

Introduction to Nonverbal-Dynamics



Diana Abells • SMP I • Fall 2010

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Introduction

Despite all the social forces and cultural differences driving physics and visual art apart, the two fields share a remarkably similar existence. To begin with, they share the requirements of observation and description. Physicists strive to create descriptive equations and models for our environment. Likewise, artists make models and descriptions of the same environment, offering just as much insight and precision as equations. Fundamental principles of drawing are based on intense observation. It is a constant process of looking, marking, and then verifying the mark is correct. This feedback system is consistent with the process of physics. Both take perceptions and ideas and make them concrete by means of either equations or images.

The reality of the physical world is efficiently contained by mathematical equations because such statements define and present material without bias or emotion. They are statements of fact. This is useful for manipulating large entities of data and theories, but when it comes time to extrapolate this information back to the real world, data can become meaningless. The physicists' ability to see reality through all the mathematics is contingent upon a less scientific means of description. At this point, description becomes more subjective because the physicists must rely on their own perception of the situation.

As a physics student, I find these translations are fused with my ability to relate the physical situation to my body. I experience most physics problems with a first person perspective in my mind. For example, when thinking about the physical relationship of pressure and volume for a gas, in my mind I can increase pressure on a gas with a piston. I can push harder and harder and feel the pressure push back at me, perfectly balanced but furious. My mind's eye swirls around the scene of angry particles pushing back against my sweaty hands, and suddenly I feel all tingly and excited. My blood flows with a primordial urgency that Italo Calvino might appreciate.¹ I have been able to sense a physical truth, within my body. It is an intangible sensation. It does not have a specific location, and it does not have any obvious physical manifestation. While emotion is often recognized by facial expressions or extreme feelings, this physical understanding I experience is significantly more nonspecific. I find I am often at a lack of words for describing it, resorting to gestures that don't always mean much to other people. I can rub a table surface, saying "yes, this is integration," but really it's a feeble attempt to explain the sensations of motion and counting that are running through my body.

This situation I've just described is the existence of the non-verbal world, and both physics and visual art reside there. The models that both teams make have the unifying factor of independence from the written word. Visual art is based in images; its own language is made of formal properties and artistic traditions. Physics is based in mathematics and diagrammatic space; a language that uses systems of symbols and operations to define and control ideas. In an absence of accompanying written explanations, both art and physics rely on the observers' abilities to make perceptions through the dynamics of non-verbal entities, such as imaginary sensations, inner senses of motion or bodily experiences of the physical world.

When I become more interested in my experience of understanding physics than the physics itself, I resort to art making. Making art allows me to capture the intangibles of physics, and life. Art's ability to investigate a broad range of subjects without the restrictions of scientific integrity and continuity gives it the authority to examine perspectives that are more subjective. My most recent work has developed after returning to the process of drawing. Drawing's immediacy and observational qualities strive to mix

¹ See Appendix B, Calvino, Italo.

observation with subjective perception. It is this mix of the personal body with physical understandings of the world that I have tried to create in the artworks themselves.

My work this semester began with the initial goal of personifying the strange sensations and perceptions of the physical world I feel inside of me. I created a cast of characters to act out the narrative of my experiences of understanding physics at the primordial level. As my work took form in the three dimensional world of actual paintings and critics, I was able to gather feedback about how my story and sensations were coming across to an audience. This feedback was very significant in shaping the second and third phases of my work. It turned out that the characters I developed (which you will meet) were not dynamic enough to communicate the concrete story of my “physical” experience or any concepts of physics itself. The viewers were often distracted by the character’s identities, their archetypal roles and their ambiguities. When it came time to begin new work, I ditched my original cast, and tried to simplify the work by translating my ideas into a new system of characters, in new spaces. I wanted something simple so that any physics I presented would be clear, and so that the character’s identities would not distract from their actions and experiences within the drawings. I also took out references to the specific language of physics itself. I went back the simplicity of human bodies in narrative storytelling, in mainly charcoal and graphite, in order to be better connected with the push and pull of objectivity and subjectivity in drawing. In defining realistic surfaces and shapes, my hope is that the drawings presented in the SMP I exhibition will carry a familiarity of form to the viewers. By means of this familiarity with the body and figure, I hope that if they can feel the motion or pose of the figures in the images, then they can feel the physics concepts behind them.

1 Initial Personification

In the beginning of fall semester, I knew I wanted to personify my intangible and strange inner feelings about physics. In lieu of drawing specific people, I began by personifying concepts and emotions with the creation of a cast of characters. I attempted to develop the characters of my own “Our Lady of Physics” and *Star Trek’s* Spock in order to describe my notion of how physics operates in my mind as a non-verbal experience. I looked to early Christian saint imagery by Carlo Crivelli and modern day cinematography and fashion models to figure out poses, framing, and symbolism for my initial work. (See Appendix for sources)

1.1 Initial Intentions

In my artwork, I want to see beyond the film of a visual reality and explore the idea of “psychological naturalism,” as described by Peter Schjeldahl in regards to painter Eric Fischl’s work. He describes the idea of psychological naturalism as peering into the hidden thoughts, emotions and perceptions of the people around us. I am interested in creating narratives from a fantasy or imagined world that reveals these thoughts and relationships. Developing character is a major component of my work. I want to an audience to be able to see more deeply into my painted characters and really know what they want and think.

Sometimes my inspiration comes from actually seeing and interacting with the people around me. Often, I become interested in little details about people, such as how they hold their cell phone, or tilt their head while talking. I want to emphasize these characteristics and use them as clues to deeper thoughts within. Artist Elizabeth Peyton is a source for my work in this direction. The way she portrays friends and celebrities from their posture, glance and expression is immensely effective in communicating their attitudes or thoughts.

Other times, my inspiration comes from a feeling within that can be personified through images of people interacting. I believe in the objecthood of art; that art can communicate the intangible and non-verbal things of the world. When it comes to examining humans, there are so many intangible things about them that excite and interest me. These ideas are not necessarily something visual about people either. Thus, Schjeldahl’s psychological naturalism comes into play. In order to examine thoughts and identities deep within people’s minds, a fantasy and imagined world can be put to use. Extreme situations that happen only in fantasy worlds can reveal choices and preferences for my pictured characters that the real world does not.

My goal for the beginning of the semester is to examine people through drawing and painting them. The use of paint and pencil lends itself to subjective perceptions and creation of a fantastical world with a different set of social rules and physical laws. My hope is that I can communicate with an audience about underlying perceptions and emotions; asking them to think twice about what they see. To some extent I believe my goals require an unleashing of a more primal sense. These underlying thoughts and feelings can be more vicious or erotic than society may have deemed acceptable, but at the same time, we can all understand and relate to these feelings. The common ability to understand and relate to other humans is central to my work. Having experiencing this, my next biggest step is to work to describe it visually.

1.2 First Interview

Interview with Allie Synder: September 14, 2010

Allie: How do you think art connects with other disciplines? What disciplines (if any) does your artwork connect with?

Diana: So obviously I'm interested in art and physics and I think that comes from the fact that I'm a physics major and I like comparing the sense of atmosphere between the art classes and physics classes and sort of the atmosphere and emotion from more towards logic surrounding the physics classes. And then trying to deal with emotional-ness from art, I guess. Just the comparison about how we might reason things out more intuitively in art but you have reason out more logically in physics. Despite this difference though, the two disciplines require a similar hands on/visual approach and are equally descriptive of the world.

Allie: How important is self-expression to your art making? In what way does 'self' enter your artwork?

Diana: Um... I think it's probably more minimal in my artwork, the self. So that, I guess they're my perceptions, but they're not, its not, about me necessarily. These perceptions include my visual and active drawing perceptions, for instance, what I ultimately sense from physics, and then how I make a drawing/lines or painting to describe those senses. I'm not interested in the precision of computer diagrams or something like that. At the same time thought, this work is not autobiographical or necessarily descriptive of my own self. It just relies on my self to make these perceptions.

Allie: How does your choice of medium(s) affect your work and contribute to its meaning?

Diana: So I've been working in acrylics and even just more broadly painting, in general, and I think the idea of two dimensional image and the acrylic I find kind of flat, so I think that contributes to the narrative in terms of comic books, graphic images, things like that. Plus, I find a lot of narrative in the flat space of physics pictorial diagrams and written mathematics, so I definitely want a medium that can be flat and put emphasis on the surface. I also really enjoy the colors of acrylic, and the fact that they dry so quickly so that I can add layer of color without blending or getting it muddy. I would also like to integrate more pencil and ink into my artwork to include a linear flow in conjunction with the color. I think that ties back into my interest in the forms of written mathematical text.

Allie: Is your work ultimately more about your process or about the final product? Why do you feel that way?

Diana: I think it's about the final product because I want people to see the narrative in the end, and that doesn't necessarily have anything to do with me making it at the same time. I do enjoy working on artwork though, and the consequential process of transforming paint and graphite into meaningful things, but I want my audience to find my work to be about the final product. That is, I want them to read these works and come away with ideas about physics and emotions. Thus, the majority of the work is actually taking place in their experience. I want to communicate an idea, so the success of that is when the audience hears and comprehends.²

Allie: Does the context in which your artwork is displayed affect your artistic choices? How might you address this in the upcoming fall exhibition?**Diana:** So I've been thinking about displaying my work as a group of paintings altogether. I want it to be read sort of in a narrative style, like some paintings on top,

² Now that I've changed my focus slightly, I would say the process of physically drawing has a lot to do with my work.

some paintings on the bottom. I don't want it to be sort of museum showcase of like one painting, and then the next. I want it to be read as a group, so I've been thinking about layouts for the exhibition at the end of the semester. The narratives are non-linear, so the order they are placed doesn't directly affect the narrative hopefully. Plus, I'm hoping I will be able to have a lot of light shine on the artwork. I think the actual light bouncing off the work and through the drawn lines, adds another dimension to the work when it's finished. Plus I feel really sensitive to the lighting in a gallery and I would want my artwork to have the lighting that I enjoy the most.

Allie: Do you have a mission? What do you consider to be your purpose for creating art?

Diana: I think that I guess my overall mission in art is trying to describe these intangible, non-verbal feelings or things in the world that people experience, and that maybe I can do that by making an image. And I try to do that by personifying things. Also I feel like my artwork should suggest similarities between physics and art, where these similarities are the intangible sensations I'm describing. Maybe then, my mission is to change the world's perception of physics through imagery of mathematics, physics and emotion.

Allie: How do you measure the success of your artwork?

Diana: I guess by listening to people react to the stories or characters. I like their responses when they see something weird or something interesting. And, I think if they think about the character a little bit, that's fine. But as I explore the relationship between physics and art, I would hope that they could come to be not so intimidated by physics and to find the similarities between the two disciplines. For example if I can at least communicate some sort of fundamental idea about physics, then I've probably been successful.

Allie: What about making art intimidates you?

Diana: Um... getting proportions right, pretty much. Being afraid that it'll look bad. I think aesthetic quality is important to me and I want to work on it until it looks okay, and hopefully good, eventually. I think that having figures that can hold realistic resemblances, including the graphic figures, is something I always strive for. It's really intimidating for me because I feel like I can see so much detail in an elbow, for example, when I'm observing a figure, and I want to be able to translate that sight into a drawn line accurately, with all the data in my mind. The amount of information I want to translate is consequently overwhelming and forces my brain to work very hard—which is fine, but I am always nervous about it. And since I'm updating this after the midterm critique, I think I would add that I'm intimidated by an audience's perception of pop culture references. I would like to figure out a way to get them to think about a character they've seen before without all this baggage they claim to have.

Allie: If you could have your portrait done by anyone who would it be and why?

Diana: Probably Elizabeth Peyton because I really like her work and how it captures really familiar gestures, shapes and colors that people have. And how she gets their expressions and attitudes, and just the way they are in their natural place. Her portraits have this homey or natural environment for each of her sitters, and I really appreciate that because I think environment really plays into portraiture. Through her pictures there is this sense that she is looking at each person with intense care and idolism. I would feel really honored if she did that for me.

1.3 Critique

In-Progress Critique 1

[IMAGES PRESENTED]



Left to Right:

[*Mr. Spock*, 2' x 4']

[*Encounter*, initial form, 3.5' x 5']

[*Our Lady of Physics*, 2' x 4']

All acrylic on wood, 2010

1.3.1 Critique Response

From this critique, I gathered that my narrative didn't come across clearly or strongly enough. I had hoped that people would be interested in a certain amount of ambiguity in the relationship between Spock and Lady Physics, but instead they were confused by a variety of inconsistencies. I need to be more specific in my work about this ambiguity; if the work is more cohesive and consistent, ambiguity can still be a theme. My goal is to be more consistent and straightforward with what I set up.

I want to continue this narrative. For time reasons, I don't plan on re-doing these pieces exactly, but I want to keep experimenting with different "scenes" in the narrative that hopefully tell the story someday.

Some people were concerned about the cropping of bodies in my work with both Spock and Lady Physics, and I want to address this issue in future work. First, I want to experiment with creating a better space to "hold the narrative," as it was suggested during the critique. Looking at artists like Jan Vermeer, I want to try to make a stage for my narrative to unfold on. At the same time however, I am very interested in cropped figures. I have a lot of references from cinematography and photography, and like the geometry and flat spaces they constitute. Furthermore, I find my references in early

byzantine art to be very flat with design and graphic features prominent. Also, while I reference these formats for saint portrayal, I am only interested in a minimal quoting. I do not find that cropping, or altering tradition surrounding saints interferes with their meaning.

1.3.2 Revised Intention Statement

Artwork I make should be a narrative object that I have made to describe the intangible forces and feelings around me. While not autobiographical, I find my work to be a collection of my perceptions and imaginations of the world around me.

Physics has a way of accurately describing the world in order to figure out the forces behind the world. Likewise, art is a method of description, which, in its most philosophical form, tries to understand the nature of its own self. I find art to be the most effective tool in an analysis of my perceptions of physics. The descriptions and mindsets that come out of physics have a sturdy and worldly beauty that is portrayed without emotion. I am interested in constructing a narrative about my own sense of emotions in physics. The excitement that physicists get as feedback from the perfection of theories is what keeps them engaged and eager to work. I believe they are more than logic, and I want to describe this sense through a personification of the atmosphere surrounding physics. Physicists tend to study the fundamental aspects of the universe, but at the same time, I would argue that love and sexual desire are also fundamental aspects of the universe. Anyone trying to study the universe in a logical, unbiased, purely scientific way is still bounded by humanness. By creating characters and setting up a narrative, I want to be able to examine relationships and perceptions that surround physics. I am generally interested in describing unspoken or unarticulated relationships between people and characters, but for now I want to focus on this specific example in physics.

I find myself focused on the fabrication of a particular image when I am working. My plan for the next series of artwork I make is to integrate a focus on the material I am using and how that adds meaning to the work. I want to move away from the opacity of the acrylics I've been using and turn to their translucent properties, similar to watercolor. I will maintain my use of acrylics however because I enjoy their intensity in color. I am also interested in applying collage elements to my work to emphasize geometry and decorative patterns in my work. I will use colored paper from printed magazines which also have an intense color. It is in this richness of color and description that I want to be able to add meaning to my work. It is this ability of painting, to richly lavish attention to color and form that intrigues me and feeds my desire of to describe the world around me with it.

1.4 Karley Klopfenstein

1.4.1 Artist Talk: Karley Klopfenstein. Monday September 20, 2010.

Karley Klopfenstein's lecture was a refreshing narrative of her honest progression from student to artist. Her approach to artmaking as shown in her lecture gave a good sense of how she moves from one artwork to the next, and how she crafts a cohesive body of work.

Her work is a blend of craft and fine art. The result is that her medium and process are strong components of the meaning of each piece. The choice of material and method is not just a medium for a work; it's part of the work. I think her Key West Sculpture link to outdoor art, and "throwaway" art was a good place for her to begin because it is about the materiality and the textures or contrasts of what she made. I don't have a lot of experience with sculpture, but the material seems to be one of the

largest components of the work, in my opinion. In the realm of 2D media, I want to emphasize, articulate, and make use of my own materials better after thinking about her work.

The crafting experiences she draws on were learned when she was a child. As children, we learn how to make stuff, and come to realize we can actually fabricate stuff on our own. Her work is well researched and put together with precision. It expresses a pride in craft that her sources would be proud of. Her sense of meaning of craft was clear too, as a nostalgic item, as a meditative process, and as a feminist way of reclaiming production. The duality of the made shapes and the materials holds a subtle humor. I was especially amused by her macramé guns that mimic plant hangers, since I have several of those plant hangers in my home.

Her most recent project of a carpeted tank is ambitious, but in an awesome direction. Its means of production and process speak so strongly in the meaning of the piece. An industrial type tank, made by essential one person, in soft and fuzzy material, is a sign of what she calls an inside-out revelation, that is the inner guts, sentiments, emotional baggage that might be stuffed into the creation of tanks, is now displayed on the outside surface of her tank.

I was also interested in the fact she double majored in art and anthropology. She cited her relationship with anthropology as making her more aware and sensitive to people and culture around her. As a double major, I really appreciate this additional aspect to her work. The broader thinking into realms outside of art is what in turn makes her art richest.

1.4.2 Studio Visit

Karley's reaction to my work was consistent with what was discussed at the in-progress critique, and an acknowledgement that I am moving on the right track. She agreed that being more specific about a narrative could be helpful, but she was in favor of maintaining a sense of ambiguity. She also encouraged the drawing sense my paintings and early sketches have, and suggested moving away from more pure painting to a medium like gouache that emphasizes line and form.

Her sense of my narrative was that it centers on a perception of physics. This means it is more about the visual nature of physics, or utilizing its visual language, but ultimately not specifically about the physics itself. I really like this interpretation, which she easily found to lead to the idea of science fiction.

In my recent 3 paintings she found the inclusion of Star Trek to be more central than I anticipated. I was focused on Spock alone as a character, out of context of Star Trek. From seeing Spock she immediately linked the paintings to Star Trek, and admitted to not knowing that much about the series in general. This was good though, because it reminded me that not everyone knows about Spock, or other characters I might reference. The consequence of this means, if I am going to be borrowing characters that people might not be familiar with, I want to be able to have any audience at least get a sense of the character from my own image. For example, even if people looking at my artwork have no idea who Spock is, I want them to get the sense that he is logical and a scientist of sorts, plus whatever else I put into my particular narrative.

The issue of specifics in my artwork, in terms of specific fictional characters and specific mathematics and physics also leads me to the issue of so called "artsy" people dealing with science. I noticed that Karley referred the "physics" in my work as "science," and I realized how I differentiate different types of science, and see these differences clearly. I want other people to see the "science" specifically as physics. I can do this with titling the works, but I am interested in working on the visual image to try to

emphasize “physics.” Furthermore, I put a lot of effort into the mathematical texts that I include in my work, but no one who is currently looking at my artwork can appreciate it for what it says. Karley liked the sense of a foreign language she got from looking at the symbols around Lady Physics’ halo. I think the incomprehensibility of the mathematics adds to the sense of difficulty and air of secrecy physics contains, but I would like people to be able to understand some of it. I might experiment with explaining small physics problems more explicitly in some of the works and using a fictionalized language, an idea I discussed with Karley because of her experience looking at various cultural visual textile narratives.

2 Existence in Three-Space

Three-Space is a term in mathematics that describes a coordinate system that takes into account three dimensions. It is thought of as a realistic description of our actual existence in the three dimensional world. At this point in the semester, during midterm, my work took form in three-space, by means of its existence on the wall and in the realm of critical reception. Commentary and feedback from faculty and peers about my work at this time played a major role in how I began to understand the role of the audience, and in how I would shape my work in the following parts of the semester.

[WORK PRESENTED AT MIDTERM]



[Untitled, watercolor on paper, 22"x15"]



[Mr. Spock, acrylic on masonite, 4'x2']



[Encounter, final version, acrylic on wood, 3.5'x5']



[Our Lady of Physics with a Popsicle, acrylic and paper collage on wood, 3.5'x4']

2.1 Midterm Critique

2.1.1 Critique Response

I feel like the issue of Spock was a really major issue in the critique discussions. Fundamentally some people characterized the issue as: Spock might represent a story we have already heard. I agree with this to some extent, which will lead to my development of other characters, but I feel like there is more to explore surrounding Spock. I think the fact that my images represented a very simplistic interaction between Spock and Lady Physics might have caused this perception of the story. I want to directly respond to this issue by creating more complex relations between Spock, lady physics and other characters.

The other issue surrounding Spock was that people didn't seem to know him for more than his iconic characteristics. For example, most people didn't seem aware of the newest Star Trek movie, the fact that Vulcans do in fact experience emotions very deeply, or that Spock himself has struggled with emotions before. However, I understand that the majority of my audience will not understand all this, so I think I might be forced to move away from him, despite my interest in him.

I got the most positive feedback in response to my initial idea of creating an icon for physics, and the design aspect of the physics text. Joe was interested in the contrast between the specific scientific discourse and the narrative discourse in my watercolor sketch. I want to work to emphasize that contrast more, because I want the way I'm making my images to parallel the meaning I'm trying to convey.

Finally, the physics text and the physics symbolism played out as I expected it too. People understandably are not able to read into very much. I think I want to focus each narrative I create around a fundamental physics concept and use the narrative to describe it in terms of a mix of emotion and logic.

2.1.2 Revised Intention Statement

Visual art is capable of communicating the intangible, and I want to build my drawings and paintings as objects to hold this intangible. These illusive things, emotions, perceptions, senses, mysteries, spiritualities and imaginations, are constant forces of nature that are just as descriptive of our existence and world as are physical laws or biological processes.

In my personal study of physics, I have found physics to be an incredibly articulate way of describing the world. However, human creation and understanding of physics relies on an intangible perception of the world as an abstracted place and time. Understanding the mechanics of a pulley system for example, can demand an inner sense of motion and force that acts on ones own mind. Physics requires perceptions and visualizations very similar to art making in order to work through the space of the diagram as well as the mathematics on the page. In this way, I find personal response and imagination to be stitched into the very nature of physics. Furthermore, it is recognized that physics and mathematics carry a sturdy and worldly beauty. I find this to be more evidence that the supposed logic of physics is intertwined with emotion. I was really moved by visiting professor Heather Harvey's lecture on her work, and the way in which she references physics. She presented an interesting case that Newtonian physics makes sense to us because it exists on a macro, human sized scale. The quantum world thereby instigates confusion and disparities by means of its anti-human size. While this has no scientific basis, I find it gives insight about our own perceptions of space and time (two fundamental aspects of physics).

I want to describe this very abstract sense of the world through my artwork. I have always been interested in modeling it by means of a personification of these intangible concepts. Humans are complex beings but we are generally able to read each other because of our similarities. Besides hoping to create a metaphor for these abstract physics concepts, I am also interested in including a perception of actual human behavior of physicists and students. Because it is these people who ultimately define physics as we know it, I think their own identities could ultimately mold their approach to physics. Physics is traditionally thought of as a male dominated field, so I am interested in tapping into some of the gender politics surrounding the science.

My goal for my upcoming artwork is to delve into these complexities. I want to develop more characters and their attributes. Furthermore, I want to engage these characters in the complexity of space which physics reveals; the space of perception, emotion, and the intangible. This is an abstracted space, and I like the idea of narrative unfolding in that kind of space. I want to work directly from fundamental and simple physics concepts and the spaces each concept creates. The inclusion of the pictorial figures in these will be a vehicle for carrying the senses (both physically and emotionally) that humans have, and thus will communicate these types of senses to the audience. Their existence in an abstract space will hopefully give attention to the shapely and emotional perceptions surrounding the abstract ideas of physics in general.

I will continue to work in painting, drawing and collage because I find that the hands-on, tactile line and brush work correlates directly with the means of developing theoretical or experimental physical models. Ideas are eased out through manipulation of materials. Painting and drawing requires constant feedback from the eyes, just as the working of physics requires constant feedback and analysis of mathematical formulation.

In the midst of all of this, I hope I will be able to play off of ideas that are fundamental enough to the world that they can be understood in a simpler way, for the sake of non-scientific viewers. At the same time, I hope I can also include references to more complex topics in order to engage a more physics-oriented audience.

2.2 Gallery Opening and Artist Reception: *Tenterhooks*: Karley Klopfenstein and Anja Marais

Monday October 25, 2010, 4:45-6pm, Boyden Gallery

The Gallery opening for Karley Klopfenstein and Anja Marais' joint exhibition was an interesting experience of artwork taking shape in its environment. Usually artist lectures we experience at St. Mary's feature a speaker with images. That's fair enough for paintings sometimes, but it never is enough for an installation. Thus the experience of learning about the artwork and seeing it in its full capacity was very enlightening. Having heard Karley talk about her work, it was nice to be able to actually see it in person. The size and space that her works create is interesting. Her bombs and tank, having the precision of the scale model, present a realism of form that intrigues my curiosity about the actualities of these famous weapons and bombs. There is a solidification of the concept of "Fat Man" for instance. Seeing a model of it makes me think about what it might have been like to work on the actual bomb in a laboratory, and the fact she worked on it to make it carpeted leads to interesting ideas about construction and decoration in industry. Also, I liked the feel of the fabric she used, it was in fact very soft and I got up the courage to touch it gently because she said at her lecture she wouldn't mind.

Her idea of presenting the tank in progress is interesting. It didn't faze me that there was anything wrong with presenting work in progress, but I felt like she was uncomfortable by it or she thought other people would be, and thus came up with a specific reason for presenting that way: that it shows how

much work it takes to make this. I think she had to present it just because she has nothing else in its stead, and the gallery would be kind of empty without it.

Anja's work about nomadic wonderings and tensions carried a similar texture process to Karley's carpet crafting. Looking closely at the details of her work really emphasized the process of stitching and tying and sculpting that are central to her work. I think some of the sculptures' liveliness comes from the organic feel of the fabric and stitching she manipulated for the long process of fabrication.

Their works make sense together in terms of material and process, but they are very divergent in terms of subject matter and attitude. In which case, I view them as very separate entities within the gallery. Furthermore, in the installation, they have relied on cohesion of their work from the complementary color scheme of the works; blue and green verses orange and red. While these colors are aesthetically pleasing in conjunction with each other, they are very separate from each other, and I think this contributes to the separation between their works.

2.3 Journal Entry: Spock

Why I like Spock but why he has to go away.

I included Spock in my artwork because he has a rich and intriguing character that encapsulates the scientific integrity and explorative nature of physics. He is someone we "know" who has the capacity to treat physics the way it needs to be: impartially. This comes from his Vulcan heritage, but he is also half human, and his experience of physics is enriched by his paralleling explorations into the mysteries and complexities of human emotion. He is logical, but he carries a warm curiosity that guides him. The more simple impulse analysis is to say, he's a cool person. He's likeable and admirable. And in the 2009 J.J. Abrams film *Star Trek*, he's modern, and kinda cute.

But alas, he is going to exit my work for the time being. As it may be seen in my critique responses and such, he received too much negative publicity for being stereotypical, 1 dimensional, and overtly logical. And unfortunately, these things are true from both popular perception and my own artwork. People who don't know Spock deeply might not be aware of the subtleties of his character. Furthermore, I don't think my artwork at this time is capable of capturing these subtleties. I will retreat to simpler ideas, and build up from there.

3. An Alternate Coordinate System

In physics and mathematics there are multiple ways to describe existence in space. Coordinate Systems are used as descriptions of space in order to provide consistent reference points. The most typical is the classic Cartesian coordinate system, described by the rectilinear relation of length, width and height. But this system is not always the most efficient at solving particular problems, and other systems have developed as alternates. At this point in the semester, I decided that I needed to change my own art making 'system' in order to better achieve my goals. I tried to come up with new solutions to my problems by changing my characters' identities and putting them in new spaces. As always, feedback from professors and peers also continues to influence the direction of my work.



[*Exploration*, unfinished version, watercolor on paper, 18x20 inches]



[*Liza*, graphite and colored pencil on paper, 11x14inches]



[*Dietrich*, watercolor on paper, 11x14 inches]

3.1 Second Interview

Interview with Allie Synder: November 5, 2010

Allie: Is it important for the audience to understand all layers of your narrative? If so, how do you plan on communicating this?

Diana: For these next paintings that I am beginning, I really want some of the fundamental concepts to come through. I'm going to be a little more straightforward about identifying the space as physics space, like with references to physics being worked out on scrap paper or on a chalk board. I know that the details of the situation will be lost on the most general audience though. It's interesting that presenting the work to a physics audience would yield a different response, so I think I might invite some people I know from the physics department to talk about the work and see what they are getting from it, and it's possible that they might not understand some things that the art people would get. So I guess the answer is no, it's not important for the audience to understand everything, but hopefully I have put enough layers in that allow everyone to have an interesting experience with the piece.

Allie: You have changed from working on wood to paper and canvas; how does this shift affect your work?

Diana: The change will affect my work in terms of process. I am interested in line and working on paper and canvas allows for easier erasing and manipulating. So hopefully this will lead to more visually interesting work...meaning that the lines and colors will be more naturally made by me and there will be more significance to the lines from the way that I am painting. I think it will also allow me to work more transparently from the way the canvas and paper soak up paint and water. I think it causes me to think about the works as drawings more than paintings. And with the notion of drawings, there is a greater sense of immediacy of line and the observation process.

Allie: Would you consider your narrative linear? How do you plan to display your work at the exhibition in December?

Diana: It is not a linear narrative, so definitely not all the images in a row. Some sort of grouping that mimics magazine layouts, such that the area is some kind of balanced distribution of color and information. I want all the images to work together to create a cohesive environment that describes the world I want to convey. I feel like I kind of naturally enjoy viewing a series of images sporadically and it is a method of viewing or encountering that is unique to the visual arts. So I imagine something like a grid, but it need not be even. It's something like a tessellation of rectangles.

Allie: In this moment of the process, which artists are your biggest influences?

Diana: I'm primarily looking at Paula Rego right now. She's a contemporary painter who started out using a lot of visual metaphors to say what she wanted. She also describes things with kind of creepy people and funny situations that are really successful in setting up an alternate world of people's thoughts and feelings. I'm also thinking about Eric Fischl for the same reason, the narrative. (see Section C.1 for more details on Eric Fischl)

3.2 Critique

In Progress Critique 2

3.2.1 Critique response

I gathered from the critique that I am generally on the right track. My narratives and figures have moved into the right space, that specifically of the world of physics. What I now need to work on is the direct relationship between the figures and the space. They need to be less static in terms of their relationships between each other and the space they occupy. Furthermore, people suggested emphasizing the shapes of the figures in relation to the shapes of the space, which I think would be really effective in conveying more physics principles. I also realized I want my work to be more about the actual act of observing and recording, and I might do this through a contrast of classical art-setups for observing with physics methods of recording.

3.2.2 Revised Intention Statement

Visual art is capable of communicating the intangible senses and perceptions of the world, and physics is a way of being precisely articulate in describing the world. Both are ways of seeing, manipulating and discovering. My artwork lies in relating these two fields' similarities of observation and description.

Human creation and understanding of physics relies on an intangible perception of the world as an abstracted place and time. Understanding the mechanics of a pulley system for example, can demand an inner sense of motion and force that acts on one's own mind. Physics requires perceptions and visualizations very similar to art making in order to work through the space of the diagram as well as the mathematics on the page. In this way, I find personal response and imagination to be stitched into the very nature of physics. Many theories of drawing are founded in the complete and intense method of looking and accurately recording what is in existence before the artist. As the draftsman follows and records the curve of a chest cavity of a live model, the perception involved is similar to fundamental theories of calculus. The minute changes, bumps, and indentations of the surface all work together to describe an overall cohesive form of a figure.

My goal for my upcoming artwork is to delve into these complexities. I want to engage figures and objects in the complexity of space which physics reveals; the space of perception, emotion, and the intangible. I want to develop figures and compositions that activate the space they occupy. My work should emphasize the geometry and patterning of space by means of similarities and repetition. Figures' existence in an abstract space will hopefully give attention to the shapely and emotional perceptions surrounding the abstract ideas of physics in general.

A logistically difficult notion in my developing work is that I want to consistently work from life. This direct act of seeing and describing with pencil and paper is vital to my goals of realistic observation and recording. I am planning to work via still life set ups in my studio, friends sitting for me, and myself through mirrors. However, what I am not able to setup or arrange will have to be supplemented by photographs.

I will continue to work in painting, drawing and collage because I find that the hands-on, tactile line and brush work correlates directly with the means of developing theoretical or experimental physical models. Ideas are eased out through manipulation of materials. Painting and drawing requires constant feedback from the eyes, just as the working of physics requires constant feedback and analysis of mathematical formulation. I want to focus on primarily linear forms for now, with added color as a way

of pursuing description further. Collage of colored papers will also start to take a more prominent role in my work because of how I can make distinct shapes from the swatches of color. It provides a way to draw linearly with color.

As for the works themselves, I am planning on making a grouping of three or four new works that describe various fundamental physics concepts through figures and still life images. These classical types of images are in reference to methods of observation and looking in art. I want to combine this with abstracted spaces from the physics discussed in order to parallel seeing through art with seeing through physics.

3.3 Talking with Prof. Sue Johnson via Skype

Because Prof. Sue Johnson is currently abroad at Oxford University, I sent her images of my recent work via email, and then talked with her via Skype. As a professor I've had for several semesters now, she has long critiqued and directed my drawings and paintings. From seeing the images presented at the beginning of this 3rd section, she was intrigued by my fundamental ideas, but she really advocated for a deeper realism in my work. This suggestion arose because she sensed that my drawing was richer when I was working with a more direct sense of observation. I agreed with this idea, and I think practicing working from observation is directly linked to how physics and art are related. She suggested looking to anatomy books and studying them for precision and description, because she thinks it will be that accuracy and realism that will bring my concepts of physics and art together.

3.4 Art History Lecture: *The Politics of Representation: Art and Human Rights in Latin America*

Dr. Andrea Giunta, Professor of Art History, University of Texas at Austin

Thursday November 11, 2010

Dr. Andrea Giunta's Lecture delved into the use of art to aid in Argentina's struggle to deal with missing people as a result of a harsh dictatorship several decades ago now. Her work examined how images of identification and family records become artwork and how artwork can become a tool and means of identification and public record.

The artworks created through photographs of ID style portraits are a way to continually remind people of the presence of the people that disappeared during a period of dictatorship. Their existence on signs in public parades and demonstrations, and in newspaper ads on the anniversary of their disappearance is a continual reminder of the existence of this group of people and the consequences that holds for the community that lost them. Besides artworks that focused on their presence, some artworks focused on the absence of these people. One artist looked at photographs taken before the disappearances, and then had the people re-stage the photographs with the disappeared people obviously missing. This is such a strong statement of absence, because photographs are such strong statements of proof of existence. When we see that some people could not be in the photo like the rest of their friends and family, it's a realization of their disappearance, as if they disappeared right out of the photograph.

Another artwork focused on the disappeared identity of young children taken from their mothers at birth and adopted by people working with the government. The artwork took up a large gallery space with life sized portraits of disappeared parents at eye level. Next to each portrait was a mirror. The concept was that young people unsure of their identity could look into the mirrors and gage a similarity between themselves and the disappeared parents. This was a really interesting way of visual artwork aiding a community of missing people. The artwork became a tool to identify and regain identity. Besides being a work for these people specifically, it also speaks to art viewers as a whole and how they interact with images of real people. Whether you have lost someone or not, seeing yourself in conjunction with a portrait can't help but offer a comparison of the two faces, and I suspect it offers more similarities in terms of humanity among people than not.

In all cases, these works rely on a manipulation of images already in existence. The taken photograph is a powerful tool of existence, presence and absence. Dr. Giunta's work in examining artwork like these is a deep investigation into the life of these photographs and their existence in a communal realm of remembrance and searching.

3.5 Heather Harvey

Visiting Professor of Art 2010-2011

3.5.1 Artist Lecture: Tuesday October 5, 2010

I was really interested in the ideas behind Heather Harvey's work, and her concept of how art communicates these ideas. Her work is primarily sculptures and drawings that come off of the wall. Her format of using the wall as part of the artwork allows for her work to become immersed in the gallery space and integrated into space. The forms often twist and expand, relying on a strong sense of line, which reveals her strong connection to drawing. She discussed the idea that it is tempting to say there are no ideas behind her work; that she does not work towards anything in particular, and it is mere expression. But really, she understands there are layers of meaning in artwork. Her focus leans towards analyzing these underlying experiences and senses that would contribute to the blind expression and desire for artwork with no meaning.

Her multiple references to physics intrigued me. Her perception of quantum mechanics was especially interesting. She talked about how classical, Newtonian mechanics functions on the macroscopic scale, or the human scale. These concepts are clear to us and the logic behind it makes the most sense to us. When things shrink down to the quantum level however, the logic becomes extremely baffling and the concepts are extremely difficult to interpret. While it is the classical mechanics that we experience everyday, the quantum mechanics are actually the fundamental unit of existence and matter. The mystery of the discord between us and quantum mechanics is something she examines in her artwork, as she attempts to make these blind spots in knowledge known.

She uses art as a place to synthesize and contemplate these large concepts without having to conform to the strictness of any specific discipline. She relies on science and logic's relationship with emotion and imagination. Her use of an electrical engineering Smith chart emphasizes this duality. She can capture the visual sense of the field and offer intangible and emotional solutions to problems in it. The lines from the chart were meant as a diagram of mathematical solutions, but in her sourcing of it, she was able to emphasize the space it creates and the symmetry and infiniteness it emulates.

I am really attracted to this set of ideas she has developed. I am interested in using characters to personify the relationship between human experience and science. Her work relies on more abstracted forms that anthropomorphize into other things. In either case there is a transformation of visuals into concepts. That is the most fascinating part of art for me; the way the non-verbal becomes tangible and communicable.

3.5.2 Studio Visit

On Saturday November 13 visiting professor Heather Harvey talked with me in my studio about my work. I was really excited to talk with her because her own artwork examines a similar vein of intangibles stemming from science and human existence. She was interested in my ideas about discussing a relationship between art and physics.

We talked about the stereotype of physics related art, which is often art created by people in the physics community, or art the community features. This often includes fractals or images of particles. She did a good job of describing it's insufficiencies as powerful art though. It's like looking at the night sky; sure it's pretty but where does the artist come in? So my part and control of the work is equally as important as the subject itself.

Looking intently at my drawings and paintings, she reiterated what I was thinking about in regards to how they are made. She encouraged me to choose a style, so to speak, for the way I am painting. I could do this by finding artists who are painting a way I admire and emulating them. I have since decided to focus on building up a way of drawing, which I want to be at the fundamental core of my work.

Furthermore, she was able to see my plight between my allegiance to both people and physics. She agreed that it is difficult to mix two subjects that are so different on the surface. She suggested eliminating one directly, in hopes that it would figure back into the work in an alternate way. I liked this process, especially in conjunction with my new approach to focusing simply on drawing. I decided to draw people, eliminating physics as a visual element in my work. My hope is the physics will drive the narrative of these people.

She also had some interesting comments in regard to how I choose my medium. She suggested thinking about the actual spatial qualities of my work and how they might relate to mediums other than two dimensional work. For instance a sculpture or installation may be more effective at times. Interestingly, after this experience, I participated in a Popsicle-stick bridge building competition with the physics club, and I was very interested in the “art object” that seemed to be created via my construction of the bridge. With that experience in mind, I don’t want to eliminate the possibility that sculpture or 3D media could help describe my intentions.

4. Additional Problems

In a physics text book, the Additional Problems section does not imply more sticky situations, but rather a place to explore additional situations and examples. It's a section of achievement and exploration.

4.1 Current Work

As I write this section, and prepare this book, I am still in progress of making artwork. These most recent pieces are meant to pursue simplicity through realistic rendering and black and white media. The simple actions and narrative associated with those actions are meant to represent simple physical concepts.



[$PV=NkT$, A Relation of Pressure and Volume³, Charcoal on Paper, 25x21 inches]



[Curl Theorem (The **surface integral** of the curl of a vector field is equal to the **closed line integral** of the vector field)⁴, graphite and Charcoal on Paper, 25x21 inches]

³ See Appendix A.1 for details

⁴ See Appendix A.2 for details

Appendix A: Useful Equations and Fundamental Constants

Here are some simple physical situations which I use as starting points in my artwork:

1. $PV=NkT$

This equation is known as the ideal gas law. It describes a relation between pressure, P , volume, V , number of molecules, N , Boltzman's constant, k , and temperature T . When written in the

form: $P = \frac{NkT}{V}$, it is clear to see that as V decreases, P increases. While this equation holds

precision only for ideal gases, which only approximate some situations well, there is a general truth and application in it.

2. Integration

In the most simple and vague sense, it is a way to calculate the area under a curve bound by the x -axis and defined limits. It is one of the two fundamental halves of Calculus, along with differentiation. It's foundation comes from an infinite summation of infinitesimal rectangles under a curve. Imagine you are petting a cat. As your hand rubs flat against its head, down its neck, across its back and to the tip of its tail, in a single stroke, pretend that this rubbing process has added up every section of area beneath every curve and kink in the cat's backside. This is integration.

3. The Permeability of Free Space

μ_0 is the Permeability of Free Space, also known as the Magnetic Constant. When a magnetic field is formed in a classical vacuum, it is a measure of the amount of resistance encountered. This concept is most interesting to me from more of a metaphoric point of view. I begin thinking about how free space might have a permeability that mars our seeing and could be the medium artists and physicists alike must see through.

Appendix B: Further Reading: Annotated Bibliography

Calvino, Italo. *T Zero*. Trans. William Weaver. New York: Harvest/HBJ, 1967.

This collection of short stories by Italo Calvino provides imaginative narratives to scientific theories. The science serves as a starting point for housing elusive theoretical constructs. One story that particularly resonated with me was "Blood, Sea." It is a first person introspective narration by the character, Qfwfq. Based on similarities in chemical make up of blood and the sea, Calvino develops a narrative of how they might be related. He suggests that when we became land creatures, our hollow bodies sealed up, keeping the sea within us. From this, he can establish a comprehensive comparison of inside verses and outside. Qfwfq finds the actual, external, terrestrial experiences to be nothing in comparison to his inward, blood and sea sensations. He feels more connected to his female partner's experiences via their internal, sea-life experiences and commonalities. I feel his description of how Qfwfq and his partner connect through their shared memories of sensuality is a relevant personification of how I envision my artworks in their ideal form; that characters and topical narrative house various concepts. Calvino uses words to describe the relationship of a couple in order to discuss visceral and ancient sensations in the body. This method of creating physical structures of characters in the story is, in my mind, what is ultimately able to communicate intangible ideas. Calvino hints at this himself in the end of the chapter as the he notes how when blood is spilled from the body, in death, it becomes an insignificant detail of the external environment; meaningless alone.

Canaday, John. Introduction. Richard Estes: *The Urban Landscape*. By John Arthur. Boston: Museum of Fine Arts, 1978.

Richard Estes is photorealist painter primarily focused on the cityscapes of New York City. While his subject matter is not directly related to my own, his images carry a duality of experience. Canaday writes that both classical painters and abstract painters may claim him to their team. His classicism comes from his literal depiction of environment and landscape. His precision and immense detail is a composition of order out of chaos. His dedication to correct relative tonalities is also an example of his loyalty to realism of observation (though mediated by photography). At the same time, his cityscapes hold an aestheticism like that of Mondrian's grids. His work becomes increasingly preoccupied in examining the relations between reality and reflection. As the actual building surfaces intersect with a reflection of other buildings and the rest of the environment, it becomes a description reminiscent of abstract paintings that describe multiple dimensions and streams of time. Canaday asserts that this duality provides revelations about distortions of space and how relativity of space revolves around a centralized perspective. Art that focuses on describing these kinds of abstract notions, both in terms of idea and visual creation, via concrete objects interests me.

Hockney, David. *That's the Way I See It*. Ed. Nikos Stangos. New York: Thames & Hudson, 2005.

Hockney's book is as a mix of his own autobiography and the theories of seeing and drawing that are the foundation for his work. Some major themes I examined in his text were his theories of time, perspective, and space. His drawings, collages, and photographic collages are related to exploring the viewer and artists' relation to the image and world. He writes that he likes to work directly from the notion that we are immersed in the world, and that we sense this. He finds that classic framing tries to examine the world from the distance and this perspective is only one form of realism. Hockney's notions of realism developed after studying many compositions and images by Pablo Picasso. Hockney believes that compositions like that of Picasso's *Femme Couchee*, from 1932, is an example of the viewer being within the picture, where you can move around in space and time. This is one of many versions of reality he says, and that some versions can feel more real than others. As an artist that uses a large variety of media, he finds painting and photography to offer an exploration into realism via their different connection to time: that painting has varying times over the surface, and the photograph has consistent time across the surface. His interests in space and time often stem from interests in theoretical physics and geometries. He has found inspiration from questioning whether a flat surface is only possible in theory, the number of dimensions in the world, the age and size of the universe via traveling light, and other such mysteries that share this push and pull of the infinite in conjunction with our own existence.

Hoptman, Laura. "Fashion, Likeness and Allegory." *Drawing Now: Eight Propositions*. New York: The Museum of Modern Art, 2002. 149-151.

This essay by Laura Hoptman is written in conjunction with the exhibition *Drawing Now: Eight Propositions*, at MoMA in New York, from October 17, 2002 to January 6, 2003. This particular section groups Elizabeth Peyton, Graham Little and John Currin together through their images of the figure in a variety of drawing materials. This essay is focused on identifying themes and properties of each artist's artwork, and looks to some of the artist's references. In regard to Elizabeth Peyton, Hoptman discusses her work as a portrait style brimming with idolization,

fashion, and graphic aesthetics. She finds their intimacy, nostalgia and visual decoration to be reminiscent of a Pre-Raphaelite tradition. She discusses the importance of drawing within the Pre-Raphaelite tradition, and compares their sense of narrative with that of Peyton and fellow contemporary artist Karen Kilimnik. Peyton gives her portraits a loving adoration and her use of drawing is a detailed description of gesture and artifacts such as clothing that describe her subjects accurately. Hoptman's choice of Peyton's drawings to display in the show and book represent a balance between line and color. Her watercolors are founded in a great play of light and saturated color, but her brush stroke is bound in linearity. Likewise, her colored pencil drawings offer descriptive contours, but they build up blocks of colors with the waxy richness the materials have to offer. Hoptman admires this as a presentation of what is aesthetically beautiful combined with what is graphically descriptive.

Huntley, H.E. *The Divine Proportion*. New York: Dover, 1970.

This book is presented as an analysis of the source of beauty in mathematics. Huntley also develops the fundamental idea that mathematics, a topic of science and logic, can actually be considered beautiful, and consequently examines what sorts of things constitute beauty. Traditionally and stereotypically, beauty in mathematics stems from issues of symmetry in geometry. In his chapter "Beauty in Mathematics," Huntley is able to discern in detail a variety of factors contributing to the aesthetic sense of mathematics, not only in geometric imagery, but also in the equations and formulas developed to describe them. He describes "the alteration of tension and relief" as a universal emotion. The way in which mathematical equations cultivate order and description out of chaos is similar to the way artwork objectifies the non-verbal and unspoken. Likewise, he writes that a sense of awe and wonder in the presence of the infinite contributes to the beauty of mathematics. Equations and mathematical descriptions allow mathematicians to witness the infinite as an artist might depict a representation of the infinite. Huntley's ideas represent a balance between the emotional rush and response to working with mathematics and the logic and reasoning that contribute to such a pleasure. I see in his work a sense that logic and emotion rely on each other and are not such separate quantities.

Lightbrown, Ronald. *Carlo Crivelli*. New Haven: Yale UP, 2004.

Lightbrown begins this comprehensive collection of Carlo Crivelli's work by tracing the influences on and the development of Crivelli's career as a painter. He establishes the historically accurate sense of artists as laborers and guild-type workers in Italy, and approaches Crivelli's development as that of a tradesman perfecting his work through research and experience. Lightbrown examines technical craftsmanship, and traditional formulaic styles of beauty and religious sanctity in Crivelli's work as elements of the time period and the mode of operation for his contemporaries. Lightbrown is also successfully descriptive of the unique aspects of Crivelli's works; specifically his anatomical figurations and renowned style of drama. In strict formal analysis, Lightbrown explains Crivelli's intense focus on naturalism as it becomes blended with linearity of form to emphasize all structures and features of the body, which leaves his figures with that signature knobby look. Lightbrown analyzes a large portion of Crivelli's most famous works in detail. He describes the enormity of the symbolism Crivelli made use of in a variety of paintings and altarpieces, and discusses the specific formal choices and imagery relevant to each figure depicted. Crivelli relies on symbolism and convention to convey narrative, but I prefer the parts of this text that discuss the drama of emotion and stylistic figuration of his works. It is these aspects that I source from Crivelli, and Lightbrown does a

successful job of including them amongst the tradition of symbols and history of altarpiece paintings.

McCrone, John. *The Myth of Irrationality: The Science of the Mind from Plato to Star Trek*. New York: Carroll&Graf, 1993.

McCrone's book examines the perception of humans as irrational creatures. He begins with a contrast of the fictionalized alien verses humans. There are overwhelming themes of logical, emotionless aliens being defeated by the emotional strength and creativity of mankind. In the non-aggressive case of the alien Spock, there is the common occurrence where his logical reasoning is countered by his human friend Captain Kirk, who appears to him as emotional and irrational. This discord between reason and emotion is the premise for McCrone's writing. McCrone looks to human's own development of logic and language as reasoning that we are in fact creatures of rational, and that so called irrationality was developed by social constructs. He explains that emotions are psychological reactions that were learned and developed through society. As society changed throughout history, there was a rise and fall of different emotions based on the culture of the time and location.

An interesting case that McCrone examines is the so called "Wolf Children," which he uses to illustrate a point about the development of language and emotion. He describes a variety of cases in which throughout the course of history and a variety of countries, abandoned children were found living in the wilderness, seemingly raised by wolves. Their natural tendencies were to behave like wild animals. Attempts to teach them language and human activities, like merely walking upright, failed. It was also observed that they did not have the higher emotions (sympathy, guilt, etc.) that humans were thought to naturally have. McCrone suggests that this disconnect between natural behavior and language and emotion means that language and emotion are the result of social constructs amongst humans. Thus, the experiencing of emotions can be understood as a more complex and refined situation than not. Thus stems the idea that emotion wins over cold logic, but there is still the premise that these higher emotions must be in control over biological emotions such as aggression and lust. Overall, this book provides interesting insight into the function of the abstract sense of the rational verses the irrational. Understanding the source of so called irrationality is relevant to my artwork which examines emotion in context of science.

McEwen, John. *Paula Rego*. 2nd ed. New York: Phaidon, 1997.

This book offers a comprehensive view into Rego's development and life as a major contemporary artist in the twentieth century. Her Portuguese heritage and childhood experiences are strong sources of inspiration in her work. She has vivid memories of her childhood play in her grandmother's kitchen, interacting with servants and hearing their stories. This kind of domestic environment, her enjoyment of early Disney movies at the cinema, and her attendance of art schools in England as a female all worked to shape her distinctive narrative style, usually centering on female figures. The relationships between males and females, the tensions of society with regard to these relationships, and her personal experience create extensive narratives about psychological turmoil and struggle in the world of females. Her specific focus on figuration and narrative is a result of her strong imaginative instinct of storytelling via characters. Her work began as immensely personal, as she drew from imagination. Her introspective imagination in the context of a swirl of political and social change in her lifetime has provided intensely insightful images. Even as she has currently developed the

practice of working from life models, the process is very much a theatrical one, working to draw out the story that's within her. Her preference for figures is solidified by her complaints of not enjoying still life, landscape or abstract painting because she is not able to see a face in these setups or processes. She is always looking for the body, and I think when she looks to her stories and emotions, she has a keen awareness of how the body plays into these situations, resulting in powerful and dramatic compositions.

Moore, John C. *Love in Twelfth-Century France*. Philadelphia: Pennsylvania UP, 1972.

Moore's book is a history of how the perception and definition of the concept of love developed in twelfth-century France. It also offers some ideas as to what the concept of love actually means. The book describes the twelfth century scholars' knowledge as stemming from early Greek philosophy, including Plato. Being that many of these scholars in the twelfth century were monks, Moore traces the rationality of Plato's influence as it merges with their contemporary Christian appeal to love. Due to the intangible, unpredictable, and overpowering nature of love, scholars of the time were able to understand love as a mysterious cosmic force. Moore traces this mystery through the route of Christianity, which is based on a loving God. He also works to describe love in terms of French domestic experiences, including the variety of town life, religious life and courtly life, and love's role in each place. This book was useful in articulating the mysteries behind the ultimate human experience of love. It offers explanations of love that attempt to satisfy our desire to order the universe and to establish a reasonable basis for the existence of God; whether metaphorically or realistically. Moore accomplishes this through recounting the history of understanding love in this time period, as well as guiding the discussion to develop great philosophical musings on the subject of love. The philosophical musings were very fascinating and well complemented by several images throughout the book from the twelfth century that attempt to explain love in a diagrammatic and narrative way.

Thompson, William Irwin. *Imaginary Landscape: Making Worlds of Myth and Science*. New York: St. Martin's, 1989.

Thompson's book discusses how there is an interplay of myth and science. He finds that myth holds science and science is structured as narrative myth. In narrative, he writes, it is the actual telling of the story that gives form to time and space. Thompson suggests that scientific narrative is likewise storytelling material, where content is descriptive of environment, existence, past and future: a formulation of time and space. Thompson takes a philosophical and Jungian psychological approach in examining concepts of a collective memory of myths and ancient thought-process. He prefaces analysis with a discussion of how imagination and visual thinking is an ancient faculty that contributes not only to arts, but also to innovative science. He includes a small anecdote of Descartes exercising a visual imagination and consequently has revelations about analytic geometry. In the second chapter of his book, he begins his discussion of myth in science with the description of the Gaia hypothesis. That is, that the earth is more than an entity revolving through space, but rather, through all of its regulation and cycles, it is a life entity itself; that the largest organism on earth is Earth. I find this to be a good starting point for Thompson because it is a metaphor itself for how memories and myths are not individual entities among us; rather they are part of the larger, collective memory entity of civilization. I find his themes of universality to be relevant in my own depictions of underlying sensations and perceptions in physics. My hope in communicating them relies on the fact that other people will be able to understand and feel what I have felt. I am also interested in analysis such as

Thompson's because it is a gritty analysis of what narrative actually is and does, in its purest self and its masked self.

Tusa, John. *On Creativity*. London: Methuen, 2003.

Tusa's book is an extensive collection of in-depth interviews with major figures in the arts world. This spans many fields, including music, writing and visual arts. These interviews serve as an exploration of the process and lifestyle of creativity. They do not focus solely on a recent body of work or on particular contributions to the world, but rather, on how the lives and careers of these individuals have manifest creativity. In his introduction, Tusa describes his notion of how creativity is very much reliant on personal visions of individual people, in contrast to the formal guidelines and institutions of scientific research. He also describes how looking at the background and environments these creative arts figures, it is clear to him that there is no trend of situation that produces such people. With creativity stemming from an individual, he describes a loneliness that surrounds an individual's work, and the scariness of having to put personal creative work out for people to possibly reject. Creativity is not a hobby; it is a lifetime of work by an individual, focused and refined to a state of creation of work and ideas.

I focused specifically on Tusa's interview with visual artist Paula Rego. It is fascinating to read the intimate details of her responses. Tusa's questions center on personal experiences in her life and she gives her answers freely and descriptively. In relating to her experience of fear as a child, reception of critical feedback as a student, and her constant physical relation with drawing, the interview conveys the sense of her as someone who is very conscious of her thoughts and emotions, and who looks inward to reflect and draw out her work from her own perceptions. Where my perceptions overlap with hers, the interview provides encouraging advice about how to maintain an internal source of creativity as an artist.

Whitney, David, ed. *Eric Fischl*. New York: Stewart, Tabori & Chang, 1988.
Schjeldahl, Peter. "Witness." Whitney 11-31.

In this 10 part essay, Schjeldahl describes the development of Fischl's work as an artist in terms of Fischl's own personal experiences and in the context of the changing art world and society. He discusses Fischl's course from abstract and avant-garde at CalArts (since painting was feared dead) in the 1970s to his true desire for narrative painting. Schjeldahl argues that Fischl became a naturalistic figurative painter because he had *need* for painting. While the pictured images were still at a clash with contemporary art culture and society at the time, Schjeldahl acknowledges that the emotion and blatancy in Fischl's work are brutally true. As an art critic, Schjeldahl is able to describe the evolutionary course of Fischl's work in terms of his own reactions at the time to various paintings and artist statements. For Schjeldahl, Fischl's work is immensely fascinating in terms of the relation between self and society. Schjeldahl uses analysis of several prominent paintings by Fischl to reinforce his ideas about Fischl, and documents Fischl's own writings and quotations from interviews to present the development and success of Fischl. His conclusion of Fischl's work is that it is a realistic description of psychological events and thoughts. The work relies on a particular scene, but that is the form to hold the invisible thoughts we think and sense. Schjeldahl writes that Fischl has often described his own sense that his thoughts can become transparent; that other people around him might be able to see into his mind and access these thoughts. In his artwork, he makes a point of revealing these thoughts of his characters and it often becomes a critique of the contrast between personal thought and societal ideals.

[FUTURE READING LIST]

Calvino, Italo. *Cosmicomics*. Trans. William Weaver. New York: Harcourt Brace, 1968.

Edwards, Betty. *Drawing on the Right Side of the Brain: A Course in Enhancing Creativity and Artistic Confidence*. New York: St. Martin's Press, 1989.

Feynman, Richard and Ralph Leighton. *Surely You're Joking, Mr. Feynman! (Adventures of a Curious Character)*. Ed. Edward Hutchings. New York: W.W. Norton & Co., 1985.

Fischl, Eric. *Eric Fischl: it's where I look—it's how I see—their world, my world, the world (with help from friends)*. Essay by Jean-Christophe Ammann. New York: Mary Boone Gallery, 2005.

Gay, Volney. *Progress and Values in the Humanities : Comparing Culture and Science*. New York: Columbia UP, 2010.

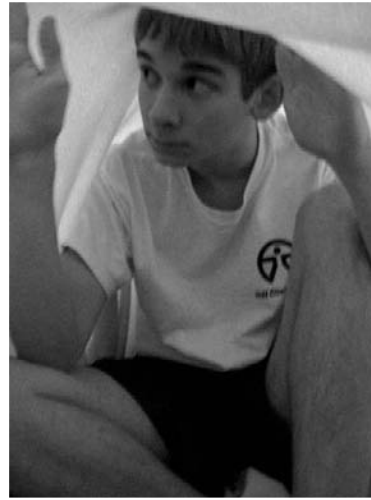
Wyer, Mary et al. *Women, Science, and Technology: A Reader in Feminist Science Studies*. 2nd ed. New York: Routledge, 2009.

Appendix C: Visual Source Library

[PHOTOGRAPHS I WORK FROM]



Diana, Variation on Popsicle Pose



Dietrich, Trapped in Space



My own Screen capture from 2009 Film *Star Trek* directed by J.J. Abrams



Dietrich at the Computer, October 2010.

[INFLUENTIAL ARTISTS]

Carlo Crivelli, Elizabeth Peyton, Eric Fischl, Paula Rego



Crivelli, *Pieta*, From the Altarpiece of San Francesco c. 1471
Lightbrown, Ronald. *Carlo Crivelli*. New Haven: Yale UP, 2004



Peyton, *Chloe (Gold)*, 2001.
ARTstor, Accessed October 5, 2010.



Fischl, *Birthday Boy*, 1983.
Whitney, David, ed. *Eric Fischl*. New York: Stewart, Tabori & Chang, 1988.



Rego, *Dog Woman*, 1994.
ARTstor, Accessed November 26, 2010.

C.1 Journal Entry: Why I like looking at Eric Fischl

Lisa asked me to really think about why I like Eric Fischl, because it's not always apparent, often because the subject matter is so different from mine.

Fischl's work is primarily narrative, so there is always an action, scene or event going on. The image that Fischl paints demonstrates the personified emotions and perspectives behind the scene. His images are not documentations of the actual situation. He's leaning more towards capturing the "actual" psychological events or narrative behind the physical reality of the situation. This is the psychological naturalism that I mention in my initial intention statement (1.1). We can't see the psychological situation, but we can come up with images as imaginary ideas about it. It extracts the thoughts out of our heads and makes them transparent.

Fischl's work has the realism of the thoughts we are thinking but socially might feel more awkward to admit. Those secret thoughts, made transparent, are presented as the center of the narrative. They are the event. Our actions, motions, poses, etc. are only a method of holding or expressing these feelings. They are a guise, and Fischl's narratives become the vehicle for explaining these feelings.

In my artwork, when I start thinking about the underlying visceral, and emotion elements of physics, I want to be able to personify them like Fischl does. In which case, I feel like I should look at him more closely, in terms of composition and figuration as I move towards the second semester.