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The Flying University

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by

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Dedication

To the daily work of Marie Curie, Esther Horsch and Florence Cooprider Friesen.

To love over fear of what is to come.

To boundless illumination.

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Abstract

The Flying University is solo theater performance framed as an academic lecture about Marie Curie and her discovery of radium, delivered to a group of women who have gathered in secret to further their education. As the lecture proceeds, the professor brings in her own research based on a study of Esther Horsch (1905-1991) who lived on a farm in central Illinois. She introduces data from Esther's journals, personal memories, and dreams about Esther's life. The professor's investigation of radium plays at the intersections of magical and mundane, decay and the transformation of life, and the place of ambition in these two women's lives.

My intention in writing this piece was to explore these themes, which are full of mystery, through the traces of the daily lives of Mme. Curie and Esther. I used their words and photos as roots from which to imagine the things that echo beyond their familiar work; what was elemental and also fantastically radiant.

The Flying University was performed April 27-29, 2012 in the Center for Performance Experiment at Hamilton College as part of the University of South Carolina MFA Acting Class of 2013 showcase, *Pieces of Eight*

The Flying University Overview

This is a theatrical performance.

A professor enters a university gymnasium pulling a cart loaded with various sizes of suitcases. She enters in the dark with her back to the audience, looking at the green light spilling out of the office above upstage center as if star-gazing. She is wearing a long-sleeved white shirt and long white skirt. She brings a bowler hat from her heart to her head. It illuminates the side and top of her head. The music is Parlez moi d'Amor: Speak to Me of Love, mixed with the sounds of a Geiger counter. She turns to face her audience of students. Lights shift to the present of the space. The professor begins to arrange and open suitcases while introducing herself and the topic of the lecture she will present. She makes it clear that, though this is not the ideal space for a class, as an unofficial course offering, they would use whatever space they could get. There is secrecy and the possibility they will be found and told to disband.

During the lecture, which includes facts about radium and the lives of Marie Curie and Esther Horsch, she pulls a variety of teaching objects out of her suitcases: a small glowing box, letters, gloves with a saucepan that contains journal entries, a sheer white piece of fabric that becomes a tablecloth, a blanket, and a dance costume, a doctor's medical bag containing a green lantern, and more suitcases.

The professor concludes the lecture on a personal note about her great-grandmother, who knew that God was calling her to become a doctor against the sentiment of her family. She left the family farm to pursue an education and followed her sense of mission into the unknown of life in India. The professor leaves with the encouragement for the women in this Flying University class to pursue a path of passionate study even in these difficult times.

She exits pulling all of her belongings upstage into the darkness, led by the green light of her lantern.

Development

Personal Beginnings

The initial ideas for the Flying University came from a series of events from my own life that I sought to understand. In the months prior to starting graduate studies at USC, I was diagnosed with a rare form of cancer. Because of the nature of my disease, surgery and traditional forms of chemotherapy were not options. The therapy that held most hope to manage growth was targeted radiation, in which Yittreum-90 would be attached to a biological agent and injected to deliver it to an abundance of receptors on my tumors. I was fortunate to be accepted for treatment quickly, and within my first semester at USC I made two trips to the University Hospital in Basil, Switzerland for radiation treatments.

During those trips I had time to reflect on the disease, and was looking for a relationship to it that would help me heal and live better in the years to come. The aggressive notion of "fighting," "beating," and "attacking" cancer in order to emerge as a conquering "survivor" (having cast off the evil C) generated language I did not connect to, and further, put me in an adversarial relationship with my body, which was something I felt had allowed my cancer to thrive.

I was inspired in part by Siddhartha Mukherjee's *The Emperor of All Maladies*, in which he explained that cancer has stem cells that are minutely different from the ones we identify as "us." In a poetic twist, it is almost as if those of us with cancer have two

sets of genetic code; we are carrying a near sister/brother doppelganger within us. I started to wonder what she was like, what she wanted, and most importantly, how to communicate with her.

My aunt Anna gave me another perspective I kept returning to. She commented that my body was engaging in boundless creativity. It was willfully destroying patterns and forging new ones that appeared to be chaotic, but actually had their own order and momentum.

These ideas, in addition to my sense that I needed to engage in more focused attention rather than broad aggression towards my body, convinced me that I needed to have respect and even wonderment for my disease. I began to see the beauty of this part of me that was also destructive. This idea of beauty simultaneous with destruction became an idea I wanted to pursue in my solo show.

At the same time, I wanted to understand what it meant to have a radioactive element injected into my body. I studied again (all these many years after high school physics) what radioactivity was and how it affected tissue on a molecular level. I started to read about Marie Curie and her discovery and isolation of radium. It did not take very long for me to fall in love with her. I was arrested not only by the details of her scientific research, but her character, which was both insistently determined and guided by love. Her passionate pursuit of an element that was brilliantly magical – luminescent, decaying, emitting powerful rays, defying the boundaries of stable matter, incredibly destructive and healing began to resonate with my own thoughts about cancer. Radiation, as destructive as it was, was my hope for gaining health.

Mortality was also on my mind: my own, and also my relationship to ancestors who had passed. I had a dream the summer before starting USC that was both celebratory and a literal dance with Death, surrounded by my family. In feeling, it was connected to a number of dreams I had of my grandmother, Esther, who passed from medical issues including cancer.

These two people: Marie Curie and Esther Horsch swirled and mingled with each other – I felt that they could guide me, even though they were so different. As I considered them, new questions arose about the scale and impact of one's life work, especially as women. Marie Curie was a scientist who defied expectations of women, restrictions on education, and the structures of the University system to do groundbreaking work and to live out radical paradigms of love/partnership and family life. The evidence we have of her life includes research, papers, and speeches. Esther Horsch was a Mennonite farmwoman who lived in rural central Illinois all of her life. She had a high school education and shared her love through the daily work of her hands and by raising children and grandchildren, though she was a person of few words. The evidence we have of her life includes utilitarian objects, factual diaries, a handful of photographs, recipes, and clippings from the local newspaper.

Cultivating Imagination

During the fall semester of 2011, Professor Hunt taught a writing course in which she introduced structural possibilities and ways of finding inspiration for solo show material. In one class, she asked us to write three beginnings, three middles and three ends. Since I had already begun to gather seeds of my ideas for the piece, this was a concrete way to begin imagining how they might be embodied. This exercise provided

imagery that stayed with me as I began narrow in on what The Flying University was about. It was freeing to think in visual metaphor rather than having to string words together. The beginnings, middles and ends were:

Beginnings

- The sound of hard soled shoes walking down the hallway in the distance. Doors open. A woman in a nurse's uniform enters pushing 20 red helium balloons attached to an IV stand.
- A white paper screen. Light from behind. X-Ray shadows of cooking implements and body parts. A slice. Spilled milk.
- A rubber chicken onstage lit by a *Petromax* lamp. A woman enters running through the shadows as if her head were cut off.

Middles

- A woman wearing a white gown for a ball or a wedding. She drinks blue. Her body, under the gown, lights up like a Christmas tree.
- A woman unpacks a picnic from a medical biohazard Styrofoam cooler.
- A woman takes cockroaches on a walk through the park in bright yellow light, wearing amber goggles.

Ends

- A woman dances ecstatically to the chorus of Hymn #606 from The Mennonite Hymnal (1969). The song cuts out. Her mouth opens. The sound of a waterfall. She flies up.
- A woman listens to the heartbeat of the floor with a stethoscope. She unrolls a sheet over it. She sinks into the sheet as the heartbeat grows.

- A woman packs everything in 10 bags. She carries them away, leaving a mirror and glasses.

These images provided a ground for me to begin making associations with as I generated material. As an example, a white dress brought up associations of: 1. A wedding: a generation of Mennonite women who chose to be single and become nurses to travel the world contrasted with their counterparts who married and raised families on farms, the religious metaphor of Christ as the bridegroom and being joined with him at death, a glorious celebration of alchemy (two people becoming a new thing), one of the major transitions between life states, and 2. Uniforms: nurses and medical facilities, scientists, photos of my great grandmother who wore white as a doctor even in the jungles of central India.

Some of the images from this exercise made it into *The Flying University* with some alteration. The image of pulling picnic out of a Styrofoam medical products container transformed into a scene from a dream in which I was sitting at the table with my family following the funeral of my grandmother Esther. In that context, the fabric/blanket became not only a picnic blanket/tablecloth, but also a shroud. The imagery of eating organs from a Styrofoam box, though I did not use it, was connected to my real life experience of eating food Esther had preserved or baked after her death – the labor of her body sustaining us.

Other images I kept were a sheet, a lantern, packing/unpacking bags, and an ecstatic dance.

Another practice that was helpful in understanding what the piece might become was to see the "movie" of it. Since I wanted to use the architectural features of the Center

for Performance Experiment I spent time sitting in the space "daydreaming" the play. A sequence that came to me was:

Light glows in the window of the door directly in the center of the balcony. There is an outline of a woman (perhaps Marie Curie) conducting experiments and/or cooking in the light, seen through the glass door. The woman is propelled out of the room simultaneous with music – something about love – as if the sound had been contained in the room and is exploding out. She picks up a man's hat, which had flown out of the room in the explosion and holding it, looking back at what remained. She goes for a walk with Pierre in his absence, walking with his hat, talking to him and admiring the light. There is the sound of crickets mixed with a Geiger counter during an evening walk with Pierre. She gathers notebooks of data, which are also diaries, from the experiment and comes downstairs into the space. She strings up a sheet on a clothesline (reference to domestic work) and using it both to project shadows of the laboratory from behind (from the "Middles" writing) and photographs from the front. At some point, there is speech that is also quick and rhythmic like a Geiger counter, beginning with the taps of consonants. I wrote the following as an example of what it might be:

> *d dd dd d d d ddddd t tttt t t (continuing, gradually into) The core. Unstable. Center of weight. Up and down. Quarks. Slip away. Run for it. Take flight. Leap into unknown. Outside. Leave home. Careless. Called to go. Go. Go. A chaos of departure. A torrent of curiosity.*

Though this "movie" did not remain in tact for my final script, it gave me a way of working to string together disparate narrative threads. One of the themes I took from this "movie" was Marie's relationship with Pierre, and how their work was a labor of love for each other and for this magical element, which was also drawn from my research.

The physical space of the Center for Performance Experiment was another key for my imagination. I wanted to acknowledge the place I was in and allow it to inform my work; both in terms of the architecture and the events that had taken place in it. The Hamilton Gym which houses the Center for Performance Experiment was constructed during World War II when the university received a Naval ROTC detachment and developed a V-12 Naval College Training Program. This program had a major impact on the university because the influx of Naval trainees were also enrolled in college classes and became part of extracurricular activities and student life. During physical training with Professor Hunt in Hamilton, I began to imagine these young men in the room, also training, anticipating an uncertain future, attending classed packed in every corner of the campus. While I did not use historically accurate details of this time in my piece, it prompted the notion of a university in strained circumstances where a professor of physics might have to use unconventional space as a lab (and indeed, space was so short at that time that some courses at USC were held in professors homes). I also gleaned the notion of an educational system that was so strongly turned toward getting men ready for war, and wondered what it might have been like to be a woman; less of a priority but with the possibility of greater responsibility in the absence of so many men. I situated my piece in a fictional era where there was also pressure on the moment, a sense that a major paradigm change was immanent, and that the role of women with agency could suddenly open in unforeseen ways.

Research and Topical Threads

In the spring of 2011, I began to assemble themes for the *Flying University*. The threads I followed through research and drawing on my own memory were:

1. Radioactivity. I watched a series of lectures online from UC Berkeley: *Physics for Future Presidents*, recorded Spring 2006 with professor Richard A. Muller. I also conducted Internet research to familiarize myself with some of the basic concepts.

2. Biographies of Marie Curie. They served both to introduce me more fully to her life and to get more specific information on Radium.

3. The Flying University in Warsaw, Poland, which was where Curie received a portion of her formal education. Since women were not permitted to attend University, some of the top professors covertly organized classes for women in rooms that were not in use.

4. Popular reception of the discovery of Radium. Because of its luminescence, it quickly became a commercial wonder. It was incorporated into garments, touted as a healing tonic for a wide range of illnesses and a beauty product for skin and hair. I did imagery research of advertisements, as well as found evidence of music and dances that were created in popular honor of it.

5. Diaries from my grandmother, Esther Horsch.

6. The history of the University of South Carolina, and the Hamilton Naval ROTC building in particular.

7. Dreams I had of Esther Horsch.

8. Memories I have of Esther Horsch.

9. Light and shadow. My mother's daily repetition of the Chinese proverb, "It is better to light a candle than to curse the darkness,"

10. Cells dividing with abandon. Radioactive molecules coming unhinged – electrons released to destabilize the surrounding molecules. Chaos. The chain of energy unleashed.

11. Dance: from my dream, as well as the Radium Dance and music *Piff, Paff, Pouf* by Jean Schwartz.

Themes pulled from research

I distilled my research and personal resources into the following themes:

- Transformation: how radioactive elements devolve into multiple other elements
- Marie's repetitive task (a daily chore) of isolating radium, which brought up the question of what it takes to get to the most brilliant thing (and what is it?)
- Marie's work as intimate and intimately connected to Pierre
- Escape: how radioactive particles escape, and the energy it takes for a person with vision to pursue her dreams
- The liberation of energy
- Women, ambition and daily work

Writing the Container

As I wrote, I played with structures to organize the images and themes. In my earliest drafts, I attempted to weave multiple characters together. I began to write from the perspectives of Marie Curie, Esther Horsch, Pierre Curie, Florence Cooprider Friesen and a nurse. However, I quickly found that it was too complicated to tie them together and to play all of them within the set 15-20 timeframe for the piece. I also considered writing the entire piece from the perspective of Marie Curie. However, I preferred to use words she had actually spoken and written, which I found incredibly poetic, rather than inventing her language. I also wanted to include my personal related threads, which I felt

would be a stretch to put in Marie Curie's mouth. My breakthrough came as I read about the Flying University, which Marie Curie had attended in Warsaw. This university was a secret institution for women, who were officially banned from attending university in Poland. By organizing these ideas as a lecture and developing the character of a professor to deliver it, I had more freedom to play with the threads and a reason to present them. It also allowed me to cast the audience as my students, and to imagine a world we were in together.

As I worked with text from my research, it became clear that I needed to find multiple modes of communicating technical information. I had the impulse to present all of it and spell out the poetic connections I saw. However, in doing so, I found myself leaving the world of imagery and writing didactic strings of thought. In the end, I decided to present pieces of research mixed with dream and personal history as parts of a collage with less overt connection, trusting that they would accumulate for the audience.

I had the idea of showing slides or making shadow images in order to present historic information efficiently. The text for my first draft of slides was:

1. This is Florence Cooprider Friesen, the first Mennonite woman doctor to work overseas, during the leprosy epidemic in North Central India. (Florence on a village medical visit)
2. This is the first X Ray image (bones of Wilhelm Röntgen's wife's hand with a ring on it)
3. This is a CT Scan, with contrast, 2011 (my abdominal CT)
4. This is Esther Litweiller Horsch, who lived and worked on a farm in Central Illinois.
5. This is an image of a copper cross exposed by Uranium in a dark box, proving that phosphorescent rays came from the element itself, not the sun activating it (Antoine Henri Becquerel 1896)
6. These are Mennonite head coverings (head coverings from Esther Horsch and Genevieve Friesen)
7. These are lead aprons
8. This is a prayer shawl my mother knitted
9. This is Marie Curie

10. This is a diagram of Radium with electron configuration
11. This is a poster you might find at your doctor's office (a poster about radioactivity from the early days of radiation treatment)
12. This is pitchblende
13. This is Jachymov, Czech Republic where pitchblende is mined
14. This is Basil, Switzerland (University Hospital, Basil)
15. This is Marie and Pierre Curie, bicycling
16. This is spring (flowers)
17. This is ambition (cells dividing)
18. This is catastrophe (no slide)
19. This is boundless joy (no slide)
20. This is exit (no slide)
21. This is love (no slide)
22. (slide of iridescent green)
23. (slide of iridescent blue)
24. (slide of white light)

In my final draft I took the images out of it that were directly about my illness. While the impetus for the piece was personal I didn't want my story to dominate it. I also removed the later more abstract slide ideas and used them as text for the end of the play so that they were more about the whole piece rather than the moment.

I also found educational film footage explaining radioactivity from the 1950s I considered pulling clips from so that I could juxtapose it with onstage action. But, this removed the teaching authority from the character of the professor, so I had her to present the information briefly as a lecture. I incorporated the actual words of Marie Curie and Esther Horsch in the piece through letters and as items of research "evidence."

A challenge of the way I assembled my text was to develop an arc that was not just a vehicle to deliver images or information. I used the framework of the Professor coming to teach a class to women in secret, determined to proceed in spite of less than optimal circumstances and the danger of being discovered, to move the piece forward. I used the pressure of time to end the piece. However, this was only partially effective, as I will discuss later.

Script

The Flying University

1. Prologue

Blue-green light in the middle balcony room. Sound of Geiger counter/Parlez Moi D'Amour. A woman enters from the center hallway, pulling a trunk and lit by her lantern. She stops below the balcony and looks up, admiring the light. She carries bowler hat,which also illuminates her and admires the light with her.

Professor:

> We know that particles are expelled from radium with a very great velocity near to that of the light. We know that the atoms of radium are destroyed by expulsion of these particles. And in that way it has been proved that the radioactive elements are constantly disintegrating and that they produce at the end ordinary elements, principally helium and lead. That is, as you see, a theory of transformation of atoms which are not stable, as was believed before, but may undergo spontaneous changes. (Curie M. , Discovery of Radium, 1921)

She enters into the space and turns toward the audience.

2. The Professor

"It is better to light a candle than to curse the darkness." *Chinese Proverb*

Good evening. I'm so glad you ladies made it tonight.

(*Opening trunk, addressing the audience)* We'll have to make do without the use of the science hall. We'll try the chemistry lab on Wednesday. Use the service entrance and take the stairs to the third floor. Spread the word. Be careful, though, since this series

is not officially sponsored by the university. We'd better begin before the night guard knocks on the door.

(Pulling out clipboard with lecture notes) Tonight's topic is Radium, Marie Curie's glorious baby. I'm also including some of my own research, informed by her discoveries.

I imagine the word "radium" might bring to mind skin cream, hair tonic and healing salts. *(Pulling small metal box out trunk)* While the fads are fading and cosmetics are giving way to curious side effects, I believe our enchantment with radium, and radioactivity more generally, will endure for ages to come.

The moments of illumination in the laboratory, stepping stones toward exposing the existence of incredibly potent but unseen rays, even in their domestic details, were of the magnitude of discovering fire. *(Opening small box. Light.)* And, as with fire, we are suddenly now, and forever to come, tenders of a gift from the gods that has a voracious will of its own. Brilliance and decay. Transformative sleight of hand. A trick of the elements.

Don't worry, this is not all poetry. I've got papers and data, facts and pictures. I even wrote some learning outcomes down somewhere…

1. The Groundwork: Repetitions

Exhibit A: Seven Tons

In 1911, Marie Curie was awarded her second Nobel Prize. It was in Chemistry, for isolating pure chloride of radium and studying it's properties.

(Unpacking suitcases from suitcases) Her raw material was pitchblende, which was known to contain a number of radioactive elements – but these had not been isolated,

and very little was known about them. As she probed pitchblende, it was clear that it contained a very special element, emitting particularly strong rays. Chasing it down became her daily work. It was tedious and delicate.

> The question now was to separate the polonium from the bismuth, the radium from the barium. This is the task that has occupied us for years…The research has been a most difficult one. We found that by crystallizing out the chloride of radioactive barium from a solution we obtained crystals that were more radioactive, and consequently rich in radium… But although we treated as much as fifty kilograms of primary substance, and crystallized the chloride of radiferous barium thus obtained, was concentrated in a few minute crystals. (Curie M. S., 1904)

She processed seven tons of pitchblende in this pursuit.

Exhibit B: The Esther Horsch Data

(Putting on dishwashing gloves, taking the lid off of a saucepan and pulling out pieces of data.) The following data was gathered from a farm in central Illinois close to Fisher.

> January 1: The temp was 33 this morning. It was a sunny day. Glenn, Dorothy and Dwaine were here this forenoon. It's raining this evening. Dorothy gave me a book for Christmas.
>
> January 5: The weather was sunny today, not so windy. Temp 16. My bird got out of the cage today, took awhile to catch him.
>
> June 10: Temp was 40 this morning. I picked 14 quart strawberries today. I set out 12 more sweet potato plants this evening. Joann and children were here for dinner. I baked a piecrust and made oatmeal bars. I got a letter from Leah today.
>
> June 11: Weldon called this morning to say they had a little girl born this morning so they wanted me to come. I left about 10:30 and got there about 3:30. Catherine Joy is tiny. Weighed 5 lbs 6 ½ oz.
> (Horsch, 1972)

I would like direct your attention to the presence of this saucepan in each of these samples…*(pulling the saucepan out of the small suitcase)* as well as the act of washing it, performed by Esther Horsch in this series. You may not have noticed it from the

descriptions, but it was there. She bought it from a traveling salesman when LuEtta, mother of Catherine, was still a child.

I hypothesize that the repetition of an action over time is significant far beyond each of the single, mundane events. Something more is found.

The saucepan is currently in my possession. Before me, LuEtta Friesen washed the saucepan. Before her, Esther Horsh washed the saucepan. Each time, there was a swirl of water, fingers and wrists circling hard against the internal edge where the bottom meets the sides. There was a moment when we took the handle and turned it upside down, shaking droplets into the sink.

But, the light in the kitchen was different each time. The food made in it changed. The people who ate the food rotated in and out of the seats around the table. The thoughts of the woman while washing the saucepan were different. And, each date and temperature was written by the hand of a woman who experienced those days in their shifting particularities, which could be charted and studied with imagination for years to come.

We cannot dismiss the mundane facts as irrelevant. They are the raw material of the event.

2. What is Radioactivity?

Definition A:

Simply stated, radioactivity can be measured by counting how many atoms are spontaneously decaying each second.

B: The Funeral Table

(Pulling thin white fabric out of the large trunk, spreading it on the ground for a picnic.) After Esther Horsh passed away her family gathered at her home in Fisher. She lived there with her dog Duana when she moved off of the family farm. Her surviving son and daughter, the in-laws, grand children, and great grand children sat down to eat at a table extended to its fullest under the yellow kitchen light. They ate food from her pantry, prepared by her own hands: canned beans, applesauce, cookies and canned peaches. Nourishing them after her death.

C: Dream of Esther

Catherine had a series of dreams about Esther in the years following her death. One began at the moment when her uncle James said, "Let's say grace," Catherine kept her head up and eyes open. Esther, who was dead, came to the table and sat down across from her. She smiled and winked, each moment gaining more life: "Shh. I'm getting better." Her face was glowing.

Part 3: Curious Spontaneities

Radium. It's curious! It's luminous! It's spontaneous! *(Gathering the fabric as a shawl. A dance.)*

> The compounds of radium are spontaneously luminous. They, emit a light which resembles that of a glow-worm."
>
> The properties of radium are extremely curious…The radiation is at least a million times more powerful than that from an equal quantity of uranium…
>
> Radium possesses the remarkable property of liberating heat spontaneously.
>
> Radium has the power of communicating its radioactivity to surrounding bodies. (Curie M. S., 1904)

Part 4: Intimacies

Marie received the Nobel Prize 1903 for the discovery of natural radiation. It was shared with her husband Pierre Curie and Henri Becqurel. This history can be viewed in several intimate moments.

(She indicates a "slideshow" on the stage curtain.)

1. This is Marie Curie in her humble laboratory.

2. The Partners: This is Marie and Pierre Curie with their bicycles, which were a wedding gift. Their love of science bound them together. A year before this picture was taken, Pierre wrote to Marie:

> We have promised each other (is it not true?) to have, the one for the other, at least a great affection. Provided that you do not change your mind! For there are no promises which hold; these are things that do not admit of compulsion. It would, nevertheless, be a beautiful thing in which I hardly dare believe, to pass through life together hypnotized in our dreams: your dream for your country; our dream for humanity; our dream for science. (Curie M. , Pierre Curie, with Autobiographical Notes, 1923)

3. This is Marie Curie and Pierre Curie in the laboratory.

> The chemical work…was carried out especially by me, but it is intimately connected with our common work….One of our joys was to go into our workroom at night…the glowing tubes looked like faint, fairy lights. (Curie M. , Pierre Curie, with Autobiographical Notes, 1923)

4. This is Marie with her daughter Irene

Part 5: The energy it takes to go when the path is not clear

I'd like to offer some words of encouragement to you in these difficult times through the following examples.

Exhibit A: Marie and her sister vow to support each other's education

Marie and her sister Bronislawa vowed to enable each other to get a university education in Paris since it was not open to women in Warsaw, Poland. Marie worked as

a governess until Bronislawa finished medical school; Bronislawa then supported Marie's studies in mathematics, chemistry and physics at the Sorbonne.

Exhibit B: Esther visits Catherine in a dream and tells her to leave the mirror and her glasses behind

After Catherine returned to Indiana from Esther's funeral, she had a dream. It was at the farmhouse, which stood on top of a small rise in an otherwise horizontal landscape. Catherine was trying to climb a spiral staircase that had somehow sprouted from the lawn between the house and shed. In spite of her effort she kept crawling headfirst through the space between the stairs. She turned around at the sound of screen door springs stretching open. Esther stood on the cracked concrete stoop. She said, "Leave your glasses and the mirror behind."

Part C: Florence Cooprider (Friesen) kills a chicken to show that she has been called to be a doctor.

Consider Catherine's Great Grandmother, Florence Cooprider grew up in a Mennonite farming community in McPherson County, Kansas. She heard God calling her to become a doctor. A light illuminated her. How else could she behave so unexpectedly? Still her family had to have proof. After all, she could barely stand the sight of blood. So, she killed a chicken with her own hands. They sent her to the University of Chicago. She left for India in 1914 to practice field medicine in villages crippled by a leprosy epidemic.

Conclusion

I can feel that time is almost up, though we haven't been interrupted yet by the guard. Remember, next Wednesday in the Chemistry Lab. We'll continue on the topic of radioactivity, including more recent developments in medical and perhaps military use.

I'd like to conclude on a personal note:

I had a dream about a wedding reception; my entire family was there. While they were looking for a table to sit at, Esther, standing near the buffet line, took off all of her clothes. Then, she proceeded to wear a loaf of sourdough bread instead of underwear. When she joined the family at the table, she was very bright and uncharacteristically chatty. Before they said grace she looked me and told me she needed to teach me to can green beans.

This is love.

This is Esther Horsh on the farm.

This is Esther with Cynthia, Catherine and Carl.

This is Florence Cooprider Friesen.

This is Florence with P.A. Friesen, the grandfather of Weldon.

This is green. This is instability. This is light in the darkness. This is a mystery.

Staging

A primary concern of mine was that sense of discovery and magic I experienced with the material was manifested in the staging of *The Flying University*. I wanted there to be discovery, surprise, the appearance of unexpected objects, and light.

The imagery of suitcases and trunks came to me early on. I exploited the possibility of suitcases to hide and reveal objects, and also placed suitcases within suitcases so that I would have to work towards what was contained inside. I wanted the evidence to unfold/be unpacked onstage.

My goals of using a variety of light sources, media and the levels of the space created some challenges when I was actually working in the Center for Performance Experiment.

I found that small room at the center of the balcony was not sufficiently visible for the audience to clearly see action within it. The seating unit was at such an angle that lower third of the glass door was not visible, and too far away to command focus when the rest of the space was illuminated by sunlight. I considered moving the opening action to the downstage edge of the balcony, but I was still faced with the problem of making a transition in action between the balcony level and the main floor. For the sake of efficiency I decided in the end to open the piece on the floor, which also allowed me to pull the suitcases in as a first image. However, I kept a taste of my original opening by

having the Professor enter backwards gazing at the room in the balcony, illuminated in green light. I meant for her to be watching what had happened before her, still resonating in the room by the glow.

Another practical problem I needed to solve was in regard to the projection of images I had collected to be shown as slides in the lecture. My original thought was to hang a sheet on a clothesline to provide a screen for the images. However, the projector had to be quite far away in order to be hidden from the audience and operable by someone other than myself, so that the images were too large for the sheet and out of focus. With Professor Pearson's help, I attempted to use the curtains instead, but the darkness of the curtains made the images difficult to see. We hung a lighter screen, but the technical difficulties of bringing it in were not balanced by the quality of the images. In the end, my solution was to refer to the images and describe them *as if* they were being projected on the curtain. I used shorthand for the idea of technology many people are familiar with (slides or a PowerPoint with a lecture), but engaged their imagination by allowing them to see the people and places as their minds made them.

I had also planned that the closing image of the piece would be a video I pieced together of women dancing in green light with the music of the *Radium Dance* playing. My inability to use this video was a gift in the end. It changed the nature of the piece. Instead of a celebration of light and movement accelerating to the close, the end became packing up to leave, consistent with the theme of a Flying University that could appear and disappear easily. The focus was more towards present in the space (leaving before a security guard might come) and on the path of the professor as a traveler. It was also a return to the opening image, but this time the professor was following the path lit by the

green lantern she had extracted from Florence Cooprider Friesen's medical bag, rather than looking back and up towards the light on the balcony.

I had on-stage sources of light throughout the piece: from the bowler hat, in a small decorative box, in a saucepan that contained "evidence" from Esther Horsch's diaries, and a lantern filled with green decorative lights. While these were not clearly visible during the daytime performance, I chose to keep them. I wanted light to emerge, to spill out of objects. When the lights were not visible by the audience I gave myself the task of feeling their warmth.

The constraints of the performance space encouraged me to simplify the actions of the Professor. In order to be seen in the evening performances, it was helpful to stage most of the piece within the framework of the lit truss system. I further envisioned a circle of illuminated space around the Professor in contrast to the darkness pressing in on it. This helped me imagine The Flying University as a secret event for a covertly gathered group. All of this contributed to generally economical and practical movements. The exceptions were a couple of dream and memory sequences, which were a more abstract but still fairly confined. This kind of staging meshed well with one of the themes of the piece, which was that some of life's most mysterious treasures are found through daily and even domestic labor.

Performance

While I deepened in my experience of performing The Flying University over the course of the run, I believe there was much more to find. A big challenge I gave myself was that I was editing my text even in the week prior to performance. This meant that the words were not fully in my body, even though I knew the material well. During dress rehearsal and the first performance I had a dual awareness of remembering (where I was, what was next) and attempting to offer the piece. It wasn't until the last performance that I could let go of those thoughts to a greater degree and simply speak to the audience. Since I knew I would have difficulty I gave myself a sequence of tasks – things I could actually *do* – to encourage myself to be present. Opening suitcases, putting on gloves and folding the cloth gave me places to put my attention and led me to the next thoughts of the piece. The next step of having the text more fully in my body would have given me more freedom to play with agility: to change rhythms, to simplify transitions, and to offer the images with more lightness.

I could feel, though, that the audience was willingly with me and was open to finding logic in the threads of the piece. I had the sense of being a "tour guide" through the images, presenting them as a professor might, with interest and simplicity. In this way, a core of *The Flying University* was successful in offering the audience a banquet to pull questions, thoughts, and their own images from.

I did not need the personal story of the things that lead me to Marie Curie, back to Esther Horsh, and towards the beauty of things that transform to be overt. I wanted *The Flying University* to be about things that are much larger than myself. I wanted them to fall into fascination with questions about light, transformation, daily work, love and ambition.

While there remains more to do in developing *The Flying University*, I believe it was successful in weaving together the disparate themes that caught my imagination. As my first attempt to write and perform a solo piece, I found that it was exciting to work on and perform. I was able to offer something that mattered. It honored the lives of these women who have gone before me and in whom I find hope.

Future

It is exciting to envision revising the structure and staging of *The Flying University*.

As I performed it in April 2012, much of the text was delivered with a similar coolness, whether it was a story or lecture about radioactivity. The piece needed greater rhythmic contrast. This pointed to a more basic issue, which was that there was not enough difficulty for the professor. The conflict between a heightened need to give the lecture and an obstacle for her in doing so was not clear enough. The simple motivation of wanting to open the doors of education to the audience (imagined as women) at a time when it was not safe to do so with the blessing of the institution versus the threat of being discovered was not enough. I tried to clarify her personal need to deliver the lecture through the stories of Florence Cooprider-Friesen and Marie and her sister. But still, why the topic of radium? Why at that moment? What was the cost of doing so? There was no moment when the Professor, like radium, was unstructured and revealed the cracks in her position as the deliverer of information. She was barely transformed over the course of the piece.

One idea for revisions is based on a few glimpses of Marie Curie. Even though she knew radium was draining her energy and that it had possibly caused a miscarriage, she could not help but keep a vial of it beside her bed so that it was the last thing she saw before sleep. In her later years when she insisted that other members of her lab wear

protective gloves to handle radium, she would not wear them herself even though she had lost feeling in the tips of her fingers. The problem with loving something that is brilliant but also destructive is that one can either disregard the destruction or fall in love with it as well. Perhaps the professor's research leads her into an area of knowledge that is also undoing her. Another idea is to place this lecture at the eve of the US decision to use radioactivity in warfare, so that this incredible defense of the pursuit of knowledge and deepening understanding of radioactivity would be juxtaposed by the difficulty that has fallen out of this discovery.

While I am grateful I needed to simplify the staging for this performance of *The Flying University*, I imagine a much more versatile use of light and shadows in the future. Given a bit more of a light-controlled performance space, I would expand on the possibilities of practical lighting. I also imagine making a stronger difference between the look and nature of the lecture versus story and dream telling sections. I might choose to return to some of the stronger visual images I generated early on for the stories and dreams. I am also considering playing with the presence of other people through shadows and objects, such as casting the shadow of Esther Horsch during a lecture, or walking with the shadow of Pierre that I am also making.

The Flying University contains seeds of a solo show that I would like to continue to work on and expand. It has the potential to be a flexible, easily mobile show that I could perform in a variety of venues.

Perhaps the most important "learning outcome" of creating The Flying University, which I will take into my future creative work, is having had the experience of making a piece. It was empowering to find a path from ideas to performance. It was

like the first stroke on a canvas that opens it for the gestures to come. In this way, The Flying University has given me courage to create my own work, and confidence in my skills to do so. As Professor Pearson might say, “Onward!

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