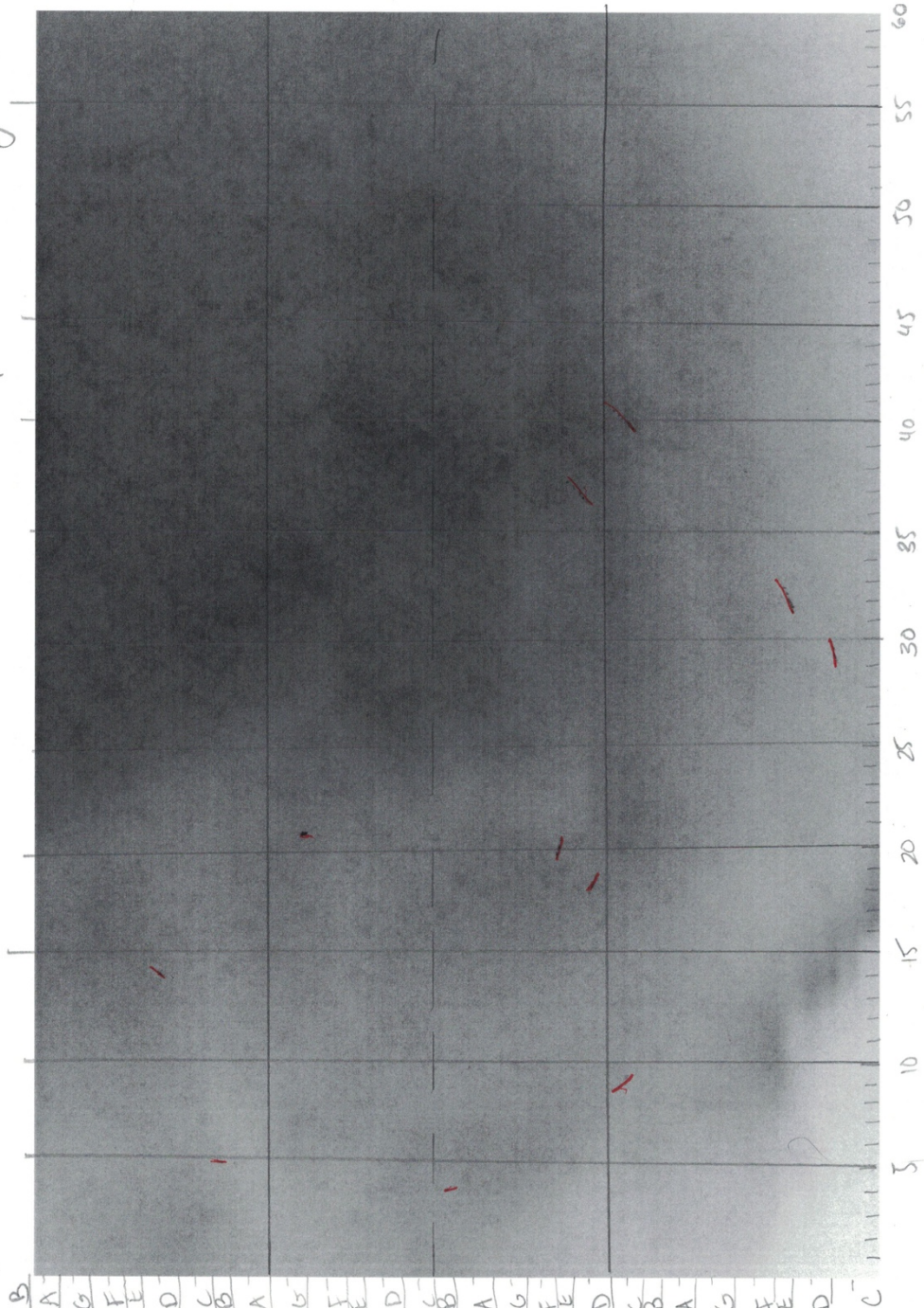
January 5, 2016



January 6, 2016

Tons of Northern Lights!

#27



January 7, 2016



January 9, 2016

