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The Undergraduate Review

A JOURNAL OF UNDERGRADUATE RESEARCH AND CREATIVE WORK



More Useful When Broken STEPHANIE LAWRENCE

Cepero, Bianchini, Hallenbrook, Delaney, Wert, Lawrence, Fletcher, Higgins, St. Andre, Medeiros, Fiedler, Kostka, Vargas, Robillard, Alongi, Jannotta, LeClair, Werden, Gorman, Halter, Milauskas, Moloney, Nickerson, Mercure, Charpentier, Hickey, Cutting, Donahue, Dyer, Piatelli, Burns, Frye, Haggerty, Blick, Gramstorff, Mullane, Saster, Rodrisuo, Foley, Picton, Ryan, Affannato, Blanchette, Vezina, Clark, Gracia

Letter from the Editor

Mentor: Someone whose hindsight can become your foresight

Author Unknown

PLATO HAD HIS SOCRATES. FRODO HIS GANDALF AND LUKE HIS OBI WAN. This journal is an artifact proving that the spirit of mentorship is alive and well on the BSC campus. I would like to make mention in this particular volume of *The Undergraduate Review* of the 29 mentors who offered their time and patience to their respective students as they prepared their work for final publication. Many of them went above and beyond their duty as mentor, tracking down students that have graduated and moved on in their academic careers, to be able to discuss the piece *One.More.Time.*; others rearranged schedules and office hours and even reread primary texts in order to accommodate the student with revisions; and others took time to recreate formulas and tables so that the image resolutions would allow for the integrity of the research to remain intact when printed. Throughout the editing process, the mentors expressed countless times the great pride that they have in their students as well as the great academic promise they feel that these students offer the BSC community and beyond.

The journal received a record number of submissions this year, nearly three times what was previously recorded. The work you see in this volume represents some of the best undergraduate work being done on the BSC campus, from all areas of study and at all class levels. As always, the staff of *The Undergraduate Review* would like to thank the Adrian Tinsley Program (ATP) for funding the journal; The Office of the President, the Bridgewater Foundation; faculty advisor, Dr. Laura McAlinden, The Office of Undergraduate Research, and especially the student contributors and their mentors. I feel privileged to work with such a dedicated group of faculty and students.

It is my pleasure to present to you Volume V of *The Undergraduate Review*.

STACY NISTENDIRK
Managing Editor

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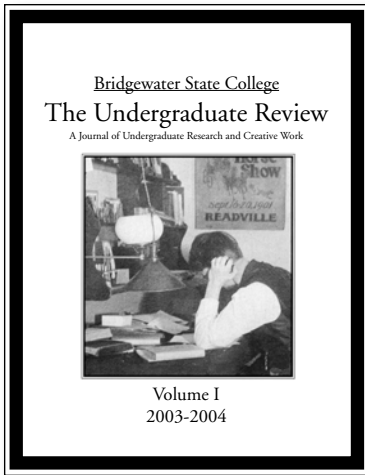
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Faculty Advisor's Note



inaugural volume

I am very proud to present to you Volume V of *The Undergraduate Review*. Each year, the journal continues to grow in size and scope since the first volume in 2004. This year, with an increasing focus on excellence and the rise in number of submissions, we began the first phase of a revised review process that we hope to expand next year. This year, after initial review by the editors, mentors of the all the accepted submissions were asked to review the papers and offer specific editorial guidance to the students, from substantial revision to copy editing. Then, students were mentored through the process of revising a paper for publication that meets the standards for both content and style consistent with their disciplines. Only papers that met the approval of the mentors, experts in their fields, are included here. Thus, the work you will find in this volume is of the highest quality, truly a review of excellence of some the best mentored research and creative work produced by Bridgewater State College undergraduate students.

The twenty-nine papers are grouped in chapters. The Adrian Tinsley Program Grants section contains the results of the work of students who worked under the guidance of a faculty mentor during the ATP Summer Grant program. The opportunity for this ten-week research experience is open to all undergraduates, including both students with outstanding academic histories and students who show great promise. Grants were approved based on the quality of student proposals, and you will see the results of the extraordinary efforts these students produced. The section of National Conference of Undergraduate Research includes work produced under an ATP Summer Grant, but then presented at this prestigious annual conference. Student submissions for this conference face rigorous competition from applications from across the nation. The sections on Coursework include submissions that were originally produced as work for a course, but mentored under the revised review process. The Shea Scholar paper is the work of the student who was awarded this prestigious BSC grant. Thus, the journal is a review representing a cross-section of student work from across the College.

Production of *The Undergraduate Review* is made possible by the financial support of the Bridgewater Foundation. Invaluable leadership and support of our mission is provided by BSC President Dr. Dana Mohler-Faria, Interim Provost and Vice President for Academic Affairs Dr. Howard London and Acting Associate Vice President for Academic Affairs Dr. Anna Bradfield. Thanks go to Kathy Frederick in the OUR, who keeps us all on track and with an ever present smile. I am proud to work with Stacy Nistendirk, managing editor, who deserves particular credit for her professionalism, dedication, and commitment to producing the journal.

Finally, thanks must go to the students who desired to share their work with the larger campus community. You should be proud, not only to be included in the journal, but also to present your work as inspiration for students who follow your example. To each of the mentors who worked with students, whether as course instructor or as long-term mentor, your dedication to the profession is highly commended. Our students could not succeed without your help and support.

LAURA MCALINDEN, PH.D.
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Faculty Advisor to *The Undergraduate Review*
Assistant Professor of Philosophy

ATP Grants

THE UNDERGRADUATE REVIEW
VOL. V

The Adrian Tinsley Program Grants section contains the results of the work of students who worked under the guidance of a faculty mentor during the ATP Summer Grant program. The opportunity for this ten-week research experience is open to all undergraduates, including both students with outstanding academic histories and students who show great promise. Grants were approved based on the quality of student proposals, and you will see the results of the extraordinary efforts these students produced.

Moral Lessons for Muggles: Aristotelian Virtue and Friendship in J.K. Rowling's *Harry Potter* Series

LAURIE DELANEY

Laurie Delaney, from Dedham, is a senior majoring in Political Science. This research began in the summer of 2008 as an Adrian Tinsley Program Summer Grant project under the direction of Dr. Jordon Barkalow, and has expanded into a two-semester honors thesis. Laurie will be presenting her research at the 2009 Midwest Political Science Association conference. Laurie plans to go to graduate school for political theory in Fall 2010.

The appeal of the *Harry Potter* series for adults is often attributed to its ability to speak to fundamental questions of human existence. Here, Edmund Kern finds a Stoic moral teaching as Harry employs his reason to balance his desires against the demands of the world. The problem with this argument is that it misses the centrality of friendship to Rowling's account of virtue which suggests that Rowling's theory of virtue is properly understood in Aristotelian terms. Pursuing the question of the manner and extent to which the *Harry Potter* series provides an Aristotelian account of virtue, my analysis begins by exploring Aristotle's understanding of friendship before applying this understanding to the *Harry Potter* series. I argue that the *Harry Potter* series is grounded on an Aristotelian conception of virtue where friendship serves as the fundamental, complete virtue allowing one to lead a good life.

In *The Wisdom of Harry Potter: What our Favorite Hero Teaches Us about Moral Choices*, Edmund M. Kern evaluates J.K. Rowling's *Harry Potter* series as an embodiment of Stoic virtue. Stoic philosophy is based on the idea that "living well means living in accord with the world" and portrays a standard that fate "not only dictates proper action but also shapes the outcome of events" (Kern 2003, 34). Kern says that "random and contingent events shape human destinies, and there is no guiding principle of justice behind changing circumstances, but undue anxiety over this state of affairs interferes with the enjoyment of life and the proper assessment of right and wrong" (Kern 2003, 91). Kern concludes that "Rowling develops an essentially stoic moral philosophy through the ethical dilemmas in which she places Harry and his friends—dilemmas requiring them to think in complex ways about right and wrong" in which she uses the stoic virtue of constancy to imply that "Harry's resolution in the face of adversity is the result of conscious choice and attention to what is and what is not within his control" (Kern 2001, 1).

The problem with Kern's analysis is that it fails to touch on the centrality of friendship within the *Harry Potter* series. Kern does acknowledge that Harry has guidance but he only mentions that it comes from authority figures like Dumbledore, Sirius, Hagrid, and Lupin (Kern 2003, 109, 114). Although these authority figures do provide wisdom for Harry at times; most of Harry's virtue is a result of his constant interaction with his best friends Ron and Hermione. That friendship is central to one's virtue can be properly understood in terms of Aristotle who argues that in order to be completely

virtuous one must make use of one's virtue in the right way and towards someone else (*NE* 1130a 1-10).¹ The other regarding aspect of Aristotelian virtue is provided in Aristotle's account of friendship, in its complete sense, which serves as a necessary element to lead a good life. Complete friendship is between people who are good and are alike in virtue and requires one to want what is good for one's friends, for his or her sake, rather than for one's own benefit (*NE* 1156b 1-1157a). The elements of wisdom, decency, and living together make up Aristotle's model of complete friendship and when applied to the *Harry Potter* series one finds evidence to suggest that Harry, Ron and Hermione are virtuous and complete friends in the Aristotelian sense.

Wisdom in the *Harry Potter* Series

Aristotle argues that wisdom is a necessary component of complete friendship. Necessary to this account is practical judgment which Aristotle understands to consist of "a truth-disclosing active condition involving reason that governs action, concerned with what is good and bad for a human being" (*NE* 1140b 1-10). Practical judgment is an intellectual virtue "directed at the ultimate particular, or which there is no knowledge but only perception" (*NE* 1142a 20-30). Because it is only aimed at particulars, practical judgement is "unable to take a comprehensive view of the whole" only providing "quick fixes at best" (Ruderman 1997, 415). Only wisdom can provide a comprehensive account of the good, which is why practical judgment needs wisdom. In terms of *Harry Potter*, the friends have to inform their actions, which are a result of prudent calculation, with an understanding of the good. What is good in the case of *Harry Potter* relates directly to the triumph over good and evil, a theme central to the series. Throughout the series the friends make the right decision and it is their friendship that facilitates the making of these decisions.

Since making good decisions is vital to Aristotle's understanding of wisdom, it is clear that the choices one makes, make us who we are. This understanding of choice is also stressed by Rowling. Professor Dumbledore, who is a constant voice of wisdom throughout the series, reminds Harry on more than one occasion that "it matters not what someone is born, but what they grown up to be" (GF 708).² Dumbledore tells Harry "it is our choices...that show what we truly are" (CS 333). Harry embodies this wisdom when he is forced to make two very important decisions that have a significant impact on the person he becomes. The first decision Harry makes has to do with the type of people he associates with. On the Hogwarts train Draco Malfoy seeks out Harry to tell him "you'll find out some wizarding families are much better than others, Potter. You don't want to go making friends with the wrong sort" suggesting that Harry leave Ron and associate with Draco and

his friends (SS 108). Aristotle claims that the greater good is the highest good because "it is the city...which embodies the perfect good for humans" not just the good of individuals (Stern-Gillet 1995, 167). Accordingly, we must choose our friends based on those who aim at the highest good, or the greater good of the community (*NE* 1098a 10-20, 1157b 10-40). Harry knows that Malfoy's entire family had been in Slytherin, looks down on Ron's family, and favors old wizarding families (SS 78, 108). Confronted with this, Harry makes the wise decision that Malfoy is not concerned with the greater good, therefore; not the sort of person Harry should be friends with. The next big decision Harry makes is during his sorting. When the hat is put on Harry's head it suggests that Harry would be great in Slytherin (SS 121). At this point Harry knows three things about Slytherin: 1) Lord Voldemort was in it, 2) Malfoy was in it, and 3) it tended to produce dark wizards. This knowledge is enough for Harry to think "not Slytherin" while the Sorting Hat was on his head (SS 121). Asking the Hat not to put him in Slytherin is a decision that alters Harry's life. If Harry remained silent he may have been placed in Slytherin and not Gryffindor. The importance of this decision is reiterated in the *Chamber of Secrets*, when Dumbledore reminds Harry that his decision not to be selected into Slytherin makes him different from those (Malfoy and Voldemort) that belong there (CS 333). Although Harry makes these decisions on his own, he makes them based on an evaluation of personal character. Harry sees that Ron's character is superior to Malfoy's which shows that even from the beginning; Harry's wisdom is influenced by his friends.

While looking at *The Harry Potter* series through the lens of wisdom, it is impossible not to pay attention to one character in particular: Hermione Granger. Although Hermione is best in her year at Hogwarts, her genius is not limited to the classroom. The significance of her wisdom is revealed through Hermione's tendency to do what is best for her friends, showing that what is right is not always what is easy. She does what is best for her friends even when they do not realize it. From attempting to control their temper to telling teachers when they are in danger, Hermione risks her friendships on numerous occasions. Hermione exercises some control over her friends by reminding them that what they do and say has implications outside of Hogwarts. For instance, Hermione stops Ron from saying something in front of the Minister of Magic that could affect Mr. Weasley's job (PA 320). She also has her own way of reminding her friends when they are wrong. When Harry and Ron fly Mr. Weasley's car to school in the *Chamber of Secrets*, Hermione is angry at them because they never seem to consider the consequences of their actions (CS 84-85). Only after having learned this lesson is she friendly toward them again (CS 89). Throughout the *Prisoner of Azkaban*, Hermione stresses to Harry how important it is for him to remain safe. Hermione

tells Professor McGonagall that Harry received an anonymous broom for Christmas, which leads McGonagall to confiscate the broom for inspection (PA 231-232). If Hermione had done nothing about the broom, there was a chance that Harry could have been hurt. She also threatens to tell McGonagall if Harry sneaks off to Hogsmeade (PA 275). She does these things even though she knows that there is a good chance Ron and Harry will not talk to her afterwards. Both of these instances show that Hermione sacrifices her happiness to ensure Harry's safety.

For Aristotle it is not simply being wise that is important, but recognizing those situations that make us wise. Harry is constantly learning from his friends, and is wiser because of these interactions. There are many times throughout the series where Harry realizes that Hermione was right and he should have listened to her. Perhaps that greatest example of this is after his vision of Sirius being tortured by Lord Voldemort (OP 728-731). When Harry tells Hermione about his vision, she attempts to explain how unlikely the situation is and what actually could be happening. She seems to be the only one who realizes what Harry's Occlumency lessons were for, saying that Voldemort may have wanted Harry to see that vision in order to lead him into a trap (OP 734-735). Hermione tells Harry that Voldemort knows he has a "saving-people-thing," which would be enough to get Harry to come to Sirius' rescue (OP 733). She rationally thinks things through, telling Harry that he must check and see if Sirius is at home, and if he was gone then she would do what is right and help Harry (OP 735). Although they do check, they are unfortunately lied to, which leads to the events at the Ministry of Magic. Soon after they are there, Harry realizes that Hermione was right the entire time. Sirius was not at the Ministry and Harry realizes that he could have led his friends to their death (OP 782). Voldemort set Harry up and perhaps if Harry had practiced Occlumency more, as Hermione suggested, he would not have put himself and his friends in danger. This is an important example of a situation that makes Harry wiser. He realizes that he must pay more attention to his friends and the next time Hermione gives him advice he may want to listen. It is also important because Harry realizes that he does have a hero complex which will help him in future situations (OP 821). This is important from an Aristotelian perspective because knowledge of self is an important aspect of both wisdom and complete friendship (NE 1168a 30, 1168b 20).

Decency in the *Harry Potter* Series

Decency makes a shared life possible. According to Aristotle, a decent person "acts on account of what is beautiful...for the sake of a friend, while he disregards his own interest" (NE 1168a 30). Everything the decent person does is done for the good of his friends or for the greater good (NE 1169a 20-

30). This means that the decent person is willing to die for the greater good and take less to insure justice (NE 1169a 20-30, 1138a). The decent person guarantees justice, which is a complete virtue, by "putting it to use in relation to someone else" (NE 1129a 30). Since one can only be complete friends with someone who is good, friends will be more concerned with the good of their friends than with their own. Thus, one should expect to find instances of sacrifice with an eye to the greater good throughout the *Harry Potter* series.

Harry, Ron and Hermione are constantly making sacrifices that take into consideration what is good for their friends. Their decency is seen in what they give up for their friends. In the *Goblet of Fire*, before the third task of the Tri-Wizard Tournament, Ron and Hermione sacrifice themselves and their studies to help Harry. Ron allows Harry to practice stunning charms on him so he could be properly prepared for the task (GF 574). Both Ron and Hermione put all their efforts into making sure Harry would survive the tasks rather than studying for their exams (GF 607). Sometimes they even sacrifice their beliefs for their friends. When Harry believes Sirius is being tortured in the Ministry of Magic, Hermione tries to convince him it is impossible (OP 731-733). She convinces Harry to at least check to make sure Sirius has left his house before he goes running off to London to save him (OP 735). She says that "if we find out he's not there then I swear I won't try and stop you, I'll come, I'll d-do whatever it takes to try and save him" (OP 735). She offers to accompany him into Umbridge's office so he can check to see if Sirius is home so Harry will not have to do it alone. Although she does not think it is a wise decision, she realizes how important it is to Harry. Harry recognizes "Hermione's offer to accompany him into Umbridge's office as a sign of solidarity and loyalty" (OP 737). Harry knows she did not think it was a good idea but still realizes how important it was to him and did what he needed her to do.

While most of their sacrifices involve situations where there are no serious consequences, some involve life-threatening situations. When the friends are confronted with evil, it is clear that they would not have survived any of the events without each making personal sacrifices. In the *Prisoner of Azkaban*, Ron tells Sirius that he is going to have to kill Hermione and himself if he wants to kill Harry (PA 339). Also, in the same scene, Hermione and Ron both physically attack Sirius when he has his hands around Harry's throat (PA 341). In the *Order of the Phoenix*, this willingness to sacrifice is present when the friends encounter Death Eaters at the Department of Mysteries. Each friend uses the spells they know to attempt to fight off the Death Eaters, protecting their friends as well as themselves. After Harry realizes he led his friends into danger, "he just wanted to get them all out of this alive, make sure that

none of his friends paid a terrible price for his stupidity” (OP 783). Harry is willing to sacrifice his life for his friends and asks the Death Eaters to let his friends go (OP 799). Each of these examples shows that the friends are willing to risk their lives for one another.

Harry, Ron and Hermione are not just concerned with the good of their friends. Unlike most children their age, they have an understanding of the greater good. Even very early in the series, Harry asks Professor McGonagall not to take points from Gryffindor because of Ron and his bad decision to fly the car to school (CS 82). Harry is willing to take detention rather than damage his house’s chance to win the House Cup. But their concern for the greater good is most evident in their struggle for good over evil. In the *Sorcerer’s Stone*, Harry, Ron and Hermione believe that Professor Snape is going to capture the Sorcerer’s Stone and give it to Lord Voldemort to ensure his return. Believing Snape has gone after the stone, they follow him to ensure that he does not recover it (SS 270-271). They understand that if Voldemort gets possession of the Stone he will return to power. They risk their lives to ensure that Lord Voldemort’s return is delayed. They fight Voldemort again in the *Order of the Phoenix*, hoping to again diminish his chances of spreading evil (see OP 764-806). They attempt to keep the prophecy away from him, which Voldemort believes will provide the key to killing Harry and expand his powers greater than they were before. The prophecy is destroyed which prevents Voldemort’s chances of hearing it. They also support the truth of Sirius’ innocence. This is beneficial to the greater good because once Dumbledore understands that he is innocent, others will follow. Sirius’ innocence proves to be beneficial in the fight against evil because; his innocence proves Peter Pettigrew’s guilt, leads to more insight to who is at Lord Voldemort’s side, and Sirius is able to provide a headquarters for the Order of the Phoenix. Their sacrifice for the greater good is most evident in the *Order of the Phoenix*, when Harry’s story of the night Voldemort returns is contradicted by the Ministry of Magic (OP 93-95). Harry, Ron, and Hermione stick by the truth even when almost all of the Gryffindor House and Hogwarts believe that Harry is lying. The Ministry is in denial and decides that the practical teaching of defense against the dark arts were no longer necessary (OP 239-246). Hermione, who understands this to be a danger, asks Harry to teach defense against the dark arts to anyone who wants to learn (OP 326-327). Harry, Ron and Hermione organize a group called Dumbledore’s Army in which Harry teaches his fellow students how to defend themselves (see OP 337-346, 390-396). Harry uses the spells and techniques that he has employed during his encounters with the dark arts to make sure others are prepared to fight. Harry, Ron and Hermione understand that if more people know the truth about Lord Voldemort and how to fight

him, they would have a better chance at defeating him. They show over and over again that they do what is decent in the struggle of good versus evil.

Living Together in the *Harry Potter* Series

Just as in the case of virtue, complete friendship cannot exist without the active condition. Living together is the active condition of friendship. According to Aristotle, living together consists of sharing in conversation, thinking, and learning from one another (*NE* 1170b 10-10). By living together one is able to share his or her virtue with one’s friend. As a result of living together, friendship “grows along with their association, and they seem to become even better people by putting the friendship to work and by straightening one another out, for they have their rough edges knocked off by the things they like in one another” (*NE* 1172a 10-20). Living together brings the other elements of complete friendship together. Those who live together make each other wiser and more decent through constant interaction.

Once Harry, Ron, and Hermione become friends in *The Sorcerer’s Stone*, each change for the better and this continues throughout the series. Hermione becomes more relaxed about breaking rules, especially when it comes to breaking the rules for the common good (SS 181). Hermione, the voice of wisdom in the relationship, is constantly teaching them not to be reckless in their decisions and act rationally.³ Aristotle’s model for living together requires that the friendship grow along with their association. This is most evident when Harry confides in Ron and Hermione. By confiding in them Harry receives advice on how to deal with situations better than he would on his own. Because of Harry’s past with Lord Voldemort most of what he confides in them is very serious. Harry tells Ron and Hermione about hearing voices, when his scar hurts, dreams he has about Lord Voldemort, and feeling what Voldemort is feeling at the very moment (see CS 121; GF 19; and OP 539-540, 381-382). There are also times when he is not with them but still thinks of the advice they would give him if he was able to confide in them (GF 21-22). Telling his friends about these instances shows that he values their opinions over that of others.

Because Harry, Ron and Hermione spend all their time together it becomes difficult to differentiate who has done what. In the *Order of the Phoenix* where Harry recounts the situations where he and his friends have made sacrifices in the fight of good versus evil and he find it hard to differentiate between what he has contributed to this situations and what they have contributed (OP 166-167). Harry acknowledges they were with him most of the time, and although they are not together all the time, they help him get to where he needs to be in order to fight alone. Since they have this type of relationship they are

able to understand each other when no one else can. A perfect example of this is what happens after Cedric Diggory dies during the third event of the Tri-Wizard Tournament.⁴ Harry only wants to be around Ron and Hermione after witnessing Cedric's death because "he felt as though all three of them had reached an understanding they did not need to put into words" (GF 717). Ron and Hermione know Harry did not want to talk about what happened and around them he does not feel obligated to. Reaching an understanding like this shows the strength of their friendship. Only complete friends understand that it is not just the time they spend together but what they do during that time.

The best example of living together can be found in *Order of the Phoenix*, when Harry, Ron and Hermione create Dumbledore's Army. Dumbledore's Army is created so Harry could teach anyone who wanted to learn how to defend themselves against dark wizards (OP 339-340). The creation of this group shows courage because they break school and ministry rules (OP 351-352). But Harry, Ron, and Hermione see how important Dumbledore's Army is for the greater good, realizing "it's about making sure we really can defend ourselves" against Voldemort and his followers (OP 325). Each of the trio contributes to the group in their own way. Hermione is the one who thinks of the idea in the first place (OP 326-327). Ron defends the idea and attempts to convince Harry to see the good in it (OP 325-328, 330-332). Harry is the one who teaches his fellow students from the experiences he has with defensive spells (OP 339-344). They work together in pursuit of the greater good with the hope that more people will learn how to defend themselves and the wizard world will soon realize that Harry has been telling the truth about Voldemort's return.

While it is clear that the friends satisfy Aristotle's model of living together, the *Order of the Phoenix* shows Harry trying to break free of the relationship. In the series the *Order of the Phoenix* comes after Harry witnesses Lord Voldemort's return. At the beginning of the book Harry is back at his Aunt and Uncle's house waiting to hear about anything that is going on in the wizarding world and especially anything related to Lord Voldemort. Ron and Hermione are together and yet neither of them are telling Harry anything (OP 10). When Harry is finally brought to the headquarters for the Order of the Phoenix he is furious with his friends.⁵ Although he learns that they were not allowed to tell him anything, he was still angry (OP 62). He believes they should have tried harder because he deserves information more than anyone since he is the one who saw Voldemort return (OP 62-68). Harry's anger carries over to Hogwarts where he learns that the majority of the school thinks he is lying about Lord Voldemort's return, even some of his friends (OP 219). Despite feeling isolated and alone, the

friendship never breaks even when Harry lashes out at his two best friends (see OP 222-223, 235).

Consequently, Harry does things in the *Order of the Phoenix* that he has never done before: He fails to confide in his friends. When Harry first starts having the strange dream about the corridors he tells Ron and Hermione but as the dreams become more in-depth he stops (OP 462-465, 539-540). Despite Hermione's many attempts to make Harry practice Occlumency, he does not listen and continues to have the dreams (see OP 554-555, 651). Harry lies to Ron and Hermione about still having the dreams, saying the dreams have stopped because he was practicing (OP 681-682). Harry also fails to confide in his friends is when Harry does not tell Ron and Hermione about the two-way mirror Sirius gave him (OP 523). Given Hermione's character and nature, it is reasonable to believe that if he had told them about it Hermione would have remembered it when they needed to talk to Sirius to see if he was being tortured by Lord Voldemort or safe at home (see 731-739). Both of these instances contribute to the death of Sirius. If Harry practiced Occlumency instead of lying about it, then he may never have had the dream that led him into Voldemort's trap. If Harry told his friends about the mirror they would have known that Sirius was safe at home. The *Order of the Phoenix* is a crucial test to their friendship. Harry realizes at the end of the book that he was wrong and should have listened to Hermione (OP 821, 829). Throughout the book there are many cases where their friendship could have ended but every time Harry pulls away his friends bring him right back in. Ron and Hermione recognize that he is going through a tough time and deal with his attitude knowing that he needs them more than he knows.

Conclusion

In contrast to the stoic moral teaching Kern (2001, 2003) finds in the *Harry Potter* series, the analysis presented here finds evidence of an Aristotelian account of virtue in J.K. Rowling's works. Like Aristotle, Rowling recognizes the centrality of friendship to moral development. In short, the friends we have go a long way to making us the person we are to become. Rowling teaches her reader that doing the right thing is not always easy, but that we can do the right thing with the help of our friends. She also reinforces Aristotle's conclusion that the only friendships worthy of this title are those grounded on virtue. Moreover, Rowling shows us that we are not isolated individuals, but members of a community really committed to good or just principles. Rowling drives these moral lessons home when Dumbledore reminds the students of Hogwarts that "we are only strong as we are united, as weak as we are divided. Lord Voldemort's gift for spreading discord and enmity is very great. We can fight it only by showing an equally strong bond of friendship and trust" (GF 723).

Endnotes

¹ I will use *NE* as an abbreviation when referencing Aristotle's *Nicomachean Ethics* and use the standard Bekker numbers.

² I use the following abbreviations when referencing the *Harry Potter* series: a) *Harry Potter and the Sorcerer's Stone*: SS; b) *Harry Potter and the Chamber of Secrets*: CS; c) *Harry Potter and the Prisoner of Azkaban*: PA; d) *Harry Potter and the Goblet of Fire*: GF; and e) *Harry Potter and the Order of the Phoenix*: OP. For the sake of time I only look at books 1-5 of the *Harry Potter* series.

³ There are many examples throughout the series where Hermione is the voice of reason for Harry. For examples see: CS 84; PA 231-232; GF 316-317 and 393; and OP 22-223, 245, 651 and 734.

⁴ GF 634-669

⁵ The Order of the Phoenix is an organization started by Dumbledore to fight against Lord Voldemort. Their Headquarters is Number Twelve Grimmauld Place, Sirius Black's house.

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Life History Parameters of the Humpback Whale (*Megaptera novaengliae*) in the Waters of the Gulf of Maine for the 2007 Feeding Season

MEGHAN WERT

Meg is a senior Environmental Biology major with minors in Chemistry and Earth Science. She was awarded a 2007 ATP Spring Semester grant and a 2007 ATP Summer grant to complete her research work with humpback whales under the supervision of Dr. John Jahoda and Carol "Krill" Carson. She has also been given the opportunity to be a guest student at Woodshole Oceanographic Institute working with Dr. Saccocia from BSC and Dr. Seewald from WHOI. This work ended with a 5 week research cruise to the Mid-Atlantic to study the chemistry of hydrothermal vent fluid.

The humpback whale (*Megaptera novaengliae*) is an endangered species of baleen whale that feeds in the waters of the Gulf of Maine during the spring, summer and fall. The worldwide population of humpback whales ranges from 60,000 to 80,000 individuals¹ and the population within the Gulf of Maine is estimated between 9,000 to 11,000². Humpback whales are a large baleen whale that reaches an average length of 40 to 50 feet and a weight of 35 to 40 tons. Although protected worldwide since the International Whaling Commission in 1964, this population has increased slowly and is still considered a fraction of the pre-whaling population estimates³. There are numerous factors that are responsible for this slow recovery and many related to life history parameters for this species. Humpbacks reach sexual maturity at age 4 or 5. Reproductively mature females produce a single calf every 2 or 3 years and invest a large amount of time and energy with their calves offshore. And the gestation period for this species is close to a year⁴.

Humpback whales can be individually identified using photo-identification techniques that involve the comparison of natural body features and pigmentation patterns among individuals. Features used for photo-identification of humpback whales include the dorsal fin, the fin on the back of the whale, and the ventral surface of the fluke, which is the tail of the whale. Individual humpbacks have a unique size and shape to their dorsal fin and may also have scars or marks on the fin that are unique to that individual. Photo-identification techniques also focus on the ventral or bottom surface of the tail, called the fluke. This surface has a black and white pigmentation pattern that varies from one humpback to another. Some individuals have a ventral fluke pattern that is predominantly white, while others have a pattern that is predominantly black. However, most individuals have a pattern that is in between these two extremes. The white and black lines in this pattern as well as blotches and other marks can be used as a sort of "fingerprint" that allows for comparison among individual humpback whales.

Photographs of the dorsal fin and the ventral fluke allow the creation of catalogs of known individuals that can be used for long-term studies of this species. The photo-identification technique for the humpback whale is one of the simplest when compared to other species of large baleen whale. This combined with the fact that humpback whales are a coastal species has meant

that this species has been the focus of the baleen research in both the Atlantic Ocean and the Pacific Ocean for the past 30 years⁵.

The overall research focus is to investigate life history parameters of the humpback whale (*Megaptera novaengliae*) that feeds in the Gulf of Maine from March until November. In the lab, work has been done to further develop, refine and maintain Bridgewater State College's humpback whale photo-ID digital catalog that is housed in the Watershed Access Lab (WAL). By learning these photo-identification techniques, one is able to identify individual humpback whales. Then the identified whales are used to update life history parameters and demographics. The fieldwork that was conducted over the summer was done on commercial whale watching vessels as a research assistant.

The significance of this research will not only help the scientists in the immediate area, but throughout the Gulf of Maine. This sighting and demographic information will be shared with other organizations so a more complete picture of the humpback whale population can be formed. Since the humpback whale is listed as an endangered species worldwide, careful watch of the population will have to occur. It is important to know if the population is increasing or decreasing and what measures need to be taken. The information gathered through this research hopefully will be able to help those who have been working in the marine sciences and their own conservation efforts. The hope is to educate others about how what one does has an impact on the environment and many species, including the humpback whale.

Methodology

This research involved extensive work from May until the beginning of September. Data was gathered over the summer of 2007 to determine specific life history demographics. This included which whales have calves within the year in order to update the database to provide a long-term understanding of reproductive frequency and variation among females within the population. This project will also include an analysis of the demographics of feeding behavior to determine which part of the humpback whale population utilized Massachusetts Bay including the waters of the Stellwagen Bank National Marine Sanctuary in the 2007 feeding season. This will allow a determination of the percentage of the population that is male, what percentage is female, what percentage are mother/calf pairs, and related life history traits.

Fieldwork involved working as a research assistant aboard Captain John vessels operating in Cape Cod Bay and Massachusetts Bay from April through October. This involved working for at least

five four hour-long trips per week. Photographic-identification techniques were used to collect data from the boats. This data was analyzed using the computer facilities available in the Watershed Access Lab in the Moakley Center. Each time a humpback whale was sighted, its position and behavior was recorded on standardized data sheets. Photographic data was recorded using digital SLR cameras with 300 mm lenses to collect images of the animal that was then used for photo-ID analysis back in the lab.

Laboratory activities have involved the analysis of sighting data and photographic images collected offshore. At least one day a week was spent in the WAL lab to begin preliminary analysis, which included the inputting of data into Microsoft Excel and FileMaker Pro for further analysis.

Results

The goal of this research is to develop an extensive database on the humpback whale Gulf of Maine population. Extended databases are extremely important when studying long-lived species like whales. This research is now beginning to answer some of the questions that only a long-term study can answer. These results will become part of the BSC database and will be compared with results from earlier years to understand the long-term demographics and behavior of this population. This research is important because it is a continuation of this long-term study and will provide the data needed to understand what happens during the summer of 2007. This information will be placed in the context of both past and future research on this population to provide an important and indispensable link in this long-term demographic study. Analysis using various statistical techniques was used to tease out certain information. When looking at the sex ratio it was found that more females were recorded than males. There were a total of 80 females and 44 males, which made the population seem skewed towards females, with a chi square test supporting the hypothesis that the population is significantly female biased (Fig 1).

	Males	Females
Observed	44	80
Expected	64	64
	5.22	5.22
Degree of Freedom	1	
$\chi^2 =$	10.45	
P	0.00122542	
Chi Square Stats	10.83	

Fig.1 Chi square results of sex ratios in Stellwagen Bank in 2007, showing significant female bias.

Next, ratios between mothers and the rest of the population in Stellwagen Bank were run. Statistical analysis of the number of mothers compared to the rest of the population showed the number of mothers out of the total population was 14.7% in 2007, 9.5% in 2006, 12.6% in 2005, and 10.6% in 2004. Chi square tests determined the increase in births from 2004-2007 was just below significant, another year or two in either direction could help more accurately determine the significance (Fig 2).

Percent of Mothers by Year

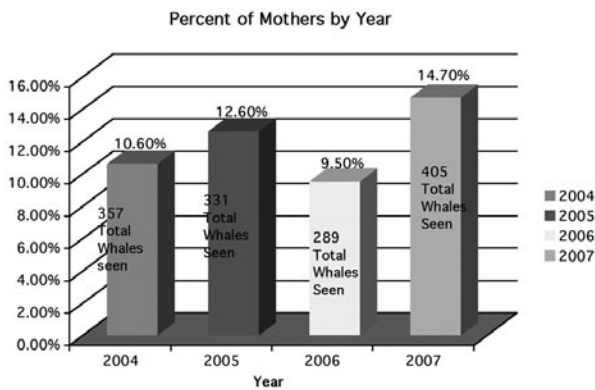


Fig. 2. Calving intervals from 2004-2007. Chi square tests show that the increase in calves is just below significant.

Life Histories tracking of the parents and offspring allows for determination of breeding frequency. Also for individuals with known birth years, we can determine the age of female sexual maturity. Three whales that were seen most during the summer were compared to result in an average breeding frequency of 2.45 years. Births were seen as close as 1 year and as far apart as 7 years (Fig. 3). More commonly whales initially gave birth every three years, then slowed down to five or six years, and then rising again to only two years between births.

Conclusion

In conclusion, so far this study has provided an increased understanding of a number of important factors including the need to continue studies like these to get a bigger picture. Conclusive factors were that an average breeding frequency was 2.5 years (Fig. 3). The possible changes in birthing frequency could be due to full maturation of the female's body. When a whale reproduces they may not have reached full size, which means their bodies are unable to recuperate as quickly after pregnancy. When they reach full maturity, it is possible that their bodies are at their prime and thus able to reproduce which contributes to a shorter interval between births. More research is needed before this could be considered conclusive.

Salt

Year first sighted: 1976
 Year of birth: unknown
 Mother: unknown
 Last seen: 2008

Salt's Calves:

- 1980 Crystal (male)
- 1983 Halos (male)
- 1985 Thalassa (female)
 - 1992 Skeeter
 - 1998 Etch-a-sketch
 - 2001 Shishkabob
 - 2003 Yosemite
 - 2005 unnamed
- 1987 Brine (male)
- 1989 Bittern (male)
- 1991 Salsa (female)
- 1998 Tabasco
- 2000 Mastaza
- 2003 Wasabi
- 2006 Soya
- 2008 unnamed

Fig. 3. An example of an extensive life history record for the humpback whale named Salt. She was first observed as an adult in 1976 and has been seen every year since, including this 2008 season.

The result from looking at sex ratios unfortunately is inconclusive due to several factors. The first problem is that whales are not easily sexed. Females are easier to sex than males because of the strong bond between mother and calf. Once a whale is seen with a calf it will be recorded as female, and if after ten or more years a whale does not have a calf, it is generally sexed as a male. This method isn't entirely accurate since some females may never successfully give birth. The best way to sex a whale is to capture a photograph of their genitalia, and a trained eye will be able to tell whether the whale is male or female. Unfortunately, these shots are difficult to obtain. The second reason the result seen is not entirely accurate is because there were over a 100 individuals whose sexes were unknown. Half of the individuals could not be identified from photographs. In addition, the sex could not be determined for 50 of the identified whales. Thus, the sex ratio of Stellwagen bank will need to be studied more extensively in order to reach conclusive results.

From quickly comparing the increase in the amount of mothers from 2006 to 2007 it seemed like a significant amount. Unfortunately, when chi square was run on the amount of mothers compared to the amount of the rest of the humpback whale population in 2007 the result is to be considered just below significant. Another couple of years in either direction from the years used would most likely allow for a more sound conclusion and a determination of significance. Thus, more research is needed.

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³ National Marine Fisheries Service. "Humpback whale (*Megaptera novaeangliae*): Gulf of Maine stock" 12 Sept. 2007 <<http://www.nmfs.noaa.gov/pr/pdfs/sars/ao2006-whhb-gme.pdf>>

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Effects of Land Cover Variability on Evapotranspiration in the Llanganuco Valley

AIMEE HIGGINS

Aimee Higgins is a senior Geography and Earth Science double major. This research project was funded by the Adrian Tinsley Program and she worked under the mentorship of Dr. Robert Hellström. She has presented this research at the ATP Undergraduate Research Symposium, the New England-St. Lawrence Valley (NESTVAL) Geographical Society meeting and the New England Undergraduate Environmental Research Symposium.

A process-based understanding of the effect land cover has on evapotranspiration (ET) in alpine valleys is lacking. It is conventionally assumed that ET is a negligible part of the water cycle in the Peruvian Andes, a critical source of water for the local inhabitants, due to lack of precipitation during the 6-month dry season and high humidity during the 6-month wet season. However, recent research findings from an embedded sensor network indicate that ET is in fact an important part of the Andean water cycle in Peru. Water resources within Peru are affected by the glaciers within the Cordillera Blanca, where the Llanganuco Valley is located, which will severely impact people away from the valley. This project incorporated GIS, remote sensing, meteorological data and ET modeling to further show that ET is affected by the valley's terrain and land cover and it varies according to seasonal and daily time scales.

1. Introduction

The correlation between land cover and evapotranspiration (ET), the sum of evaporation and transpiration from soil and vegetation, in the Andes Mountains is currently unknown. Previous research noted by Konzelmann *et al.* (1997) indicates that ET is a significant contributor to the hydrological cycle in mid-latitude regions. They found that the type of vegetation and surface terrain strongly control the rate of ET. Elevation also controls ET. Previous research by Vuille *et al.* (2003) demonstrated that ET is negligible in tropical regions. However, research by Hellström and Mark (2006) indicate that ET is an important part of the hydrological cycle in the Andes Mountains. Hellström and Mark (2006) used a processes-based hydrological model to estimate daily cycles of ET and other hydrological variables during a dry and wet season within the Llanganuco Valley, a tropical alpine valley located in northern Peru.

The Llanganuco Valley is located in the Cordillera Blanca, indicated in Fig. 1. Within the valley, there are ten meteorological data sensors recording the variables temperature, relative humidity, dew point temperature, vapor pressure, wind speed, solar radiation, wind direction and precipitation (Fig. 2). The valley has two distinct seasons, the wet season and the dry season. The central wet season months are December through February, while the dry season months are June through August (Fig. 3). It is important to consider the seasonal variation solar path. During the wet season, the sun is to the

dry season, between the months of May and September (Vuille *et. al.*, 2007). This is crucial to this area since this is the time of year that receives minimal amounts of rainfall (Fig. 3), approximately 480 mm of precipitation during these months (Mark & Seltzer, 2003). July is the driest month of the dry season, with 10 mm of precipitation on average (Mark and Seltzer, 2003). During the wet season, “the glaciers effectively buffer the runoff by storing much of the precipitation falling as snow” (Vuille *et. al.*, 2007). Since the glaciers are such a large contributor to water resources in this region, it is important to note that the Intergovernmental Panel on Climate Change (IPCC) indicates that the inter-tropical glaciers of the Andes are very likely to disappear, affecting water availability and hydropower generation (Magrin *et. al.*, 2007). Though, “in the Northern Andes (between 6° S and 11° N), glaciers are less relevant as a source of water” (Buytaert *et. al.*, 2007). The greatest impacts for the glacial melt are for people in southern Peru as well as Bolivia (Buytaert *et. al.*, 2007).

Glacial decline in the Andes Mountains is due to several factors. One is the rise of temperature. However, it is now believed that variables including precipitation, atmospheric humidity and cloud cover are contributing more to glacial melt than previously believed variables like temperature (Vuille *et. al.*, 2008). These variables appear to contribute to the decline of glaciers in Ecuador and Bolivia (Vuille *et. al.*, 2008).

2. Methodology

2.1 Remote Sensing and GIS

This project incorporated remote sensing and geographic information systems. The data used for this project included a 90 meter resolution digital elevation model (DEM), a 30 meter resolution LandSat ETM+ image (<http://landsat.org/>), as well as hourly meteorological data from weather sensors in the valley. The DEM was used to find the slope and aspect of the valley. Slope shows the steepness within the valley while azimuth is the direction an object is facing. Both of these were calculated by terrain analysis using ArcGIS 9.2. The DEM was also used to calculate solar radiation annually within the valley as well as for each of the sensor locations. Solar radiation was calculated using a specialized function in ArcGIS that assumes uniform clear sky conditions (dry season) and standard overcast sky (wet season). Sun path graphs for the HOBO® automatic weather station (AWS) site were created for 26 June, 2005 and 19 December, 2005. These are the mid-points of two periods that meteorological data was recorded, one for the dry season and one for the wet season, which are close to summer and winter solstices.

The LandSat ETM+ image was used for vegetation analysis within the valley. The ArcGIS extension, Image Analysis

created by Leica Geosystems, was used for the vegetation analysis. The Transformed Normalized Difference Vegetation Index (TNDVI) was used. This uses the product of $[(\text{Band } 4 - \text{Band } 3)/(\text{Band } 4 + \text{Band } 3) + .5]^{(1/2)}$ to create a map indicating where vegetation is located. It also indicates the health and type of the vegetation. Band 4 is the near infrared and Band 3 is the visible red wavelength of the electromagnetic spectrum emitted by the surface features. The TNDVI created a raster map which was used for unsupervised classification. The unsupervised classification created a new raster with classes making it possible to transform the raster into a vector which was needed for ET modeling. A final vegetation map was produced for the valley. The classes on the vegetation map are water and ice, exposed rock, lichen (ground cover less than 0.1 m tall), grass cover, shrub cover and tree cover (Fig 4).

2.2 Meteorological Data

Meteorological data was collected from eight different AWS and LASCAR sensors within the valley (Fig. 2). Weather data was logged for a forty-four day period during both the dry season in July-August 2006 and the wet season in January-February 2007. The LASCAR sensors recorded hourly air temperature (°C) and relative humidity (%); dew point temperature (°C) and vapor pressure (kPa) were calculated. The HOBO, centrally located within the valley at 3850 m and Portachuela site, located at the top of the valley (4750 m), recorded hourly values of wind speed (m/s), solar radiation (W/m²), wind direction (°), soil temperature (°C) and soil moisture (m³/m³). In addition, an automatic rain gage, set up by an Austrian research team, recorded 15-minute precipitation (mm), which were totaled to hourly intervals. Many of these variables are needed for the ET model chosen.

2.3 ET modeling

The Ref-ET computer model, created by the University of Idaho (Allen, 2000), was used to model reference ET, ET_o. This program estimates reference ET using fifteen of the more common theoretical equations that are currently applied in the United States and Europe. The calculations require hourly or daily weather data measurements made available by the user (University of Idaho, 2002). This project incorporates the widely accepted FAO-56 algorithm of the Ref-ET model. Hourly values of air temperature, relative humidity, solar radiation, wind speed, and precipitation served as input to the Ref-ET model. Ref-ET's FAO-56 method was applied for dry and wet season data at the HOBO and Portachuela sites. All sites measured temperature and relative humidity. Solar radiation, wind speed and precipitation, were interpolated for the remaining six sites, all located at elevations between the Portachuela and HOBO sites. Actual ET samples for different vegetation types around the HOBO site were taken at noon

Land Cover Map of the Llanganuco Valley

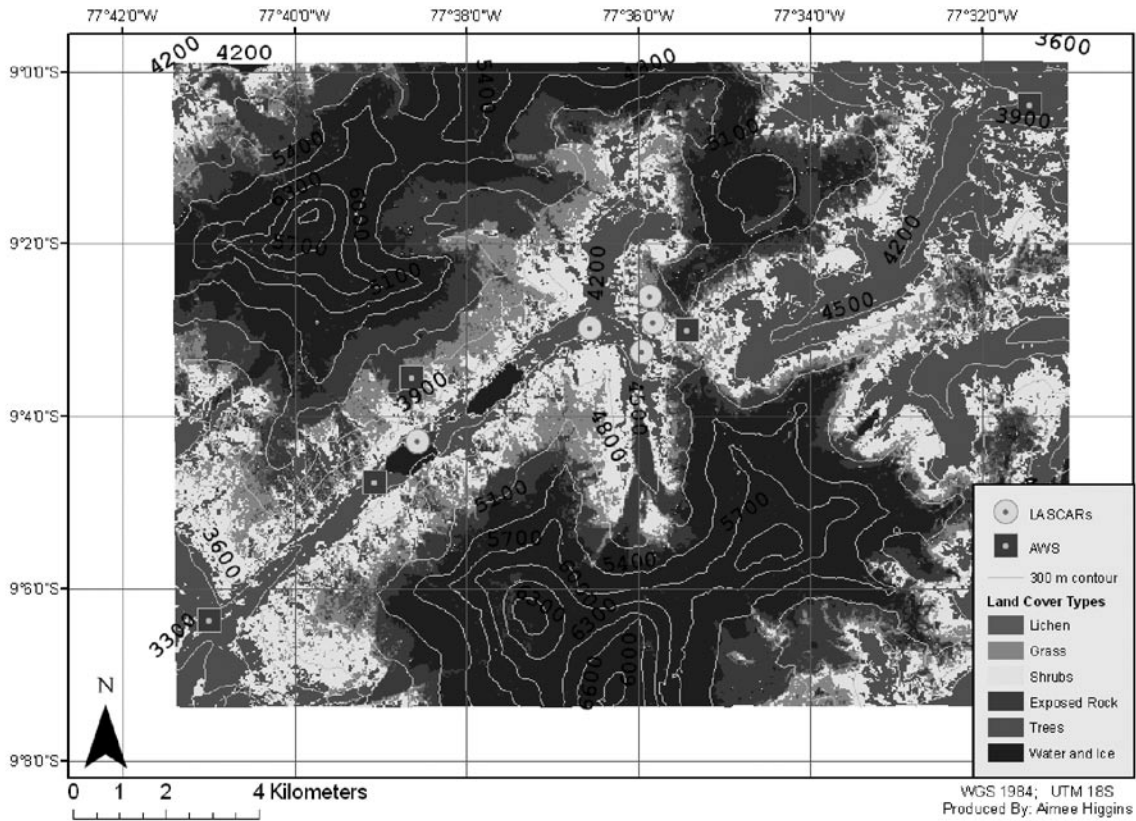


Figure 4. These figures show the various types of land cover within the valley; note the two meltwater lakes between the two glaciated peaks. a) Vegetation is confined to subalpine areas below 5100 m. b) The most abundant land cover type is vegetation which makes up 52% of the valley. Within this group, there are four different types of vegetation – lichen, grass, shrubs and trees. These groups were used to model ET.

time in the dry season using a porometer that measures leaf transpiration directly (Hellström and Mark, 2006). Because of lack of rainfall, soil evaporation is negligible during the dry season, so ET is primarily transpiration. The samples were divided into the four different vegetation types based on height. Lichen was < 0.1 m, grass cover was <0.1 m to 0.5 m, shrubs were between 0.6 m to 2.0 m and trees were over 2.0 m. ET values were averaged within their group and compared against the Ref-ET model result for the HOBO location.

3. Results

3.1 Remote Sensing and GIS

GIS and remote sensing combined to create results for a large part of the project. The 90-m resolution DEM provided slope values, azimuth, and solar radiation modeling, and the LandSat image provided a 30-m resolution image for creating the final land cover map. GIS was used exclusively for extracting the majority of these features. All the sensors are located within low sloped areas in south facing directions. Also, all the sensors are in locations with intense solar radiation. However, the solar

radiation output that ArcGIS creates is just a model estimation based on assumptions of clear or overcast skies depending on the season. Comparisons between observed and ArcGIS-modeled solar radiation suggests large differences during the wet season and good agreement for the dry season (Fig. 5). Hence, the model is unable to accurately determine the effects of cloud cover within the valley during the wet season, and thus overestimates incoming solar radiation. The LandSat image was primarily used to derive different land cover types. The TNDVI analysis (Fig. 4a) suggests that vegetation covers 52% of the area of the valley (Fig. 4b), hence the majority of the valley. Vegetation cover ranges from 4% for lichen to 21% for *Polylepis* trees (Fig. 4b,c).

3.2 Meteorological Data

All variables show their own seasonal patterns and daily (diurnal) patterns. Of the eight sites, the highest, Portachuela, and lowest, HOBO, locations were analyzed. Temperature cycles from coldest at night to warmest around midday at both sites and during both seasons. It is colder at night during

Solar Radiation for HOBOWX site for June and Dec

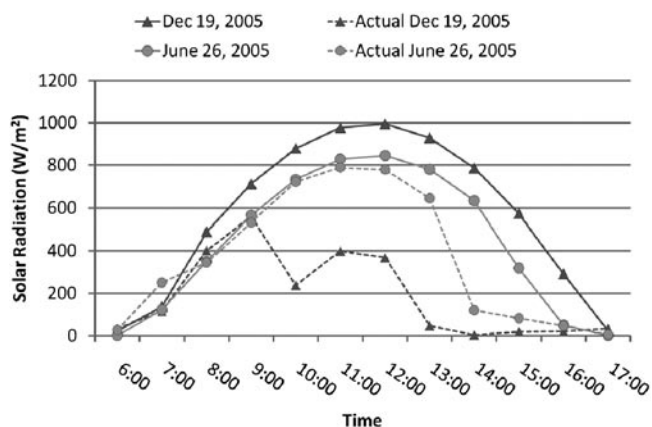


Figure 5. This is the modeled solar radiation versus the actual solar radiation from the HOBO site. The model does best during the dry season, especially in the morning hours. In the afternoon, it appears that there is topography that the model is not picking up due to the 90 meter resolution of the DEM. The model does not do well during the wet season. This is due to the unpredictability of clouds. The model is unable to predict clouds and precipitation on a certain day.

the dry season at both sites and cooler during the day at the HOBO site. At Portachuela the midday temperatures are about the same for both seasons. The Portachuela site, because of its higher elevation, is the coldest of all sites on average. There is a negative correlation between elevation and temperature during both seasons, the slope of which is commonly known as the lapse rate (Fig. 6b). It is colder at sites with higher elevations compared to the lower elevations. Extrapolating to the freezing point of water, 0 C, Fig. 6b suggests that the freezing elevation is 5100 m during the dry and 5350 m during the wet seasons. The higher freezing line during the wet season would promote enhanced glacial melt above that of the dry season.

Relative humidity is highest during the nighttime hours and lowest during the midday hours. Both sites experience their highest relative humidity during the wet season. The Portachuela site has less variance in relative humidity between the two seasons, plausibly due to its higher elevation and exposure to the free atmosphere. The timing of lowest relative humidity during the day differs between the sites. At the HOBO site, the lowest relative humidity was at 13:00 LST, while at the Portachuela site is lowest one hour later at 14:00 LST.

Vapor pressure reaches higher values during the wet season, which tends to reduce evaporation. During both seasons, the HOBO site experiences the higher vapor pressure values compared the Portachuela site. Throughout the valley, the higher elevations experience the lower vapor pressures with a weak correlation to air temperature for both seasons.

Precipitation is heavy during the wet season and nearly absent during the dry season. During the dry season, the Portachuela site experiences the most rainfall as compared to the lower HOBO site. The HOBO site receives little rainfall during the dry season, receiving the least during the midday hours. During the wet season, the HOBO site receives the majority of its precipitation during the early nightfall hours, between 17:00 and 20:00. Another peak of rainfall is seen between 20:00 and 23:00. The Portachuela site receives a large amount of its rainfall during the periods 9:00-12:00 and 21:00-23:00, largely due to topographic enhancement. In general, precipitation occurs in the late afternoon and evening within the central part of the Llanganuco Valley and morning and evening in upper portions.

Wind speed does not vary between the seasons as much as it does throughout the day. The HOBO site has the most variance in wind speed during the day. Wind remains calm during the night and peaks at midday. Wind speeds do not have a similar pattern at Portachuela. Portachuela is the windier of the two locations, largely because of its exposure to the free atmosphere as the highest elevation of all sites along the valley axis.

3.3 ET Modeling

Estimating ET was the primary objective of this project. When comparing all eight sites to each other against elevation, it is noted that ET values are lowest at higher elevations and highest at lower elevations (Fig. 6a). The trend is stronger during the dry season than it is during the wet season. ET also has a diurnal cycle at all eight sites during both seasons. Both seasons experience the most ET during the daylight hours. The time where ET reaches its peak is different for the seasons. During the dry period, ET peaks from 11:00 to 13:00. During the wet period, ET reaches its peak at 10:00 at some sites and at 14:00 at others. The HOBO site was the only site to have real ET measurements taken. These were only taken at noon during the dry period. During the dry season, lichen produces the most ET per unit area while the trees have the least (Fig. 7a). All these values were higher than the Ref-ET model measurement. However, when you compare the volume of ET between the Ref-ET measurement of 0.55 mm/hr and the actual ET results, there is no significant difference (Figs. 7 c&d). Trees are responsible for the most volume of ET and lichen is responsible for the least volume of ET.

4. Discussion

The meteorological variables within the valley show a distinct diurnal cycle between the two seasons and this affects the variability of ET. A strong annual precipitation cycle creates a distinct differentiation between the two seasons – the dry and wet season (Fig 3). Solar radiation is affected by cloud cover

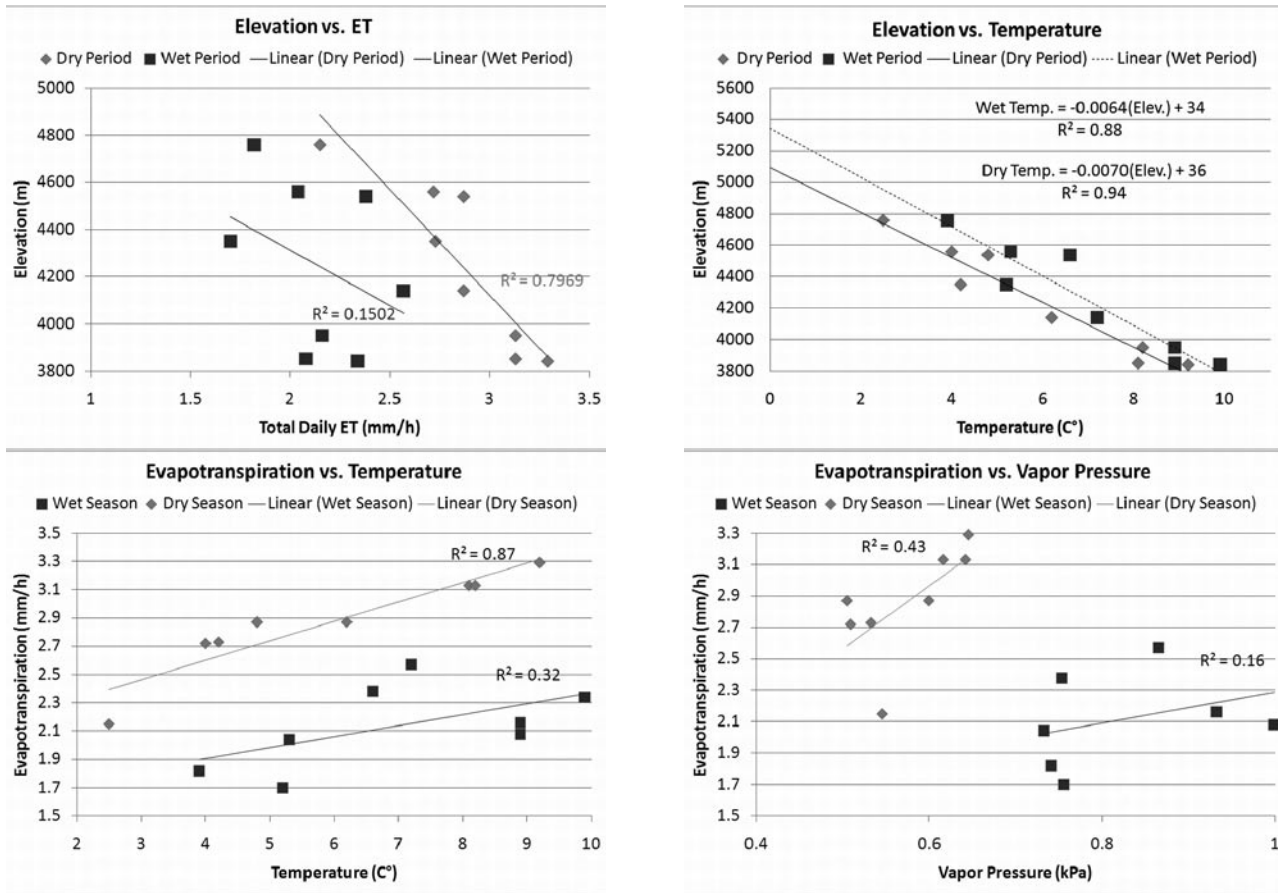


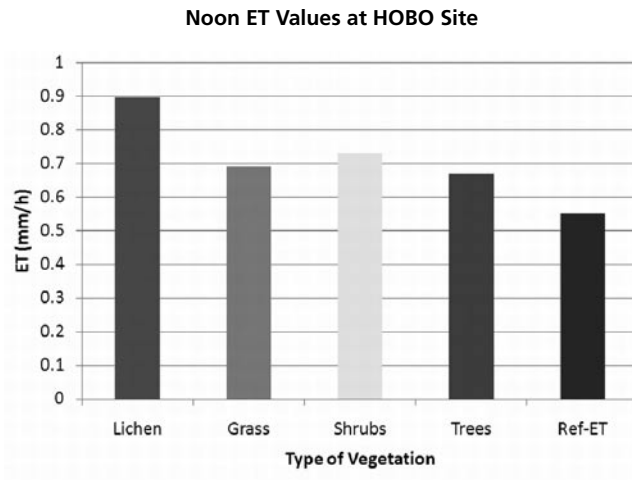
Figure 6. Both seasons experience a negative correlation between elevation and total daily ET. However, the dry season has a stronger correlation between the two, noted by the R^2 value of 0.7969. The wet season has a weak R^2 value of 0.1502. However, the highest ET rates occur at the lowest elevations. ET is higher at all elevations during the dry season. b) This figure demonstrates the positive correlation between ET and temperature. Evapotranspiration increases with temperature. The dry season has a stronger correlation, indicated by the R^2 value of 0.87. c) This figure demonstrates the positive correlation between ET and vapor pressure. Evapotranspiration increases with vapor pressure. The dry season has a stronger correlation indicated by the R^2 value of 0.43 compared to the wet season, with a weak R^2 value of 0.16. d) Temperature decreases with elevation. The slope of the line shows that temperature decreases more rapidly during the dry season.

often accompanied by late afternoon daylight precipitation events during the wet season. One would expect that the solar radiation would be more intense during the valley's summer months of December-February, in agreement with the ArcGIS model (Fig. 5). However, as shown in the results above, the wet season increases the probability of cloud cover, especially in the afternoon. At the HOB0 location, there is a notable drop in solar radiation between 10:00 and 11:00. This is an odd discovery at first, because one would expect solar radiation would be almost reaching its peak around this hour. However, after looking at the precipitation chart, there is a spike in precipitation between the two hours. Between 15:00 and 16:00 at the Portacheula location, there is an increase in rainfall which could explain the rapid deterioration in solar radiation between those hours. The results emphasize the importance of

understanding the factors that affect cloud development in the Andes Mountains.

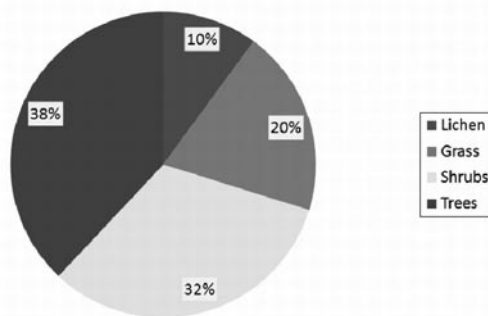
Air temperature has a distinct diurnal cycle. During the wet season, it is warmer by night, likely due to nocturnal cloud cover, which can be related to precipitation. However, each site tells a different story during the daylight hours. Temperature at Portacheula is nearly constant between the hours of 12:00 and 15:00, which corresponds to hours when Portacheula receives a significant amount of its precipitation during both seasons. Between 15:00 and 16:00 during the dry season, the Portacheula site has a decrease in precipitation.

Elevation has a negative correlation on most variables within the valley. Elevation impacts temperature, vapor pressure



Type	ET (mm)	ET (m)	Area (km ²)	Total ET (m ³ /hr)
Lichen	0.896994	0.000897	11	9867
Grass	0.6904926	0.00069	28	19334
Shrubs	0.7320456	0.000732	43	31551
Trees	0.669708	0.00067	56	37236
Total			138	97988
Ref-ET lichen	0.55	0.00055	11	6050
Ref-ET grass	0.55	0.00055	28	15400
Ref-ET shrubs	0.55	0.00055	43	23705
Ref-ET tress	0.55	0.00055	56	30580
Total			138	75735

Volume of ET at 12:00 during the dry period - Observations



Volume of ET at 12:00 during the dry period - Ref-ET

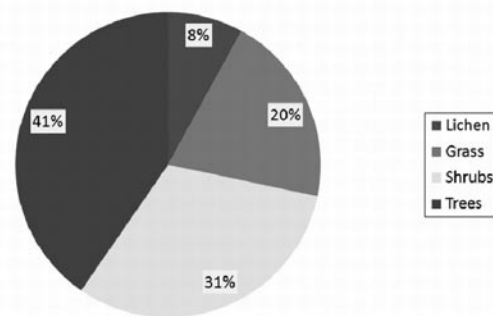


Figure 7. a) This compares actual ET results of vegetation types around the HOBO site to the modeled Ref-ET value from the HOBO site. The recorded values were from 12:00 during the dry season. This shows that the Ref-ET model underestimated ET at this site. However, it does indicate that the Ref-ET model can be used for this valley. These charts compare the observed total volume (97,988 m³ per hour) of ET to the Ref-ET model volume of ET. b) and c) These show that trees produce the largest volume of ET while the lichen produce the least volume of ET. There is very little difference in the percentages between the observed volume of ET produced compared to the Ref-ET model. This also indicates that the Ref-ET model used does a fairly good job at modeling ET within this valley.

and ET (Fig. 6). In all cases, higher elevations cause lower temperatures, lower vapor pressures and lower ET rates. When comparing ET to temperature, locations with greater temperatures have higher ET values (Fig. 6c). The dry season, despite having lower temperatures on average, has higher rates of ET compared to the wet season. Locations with lower vapor pressure have higher ET rates (Fig. 6d). The dry season has the higher ET rates with the lower vapor pressure values. The wet season has the lower ET rates with the higher vapor pressure values. In both comparisons, ET and temperature as well as ET and vapor pressure, have positive correlations that are stronger during the dry season.

There is a unique relation between slope, elevation, land cover type and ET. It appears that sites in the 0°-13° sloped areas have higher amounts of vegetation types which produce more ET

(trees) (Figs. 4, 7 & 8). Locations with higher slopes, like the North Wall site which has a slope ranging from 22°-28°, have higher amounts of vegetation which produce less ET (lichens) (Fig. 4, 7 & 8). The areas with vegetation types that have higher rates of ET are typically in areas with the lower elevations (Figs. 4 & 7). The HOBO site, Lanlomag site, Up1 site and Up2 site have elevations between 3840 m – 4140 m (Fig. 2). These sites predominantly have tree cover as the main type of vegetation (Fig. 4). Lichen cover appears to have a factor of elevation and slope. Portachuela is in a relatively low sloped location, between 0°-13° and predominantly has lichen for its vegetation type (Figs. 2, 4 & 8). It is also the highest site within the valley, at 4760 m (Fig 2). Up4 and the North Wall site both have an elevation of 4540 m (Fig. 2). Up4 is in the 29°-34° slope area and is lichen is the predominant vegetation type (Figs. 4 & 8). The North Wall site has a slope of 22°-28°, and like Up4, lichen

Slope within the Llanganuco Valley

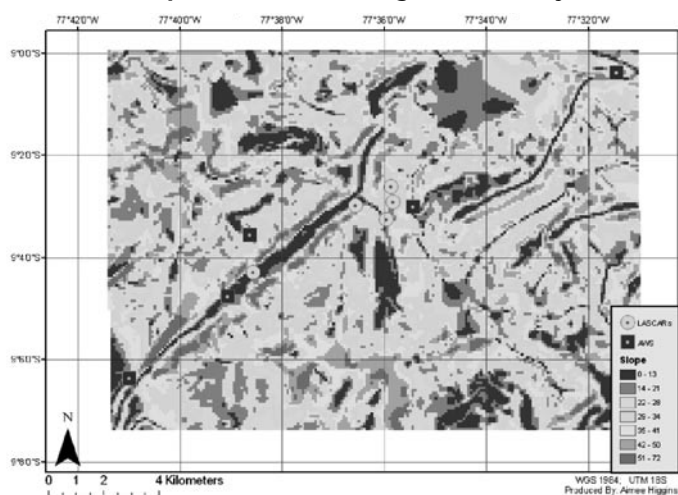


Figure 8. Slope variation of valley as derived from the 90-m DEM using ArcGIS.

is the predominant vegetation type (Figs. 4 & 8). Up2 has a low elevation of 4140 m, and a high slope of 29°-34° and has tree cover as the main vegetation type (Figs. 2, 4 & 8). This shows that elevation has more of an impact on land cover than slope. However, slope does seem to have somewhat of an impact. This research demonstrates what Konzelmann et. al. (1997) found in their research – that vegetation as well as terrain do factor into ET in an alpine region and that these variables should be “considered more carefully for model calculations of the ET in high mountain areas” (Konzelmann et. al., 1997).

ET was modeled using the Penman-Monteith FAO 56 method. During the dry season actual measurements were taken that could be used to compare to the modeled results. All vegetation types that had actual measurements had higher ET rates compared to the model (Fig. 7b). Despite the model underestimating ET in the alpine valley, it is still an indicator that using this method would work in future research. Konzelmann et. al (1997) also found that “The values of actual ET favorably correlate with those computed with Penman’s formulation” (Konzelmann et al., 1997). Garcia et. al. (2004) also found that actual measurements of ET in a Bolivian highland were comparable to modeled results using the Penman method. Garcia et. al. (2004) found that the Penman-Monteith method is “able to account for the effects of the high elevation (high solar radiation but low radiation term) and of the moderate aridity reflected in the vapour pressure deficit, temperature and wind” (Garcia et. al. 2004).

5. Conclusion

This researched aimed at determining how land cover affects ET within the Llanganuco Valley in the Cordillera Blanca. The

results show that ET is affected by the type of vegetation as well as the elevation and slope of the valley. Model measurements were primarily used to determine the rate of ET at eight different sites within the valley. In the dry season, actual measurements of ET were taken at one site (HOBO). The valley itself has distinct diurnal as well as seasonal cycles, shown by meteorological data taken in the valley. These meteorological variables (mean air temperature, average relative humidity, solar radiation, wind speed, and precipitation) factor into the modeled ET rate. It is no surprise there is such a diurnal and seasonal difference of ET due to the fluctuations in meteorological variables.

The research would probably have different results if several things were changed. A 30 meter resolution DEM would have probably been able to give more accurate representations of slope, aspect, and elevation within the valley. This should improve the results, especially in the solar radiation model that ArcGIS generated. Secondly, more ET measurements from the field would have been beneficial for furthering validating the RefET model as well as effects of land cover on ET in the valley. Having ET measurements at all eight sites during the daylight hours in both seasons would help validate Ref-ET’s estimations.

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Solar and Topographical Breeding Habitat Preferences of Two Damselflies *Calopteryx aequabilis* and *Calopteryx maculata*

CHRISTOPHER ST. ANDRE

Chris is a senior majoring in Environmental Biology. His research was made possible through the Adrian Tinsley Program summer grant, and the guidance of his mentor Dr. Darcy Boellstorff. Mr. St. Andre has presented his research at the 2008 Adrian Tinsley Summer Research Symposium, and at the Association of American Geographers 2009 Annual meeting in Las Vegas, Nevada.

As the global climate changes many species are forced to adapt, but if the climate changes beyond their tolerance levels they can face extinction¹. Scientists need to work fast in order to mitigate these extinctions. Using field observations of species' habitats coupled with the use of geographic information systems (GIS), researchers can model the locations of ideal habitats. Using these models, scientists can work to improve conservation efforts by raising the populations of dwindling species or predicting locations to place new subpopulations. Data used in GIS are spatially explicit, so stored within individual data sets and information systems are locational references. GIS data are widely available and can be applied at large spatial scales. In a study on songbirds in southern Ohio, researchers were able to predict habitat areas, as well as the number of individual territories in the area using GIS. The information determined with the aid of GIS was analyzed to accurately measure population size for the habitats².

Habitat modeling using GIS can be applied to species' niches within large environments. Specific niches can be defined by subtle differences that distinguish them from the larger ecosystem. Damselflies occur in three niches throughout their life cycle. During the nymph stage damselflies inhabit riparian zones on emergent and submerged vegetation. After several instars they molt into a flying adult and enter adjacent forests to forage on small flying insects throughout the light gaps in the tree canopy. They will remain in the forests until they obtain sufficient energy reserves to defend territories and breed³.

Male damselflies will either fly around the stream searching opportunistically for a mate or they will stay in one place and defend a territory. In a case study observing damselfly territories researchers observed that males that did not wander were more likely to maintain a territory or recapture their lost territory. They determined that energy reserves aid in the competitive ability of damselflies⁴. Energy reserves are depleted rapidly when territory battles occur in areas of high light intensity due to an increase in metabolic activity. Light intensity may also be important in determining the type and extent of vegetation growth along the banks where females deposit their eggs.

Two closely related damselfly species the River Jewelwing (*Calopteryx aequabilis*) and the Ebony Jewelwing (*Calopteryx maculata*) were observed along the

Hockomock River in West Bridgewater, Massachusetts during the summer of 2008. The aim of this project was to determine variations in habitat selection between both species. Using field observations and spatial modeling techniques predictive models of both damselfly species were created. Because these two species inhabit the same stretches of river but at different times of the year it is assumed there is no difference in their habitat preference.

Methods

During summer 2008 (June 2 – July 20), 434 breeding adult Ebony and River Jewelwing damselflies were recorded during 20 kayaking sessions along a 1 km stretch of the Hockomock River (Figure 1). Because damselflies need to build energy reserves in forested light gaps, all damselflies found along the river were assumed to be mature breeding adults⁵. Observations were collected only on the initial pass through the site, as a strategy

GPS coordinates of all observations were entered into a GIS using ESRI's ArcMap software. Using a digital elevation model (DEM), a data layer with elevation information for a continuous area obtained from MassGIS, the solar radiation of each damselfly location was calculated. Solar radiation was calculated using a script created by N. Zimmerman, which uses day number to determine the date, and outputs solar radiation⁶. Solar radiation GIS layers were created throughout a 5 Km stretch of the Hockomock River for different time intervals: individual days, the two week span of peak activity and throughout the duration of the study. These radiation layers were overlaid with GPS coordinates of the damselflies to obtain the solar radiation range for the damselfly populations.

To determine important habitat criteria in the three predictive models, a two-sample t-test (assuming equal variances) was used to compare mean light intensity of habitats between the two species. Mean values for categories with significant differences were calculated, and ranges for solar radiation and slope were estimated using +/- 3 standard deviation from the mean. Weights were given to the attributes according to how the observed data points coincided with the range. Weights were individually determined for each model created (Table 1). Weighted attributes were input into GIS to generate three predictive models. A GIS data layer of each attribute was created and intersected with a data layer of the Hockomock



Figure 1: Field Site in West Bridgewater, Massachusetts, Hockomock River

used to reduce the chance of counting the same damselfly multiple times on a given day. The variables recorded for each observation included: species, sex, behavior (perching, flying, fighting, copulating, or depositing eggs), GPS coordinates (recorded using a Garmin handheld Etrex GPS), light intensity (recorded using Calright CI-1010 Digital Light Meter: 50,000 Lux). Both light intensity and GPS coordinates were taken from the location where the damselfly was first observed while moving through the site.

Using GIS software three predictive models were created: River Jewelwing, Ebony Jewelwing and both species as one.

Table 1: Weighting for Criteria Used in Creating Habitat Models.

	Both Species	River Jewelwing	Ebony Jewelwing
Slope	.240	.260	.335
July 1 st	.240	.180	.000
Peak Activity Solar Radiation	.260	.275	.345
Summer Solar Radiation	.260	.285	.320

River, downloaded from MassGIS. The river layer was buffered at 15 m to include the adjacent riparian zone. Using a combine feature in GIS the attribute layers and their respective weights were combined to calculate the probability of damselflies occurring at any point along the 5 Km stretch of river. The new layers were overlaid with GPS coordinates of the observed damselflies to identify the optimal range of solar radiation for each species.

Results

Both species inhabited areas with varying levels of light intensity. Rainy and overcast days showed no signs of damselfly activity.

Table 2: Two Sample T-Test (Assuming Equal Variance) of Light Intensity of River Jewelwing vs. Ebony Jewelwing Habitats.

	River Jewelwing	Ebony Jewelwing
Mean	911.9416342	434.9151515
Variance	56567.52392	140612.9928
Observations	257	165
Pooled Variance	89385.27842	
Hypothesized Mean Difference	0	
df	420	
t Stat	15.99417339	
P(T<=t) one-tail	1.30919E-45	
t Critical one-tail	1.648489714	
P(T<=t) two-tail	2.61839E-45	
t Critical two-tail	1.965628207	

Consequently, data were not collected on non-sunny days. The River Jewelwing inhabited areas with an average light intensity value of 911x 100 Lux and the Ebony Jewelwing inhabited areas that averaged 435x100 Lux. Using a two sample t-test assuming equal variances there was a significant difference ($P < 0.05$) between the two species light intensity (Table 2). Predictive models were created to determine probability of

both species of damselfly along the Hockomock River (Figure 2), and individual species (Figure 3 and 4). The models created show a high probability for both species throughout the 5 Km stretch of the Hockomock River. Both species together had the

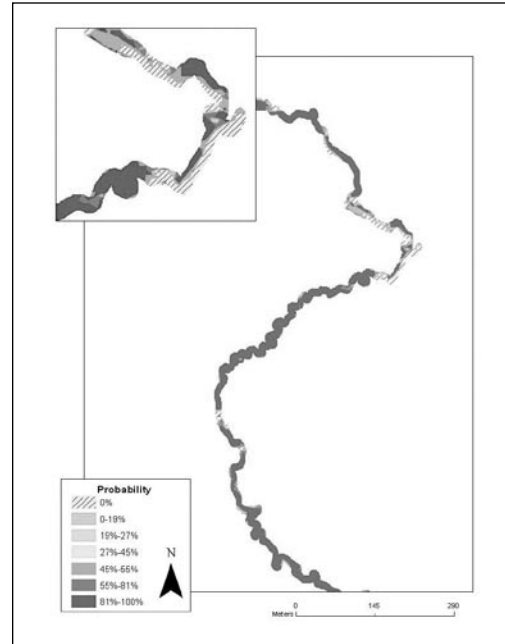


Figure 3: Predictive Model of River Jewelwing along the Hockomock River,

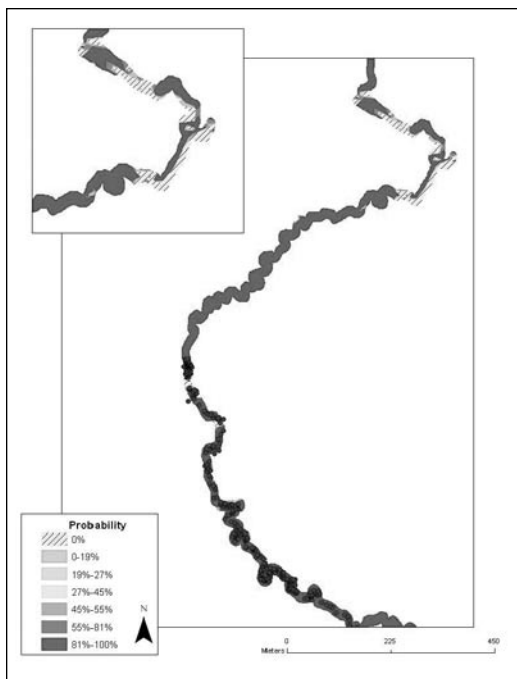


Figure 2: Predictive Model for Jewelwings along the Hockomock River, West Bridgewater, MA.

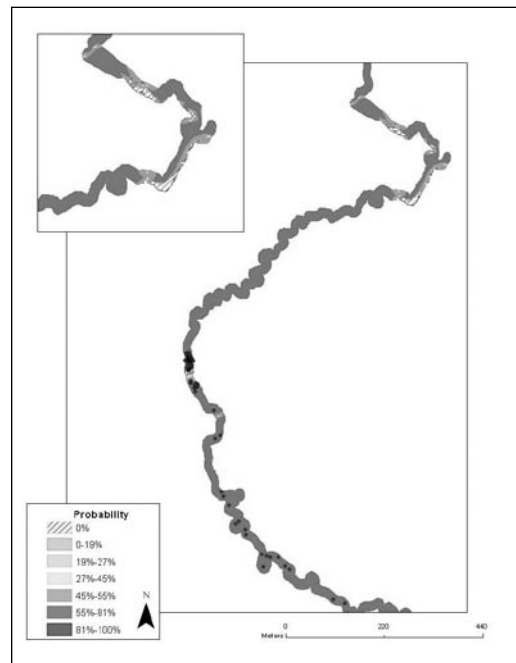


Figure 4: Predictive Model of Ebony Jewelwing along the Hockomock River,

highest probability throughout the river. The River Jewelwing had a slightly reduced probability of inhabiting areas than the Ebony Jewelwing. Although the model predicts that the Ebony Jewelwing should have a higher probability of inhabiting areas of the river, the River Jewelwing was observed more frequently and in more areas.

Discussion

Damselflies are important part to many river and pond ecosystems. As nymphs they provide a food source for many species of fish, tadpoles and turtles. Mature adults are preyed upon by larger dragonflies, amphibians and birds. Pollution has reduced the populations of damselfly species throughout the Hockomock River. As pollution and other anthropogenic stresses accumulate in the river, the damselflies can become isolated from other populations and experience high levels of fluctuating asymmetry, uneven growth of limbs or wings. High levels of stress result in high fluctuating asymmetry which can be detrimental to the fitness of individuals⁷. Isolation is a severe problem that can lead to extinction of the species along areas of the river. The American Rubyspot Damselfly (*Hetaerina Americana*) is an example of one damselfly species that has already gone extinct in the Hockomock River. To deter populations from being isolated predicative models can be created to monitor damselfly ranges to make sure existent populations can still interact with and breed with other populations.

During the summer observations, it was found that the River Jewelwing inhabited areas of higher light intensity than the Ebony Jewelwing. Only a few fights between males were observed. Because battles for territories involve maintaining an adequate energy reserve, it may be more beneficial for the damselflies to find a different territory than battle with other males. Another explanation for this observation could be that some trait indicates to other damselflies that they are not fit enough to capture the territory. Females were not seen fighting over territory, suggesting that there may be little competition for places to lay their eggs in the water.

River Jewelwings were widely spread out throughout the field site; in contrast the Ebony Jewelwing's habitat was much more condensed to about a 20-meter range of moderately flowing water. In the predictive models the ranges of both species were throughout most of the Hockomock River. This suggests that they could inhabit most of the areas, but they still appear grouped into smaller fragmented habitats. Other characteristics of habitats need to be considered to explain the fragmented groups of these damselflies. The water flow in the Hockomock River varies from a standstill to a moderate flow. *Calopteryx* species have been observed to develop faster in areas of fast

water flow and have a reduced chance of nymph mortality⁸. Differences in water flow throughout the Hockomock River could suggest that the Ebony Jewelwing may be restricted to areas of faster moving water to increase nymph survival rates.

Damselflies nymphs rely heavily on vegetation for protection from small fish and tadpoles. Different vegetation types cause different responses in anti-predator behaviors. Damselflies are able to better protect themselves by hiding and moving in thicker vegetation⁹. Examining and mapping vegetation types throughout the river may help to make the model more accurate. A lack of proper vegetation could explain why areas of suitable light intensity were not inhabited by either species.

Conclusion

Due to the end of emergence for both species the models cannot be verified until further field sessions can be conducted. To verify the models, damselflies need to be observed in areas of high probability and not in the areas of low probability. During new field sessions water flow and vegetation would be modeled throughout the river to incorporate more variables into the model. Water flow and vegetation may play a part in determining where females lay their eggs, largely based on food availability, the ability of nymphs to cling onto vegetation during times of heavy flow and the ability to escape predators in the vegetation¹⁰. In conclusion, the model shows promise to predict probability of damselflies, but needs to be tested and verified with additional attributes incorporated into the models.

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Eye-Movement Desensitization and Reprocessing: Implementation and Utilization of EMDR as a Treatment for Trauma

KELLY MEDEIROS

Kelly is a senior majoring in social work. With funding from the Adrian Tinsley Program, Kelly was able to conduct this research study and present it at the International Social Work Conference in Chennai, India in January of 2009. Dr. Lucinda King-Frode provided guidance and encouragement throughout the research process by acting as Kelly's mentor. Kelly will attend Columbia University to pursue her Master's degree in social work. She hopes that this study will encourage clinicians to investigate new methods of treating trauma.

Trauma is a pervasive global issue that affects both children and adults. It is officially defined in the most recent Diagnostic Manual as an event that threatens death or serious injury, and that elicits a response of fear, helplessness, or horror (American Psychiatric Association, 2002). Other respected definitions include a "sudden, unexpected, overwhelmingly intense emotional blow....[that] quickly becomes incorporated into the mind" (Terr, 1992, p. 8), and something that makes "both internal and external resources... inadequate to cope with external threat" (Van der Kolk, 1989, p. 393). Literature suggests that people who have experienced trauma may present with symptoms including depression, anxiety, insomnia, phobias, delayed development, difficulty maintaining social relationships, and personality disorders.

In the United States alone, at least one quarter of all children experience trauma; it is believed that the numbers are much higher for children from low-income families and those of racial and ethnic minorities (Cooper, Masi, Dababnah, Aratani, & Knitzer, 2007). Each year, five million more children will experience trauma (Child Trauma Academy, 2002). Many will need mental health services, specialized educational plans at school, and possibly long-term therapeutic care. According to the National Center for Children in Poverty, "trauma exposure among children and youth is associated with lifelong health, mental health, and related problems and with increased related costs" (Cooper et al., 2007, p. 5). It is, therefore, necessary to seek out and assess new treatments for those who have experienced childhood trauma. Such treatments, when their efficacy has been established, will help us to better aid in our clients' recovery; we can then make a long-term investment in their healthy futures, free of unnecessary medical costs.

This study focused on a fairly new alternative treatment for trauma: Eye-Movement Desensitization and Reprocessing (EMDR). The study explores the decisions made by therapists regarding the implementation and possible modification of the EMDR protocol in their practice, as well as the criteria used by these therapists to determine which clients are promising candidates for EMDR therapy. I have focused specifically on the treatment of childhood trauma, both in children and adults. I was also interested in learning exactly how clinicians make decisions about incorporating new therapeutic techniques into their practice. I wanted to find out how they are introduced to new methods, how they assess these methods, and how they decide which clients are best suited for any one particular intervention.

Background Research

Eye-Movement Desensitization and Reprocessing is a psychotherapy that was accidentally discovered in 1989 by Dr. Francine Shapiro. It is cognitively based, and involves a client calling a specific traumatic memory to mind. The client is led through a strictly-outlined protocol by the therapist; this protocol includes the replacement of negative cognitions with positive ones. Specific scales are used to measure the intensity of traumatic symptoms and distress throughout treatment. A major part of the process is something known as bilateral stimulation. While the client is discussing their trauma and moving through the protocol, the therapist uses a variety of bilateral stimulation techniques. There are a number of approved methods: the therapist can have the client follow his or her fingers back and forth with their eyes (called eye-movements); he or she can use auditory stimulation, with headphones and alternating sounds in one ear and then in the other; the therapist can tap the client on alternate knees, wrists, hands, temples, or shoulders; the client can hold small paddles that vibrate alternately in their hands; a light bar can be used, which has lights that speed from one side of the bar to the other that the client follows with their eyes; or any of these approved methods can be used together.

The theory behind bilateral stimulation is based on our knowledge of REM sleep. During REM sleep, our eyes dart back and forth; it is believed that this movement stimulates both sides of our brains, allowing us to resolve problems through our dreams. The bilateral stimulation used in the EMDR protocol has this aim. While people usually experience trauma only through the emotionally-charged left hemisphere of their brains, bilateral stimulation seems to force the more rational right hemisphere to become active at the same time. This enables clients to feel the traumatic emotions while thinking rationally about their experience, and this process may help to resolve their trauma (Bradley, Greene, Russ, Dutra, & Western, 2005; American Psychiatric Association, 2004; Department of Veterans Affairs & Department of Defense, 2007; Morris-Smith, 2007).

There has been, however, a substantial amount of controversy surrounding EMDR since its conception some twenty years ago. The critics focused primarily on the fact that while it is known that EMDR works, it is unclear exactly how it works. Psychiatrists have been unable to determine exactly what the scientific mechanism underlying this therapy is. In addition, there have been a few small experiments that contested the efficacy of EMDR (Edmond, Sloan, & McCarty, 2004). Some of these studies have been criticized for not following the EMDR protocol closely enough, thereby affecting the findings. Other researchers have argued that the eye movements themselves add nothing substantial to the treatment (Edmond, et al., 1994).

Despite all of this, there have been many small-scale studies and meta-analyses that demonstrate the efficacy of EMDR. As described by Edmond, et al., there have been three recent studies, among others, that compared EMDR to other forms of therapy - "prolonged exposure (Ironson, Freund, Strauss, & Williams, 2002); stress inoculation training with prolonged exposure (Lee, Gavriel, Drummond, Richards, & Greenwald, 2002); and exposure with cognitive restructuring (Power et al., 2002)" (p. 260-261). In all three of these studies, EMDR was as effective in reducing PTSD symptoms, and it was more effective in terms of achieving success more quickly (p. 261). More research is certainly needed to further the scientific understanding of EMDR, which might enhance its acceptance by the larger professional community.

Methodology

This was an exploratory study. Interviews were used to explore the experiences practitioners have had with EMDR - what they have found to work or fail, through trial and error, in their actual day-to-day experiences with EMDR and traumatized clients.

Sample

Interviewees were identified through both convenience and snowball sampling methods. A published list of EMDR-certified practitioners in my area from the official EMDR website was originally used to locate potential subjects; when much of that data turned out to be outdated, snowball sampling was used. I asked the few therapists I had made contact with to refer me to other EMDR practitioners. With the help of these referrals, ten therapists were located who became my interviewees.

These therapists were all educated and licensed as either psychologists, social workers, or mental health counselors. All were certified in EMDR. The subjects worked in a variety of settings, including private practices, schools, prisons, and non-profit agencies. They ranged in age from their late twenties to sixties. There were three men and seven women.

The subjects encountered a variety of issues in their practice. Given that many of their clients have experienced trauma, many also suffer from depression and anxiety. These symptoms sometimes manifest as insomnia, panic attacks, low self-esteem, and phobias, and may also lead to behavioral problems such as substance abuse. Many of these clients have co-occurring issues such as diagnosable personality disorders, concerns around sexual orientation, and neurological issues such as Asberger's disease.

Interview Process

Each interview was scheduled at the time and place of the subject's choice. They lasted about one hour, and consisted of sixteen questions:

1. Can you describe your clinical practice for me - what kinds of clients you see and what their presenting problems are?
2. In general, what therapeutic methods do you tend to use in your practice?
3. How did you get interested in EMDR? What was the source of the suggestion?
4. Were you aware of the controversy surrounding EMDR when you were first introduced to it?
5. If you were in practice with other therapists, was there any controversy among your colleagues about introducing EMDR into your practice?
6. How do you decide which clients are good candidates to use EMDR with?
7. At what point during treatment do you decide to introduce EMDR - is it the primary treatment method, or do you use it in conjunction with other therapies?
8. Since EMDR is an alternative type of treatment, how do you explain the process to your clients?
9. Have you experienced any skepticism?
10. Have you modified the EMDR protocol in any way to better suit your clients?
11. Have you found that certain "approved" variations work better than others?
12. What measures do you use to assess the effectiveness of treatment? How effective have you determined it to be?
13. In general, how many sessions does it typically take you to resolve the traumatic symptoms with your clients through EMDR? Have you found it to be more efficient than other forms of therapy?
14. Do you have any information on whether there are lasting effects - good or bad?
15. Do you feel comfortable using this treatment? Will you continue to use it and/or recommend it to other practitioners?
16. Finally, what has been your most interesting case or use of EMDR? Can you offer any anecdotes? Have you ever used EMDR to treat a problem not usually treated with this therapy?

After the interviews were completed, each was transcribed. I originally transcribed the interviews verbatim, but had to modify my transcription method due to time constraints. Using the list of questions as a guide, I listened to each interview and only transcribed the specific answers each subject gave. This significantly cut down on the amount of time required to transcribe each interview and helped to distinguish the significant information. After all the interviews were transcribed, coding categories for the responses to each question were developed. These categories were used to identify the overarching themes and patterns within the answers. Finally, the responses were all analyzed based on these established codes.

Findings and Discussion

The subjects used a variety of methods in their everyday practice. These included cognitive behavioral therapy, EMDR, counseling and psychotherapy methods, self-soothing techniques (meditation, breathing, che-gong, mindfulness, etc.), solution-focused interventions, and systems and gestalt therapies. Others utilized methods such as play therapy and hypnotherapy.

Most of the subjects had been introduced to EMDR through their colleagues and agencies. Others had read about this therapy in the professional literature or learned of it through mailings and trainings offered by their insurance companies, through academic and professional conferences, and/or as consumers of the method while in therapy themselves. There was only a single subject who had learned of EMDR through her school. This may suggest that EMDR - and possibly other alternative therapies - are not widely integrated into traditional professional curricula; further research would be necessary to investigate this suggestion.

As mentioned, there has been much controversy surrounding EMDR. Negative views were widely held in the early stages of its implementation. Many of my subjects, for example, required the approval of reliable professional sources before they would try EMDR. As one subject stated, she thought EMDR was "hokey" until she heard a group of classically-trained Yale Medical School students present on it at a trauma conference. When they were first introduced to EMDR, seven of the ten subjects were aware of this controversy. Despite widespread knowledge of the criticisms of EMDR, only two subjects felt that they had experienced 'skepticism' from their colleagues when they decided to integrate EMDR into their therapeutic practice. Many stated that their agencies were "open-minded" about the methods that employees used and were accepting and encouraging of new techniques. One subject mentioned during the interview that she had had a "heated discussion" with a colleague very recently; her colleague felt that EMDR

could “re-victimize” clients. Conversely, nine out of the ten subjects said that they had experienced skepticism on the part of their clients or had a client refuse to participate in the EMDR therapy at some point.

Many of the subjects mentioned that they were directed during the EMDR trainings to “dive right in” to EMDR and begin using it right away. After trying to do this, however, several practitioners found that it was inappropriate to use EMDR as a blanket treatment method for all clients. When asked how they determined which clients would be good candidates for the EMDR therapy, the subjects described a variety of criteria they had developed that clients must meet before being considered for EMDR. Therapists have indicated that there are a number of practical concerns that must be weighed before using EMDR with a client. These include practicalities like making sure that the client’s insurance will cover enough sessions to work through the entire protocol, making sure the client has stable housing and income, making sure that they have consistent transportation to get to therapy, and resolving addiction issues prior to beginning the treatment. The nature of the client’s trauma is also important: single-incident traumas were reported to be far easier to treat with EMDR than complex trauma. For example, a client who was traumatized by a bad car accident might enjoy greater success with EMDR than someone who was sexually abused for years as a child.

When the subjects were asked whether they used EMDR as the primary treatment method with their clients or if it was used as an adjunctive therapy, only two stated that they used it as the primary intervention. The majority of the subjects use EMDR in conjunction with other forms of therapy. When the therapists begin to introduce their clients to EMDR, all ten said they use some form of verbal explanation to describe the process. These verbal explanations can include a description of the protocol steps, a story about the therapist’s personal experience undergoing the treatment, and metaphors about how EMDR works. One popular metaphor was the “Train Metaphor”, by which the client is told that the process of EMDR is much like the experience of riding on a train. Their trauma is like the scenery: it is speeding by outside the window, and while they can see the scenery and describe it, they are not actually outside participating in it. During EMDR, they should be able to think about and describe their traumatic experience without actually reliving it. A number of other metaphors may be used to help clients better understand the therapy. Many of the subjects also give their clients articles about EMDR and refer them to EMDRIA.org, the official EMDR International Association website, to do research on their own.

Making modifications to the protocol has been generally frowned upon in the official EMDR trainings. However, half of my subjects have made modifications and felt that they were successful. These modifications included cutting out steps (such as a body scan or measurement scales that are standard parts of the protocol), rearranging the steps, doing the process without requiring the client to have any particular or identifiable memories of trauma, using physical symptoms of trauma rather than visual memories, using parts of EMDR like the bilateral stimulation in conjunction with entirely different therapies, and not completing the process at all. Of the other half who have not made any modifications, some said it was because they didn’t feel that they had the skills or experience necessary to make changes, and others felt that it was wrong to modify the protocol. There were two subjects who were unhappy when they heard that others were making modifications; one stated that “you shouldn’t make any modifications because that bastardizes the process”, while another said that “the person who’s rearranging [the steps of the protocol] is not really doing EMDR”.

Although modifications are not generally accepted at the trainings, therapists are presented with a number of approved variations to choose from when working with a client. These variations allow flexibility to find what works best for each client. Variations are mainly found in the type of bilateral stimulation used and the number of “passes” the therapist does of any one stimulus (i.e., waving their fingers back and forth for the client ten times instead of twenty-five). Nine out of the ten subjects felt that certain approved variations worked better than others. Of those, over half felt that eye movements were best; some said that eye movements elicit a stronger response from the clients, and others simply liked them better because they felt that the touching required by tapping a client was inappropriate or would cause further distress.

There was only a single subject who did not usually use the “VOC” and “SUD” scales that are included in the standard EMDR protocol. These are Likert scales that measure the level of a client’s distress from one to seven. They are meant to be used throughout the EMDR process to determine whether the feelings of distress and anxiety associated with their trauma are being reduced. Over half of the subjects also used client feedback to measure the level of traumatic symptoms. Client feedback includes both the immediate response of a client following a therapeutic session, as well as the notes they keep in between sessions regarding their emotions and traumatic symptoms. Two of the therapists used their own observations of the clients to measure their success, and one subject used the Beck Depression Index as a pre- and post-test for his clients.

Nine out of ten of the subjects felt that EMDR was a more efficient treatment for childhood trauma than more traditional therapies such as cognitive behavioral therapy. The efficiency of any given treatment is always an important aspect of its success and usage by therapists. It is almost always more desirable to resolve a client's traumatic symptoms in a matter of sessions, weeks, or months than it is to resolve them over the course of years of therapy sessions. However, although almost all of the subjects felt that EMDR was more efficient than other forms of therapy, the same number of therapists felt that the typical number of sessions required to resolve traumatic symptoms varied far too widely to give any numerical estimate. Many said that it depended on the type of trauma (single-incident versus a long and complex history of abuse, for example), and others felt that they couldn't give a numerical value because they used EMDR in conjunction with other interventions.

When asked if they had any information on whether the clients had any long-term positive or negative effects after undergoing EMDR, six of the subjects said that their clients had experienced long-term positive effects. One of these subjects had also had a client who had experienced long-term negative effects. There were four other therapists who were unable to answer

the question, as they did not have access to any follow-up information from their clients. Every therapist stated that they felt comfortable using EMDR in their therapeutic practice, and have recommended (or would recommend) the therapy to other practitioners and colleagues.

A variety of unanticipated uses for EMDR emerged during my conversations with therapists, such as using EMDR to treat dementia, issues surrounding sexual orientation, addiction, and low self-esteem. One subject even cured a cab driver of his insomnia by having him follow his windshield wipers back and forth while he was parked as a form of bilateral stimulation. These issues stray from the traditional traumatic focus that EMDR research has been based on. Just as therapists seek out new and more efficient treatments for trauma, they also seek out more effective interventions for other presenting problems. The more we understand how the neurology of our minds work in conjunction with our affect, the easier it will be to apply similarly neurologically-based methods to a variety of problems and issues. For this reason, further research into these unexpected applications of EMDR and exactly how it resolves each issue could lead to an overall better understanding of therapeutic treatments.

Singing the Moly Blues: The Direct Use of Molybdenum Clusters as a Precursor to the Development of Molybdenum Blue Glazes

MARGARET FIEDLER

Maggie is currently a senior, graduating in May of 2009 with a major in Chemistry and a minor in Art. She has been interested in glaze chemistry since she took Ceramics II with Preston Saunders and has been perusing this research for two years under the guidance of Dr. Steven Haefner. She has received a summer ATP grant and three semester ATP grants. Maggie hopes to attend graduate school for ceramic chemistry or ceramic engineering and plans to continue understanding of the relationship between clay and glazes.

Cobalt is currently the most commonly used blue colorant for ceramic glazes, however due to its toxicity in powder form there is a need for an alternative. Molybdenum, more specifically molybdenum oxide, is one alternative that has shown promise. This research is aimed at the direct incorporation of reduced molybdenum clusters into the glaze matrix. Two compounds have been synthesized that exhibit an intense blue color, $\text{Na}_{15}[\text{Mo}^{\text{VI}}_{126}\text{Mo}^{\text{V}}_{28}\text{O}_{457}\text{H}_{14}(\text{H}_2\text{O})_{70}]_{0.5}$, $[\text{Mo}^{\text{VI}}_{124}\text{Mo}^{\text{V}}_{28}\text{O}_{427}\text{H}_{14}(\text{H}_2\text{O})_{68}]_{0.5}$, and $\text{Na}_{21}[\text{Mo}^{\text{VI}}_{26}\text{Mo}^{\text{V}}_{28}\text{O}_{462}\text{H}_{14}(\text{H}_2\text{O})_{54}(\text{H}_2\text{PO}_2)_7]$. These clusters were incorporated directly into the glaze and fired under a variety of conditions. Under oxidizing conditions, a series of whites, clear, and pale blue glazes were observed. Under reducing conditions gray and blue-gray glazes were obtained. Such results indicate the sensitive nature of the two compounds while under the intense oxidizing and reducing kiln atmospheres.

Introduction

Ceramic glazes are made up of the same components as glass, mainly silica with a flux to lower the melting point and a metal oxide to add color. They can be thought of simply as customized glass with aluminum oxide added to increase viscosity. Glaze compositions are specific to the melt temperature, color desired, and texture the potter is trying to achieve. It takes the proper chemicals in the proper amounts to achieve the desired effects, most of which are discovered through the painstaking process of trial and error.¹

Glazes are mixed in the powder form and water is added to form a suspension the consistency of cream. This suspension is then applied to a clay body and fired in a kiln up to 1300°C. During the firing process, powdered minerals melt and react with one another, volatile compounds are driven off, and fusion eventually occurs to make a uniform melt. The glaze interacts with the clay body itself forming an interface layer which allows the glaze to adhere to the clay.¹

Cobalt oxide is currently the most widely used colorant for blues. Problems have surfaced regarding cobalt's toxicity in the powder form.¹⁰ Since glazes are mixed and stored in the powder form this hazard becomes an increasing issue for factory workers, as well as studio potters, some of which work in studios that are not properly ventilated. Cobalt²⁺ is a probable human carcinogen and if inhaled can cause a gamut of respiratory problems from asthma to lung

cancer.^{2,10} In the search for an alternative, molybdenum oxides have shown promise.³

Molybdic acid has been used as a stain of porcelain stoneware showing promising results.⁵ Also, acidified molybdenum (VI) oxide solutions have been directly applied to a variety of ceramic supports and fired under reducing conditions, resulting in the partial reduction of some of the molybdenum centers to molybdenum (V). The fired glazes were a series of muted grays-blues, blacks, and browns depending on atmospheric conditions.³

Molybdenum oxides sometimes exhibit a brilliant blue color.⁶ Natural “molybdenum blues” can be seen in the mineral illsemannite and in the “blue waters” of the Idaho springs.⁹ The phenomenon known as “molybdenum blue” has been well documented since the 1700’s but it wasn’t until 1996 that Achim Muller and his team characterized the molybdenum species responsible for it.⁸ They isolated a number clusters that, under specific conditions, group together to form larger more extended wheel-like Mo clusters (as seen in Fig. 1). These



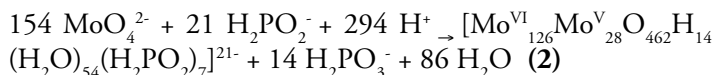
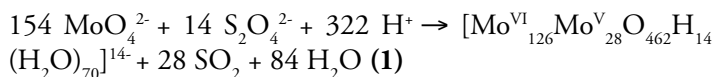
Figure 1: Polyoxomolybdate “Wheel”

wheel-like structures contain smaller Mo(VI)/(V) subunits that are linked through bridging oxygen atoms. The characteristic color occurs as a result of intervalent charge transfers between the wheel’s Mo(V) and Mo(VI) centers.⁷ The molybdenum species absorb light causing the transfer of an electron from a Mo(V), singly occupied orbital, to a Mo(VI), an empty d-orbital.⁸ This charge transfer is more energetic than the d-d transitions of cobalt and therefore produces a stronger color. The goal of this project is to isolate this color in a ceramic glaze by incorporating the reduced molybdenum species directly into the glaze matrix.

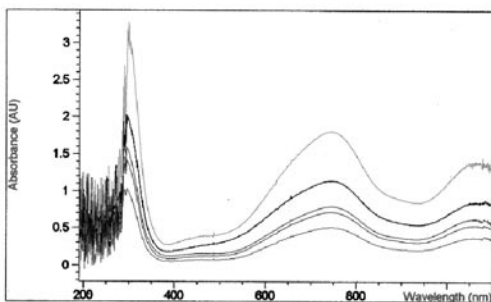
Results and Discussion

Synthesis of Molybdenum Blue Clusters: $\text{Na}_{15}[\text{Mo}_{126}^{\text{VI}}\text{Mo}_{28}^{\text{V}}\text{O}_{457}\text{H}_{14}(\text{H}_2\text{O})_{70}]_{0.5}$ hydrate (**I**) and $\text{Na}_{21}[\text{Mo}_{126}^{\text{VI}}\text{Mo}_{28}^{\text{V}}\text{O}_{462}\text{H}_{14}(\text{H}_2\text{O})_{54}(\text{H}_2\text{PO}_2)_7]$ hydrate (**II**)

The synthesis of $\text{Na}_{15}[\text{Mo}_{126}^{\text{VI}}\text{Mo}_{28}^{\text{V}}\text{O}_{457}\text{H}_{14}(\text{H}_2\text{O})_{70}]_{0.5}$ hydrate (**I**) and $\text{Na}_{21}[\text{Mo}_{126}^{\text{VI}}\text{Mo}_{28}^{\text{V}}\text{O}_{462}\text{H}_{14}(\text{H}_2\text{O})_{54}(\text{H}_2\text{PO}_2)_7]$ hydrate (**II**) were carried out following procedures first established by Muller.⁷ The exact stoichiometry established by Muller is shown below in equations (1) and (2). Both mixed-valent molybdenum clusters were obtained by partial reduction of sodium molybdate in aqueous acidic solutions. In the case of **I**, sodium dithionite was used as the reducing agent. In the synthesis of **II** sodium hypophosphite is used as the reducing agent. This results in the incorporation of H_2PO_2^- into the cluster framework which helps maintain the integrity of the wheel-like structure. The intermediates in the hypophosphite reduction to form **II** were found to be somewhat oxygen sensitive and required the purging of the solution with an inert gas. In both syntheses, a dark blue solution is formed within minutes. Compounds **I** and **II** ultimately crystallize from solution after sitting undisturbed for several days. Compound **I** had a high yield of dark blue crystals after three days at rest. Compound **II** showed a high yield but also showed the presence of a blue green contaminant. In an attempt to control contamination, crystals were harvested after only two days. The resulting sample had a lower yield but was at a much higher purity as evidenced by a much cleaner IR spectra.



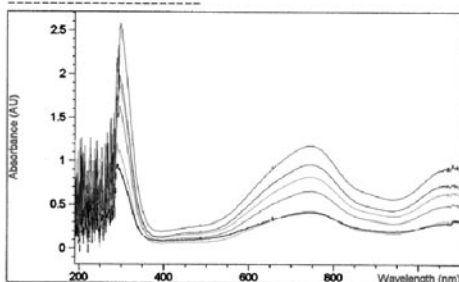
Nine samples of both **I** and **II** were obtained and characterized two ways. A few dark blue crystals of each sample were dissolved in a 0.1M HCl solution and run on a UV-VIS spectrometer. All nine samples for each compound showed the characteristic absorbance at 745nm^{-1} and 1030nm^{-1} as shown in Fig. 2. All samples were also run twice on a Perkin Elmer IR with a Pike MIRacle ATR attachment, once without sample prep and once after grinding. Bands were observed at $1616, 975, 913$ ($\text{Mo}=\text{O}$), $820, 750, 630,$ and 555cm^{-1} corresponding with the literature for **I**. The addition of bands at $1124, 1076,$ and 1039cm^{-1} were seen for compound two corresponding to the attached phosphite.



Sample/Result Table

#	Name	Abs<745nm>	Abs<1070nm>
1	1.2	1.13880	0.83854
2	1.3	0.71744	0.53037
3	1.4	0.79360	0.61847
4	1.5	1.80150	1.36310
5	1.7	0.50963	0.36263

Overlaid Sample Spectra



Sample/Result Table

#	Name	Abs<745nm>	Abs<1070nm>
1	2.3	0.41228	0.28557
2	2.4	0.96340	0.71491
3	2.5	1.17890	0.88993
4	2.61	0.82330	0.60846
5	2.62	0.65746	0.48991
6	2.63	0.42980	0.30700

Figure 2: UV-VIS spectra for compounds one and two

90:10 Aluminum Oxide/Colorant Grind. Early attempts to incorporate molybdenum into a glaze matrix under reducing conditions are outlined in “Gray-Blue $\text{Al}_2\text{O}_3\text{-MoO}_x$ Ceramic Pigments: Crystal structure, colouring mechanisms, and performance” by Michele Dondi and team. Their research called for a 90:10 by weight grind of aluminum oxide and molybdenum oxide (MoO_3). This grind was fired under reducing conditions to cone ten (1300°C) in a crucible resulting in pigment “AM10,” with which they had the best results: gray-blues. Our aluminum oxide grind of both **I** and **II** were varying shades of blue after firing in a crucible to cone ten in oxidation.

Glaze Test Results. All tests are reported in chronological order. Each test influences and inspired the tests that come after and each failure lead to new ideas and creative problem solving.

Stains. Stains made with both compounds one and two in water and acid did not appear to support the colorants when placed on bone dry clay and fired to cone 04 (1063°C). Similar results were obtained from staining bisqued stoneware fired to cone 6 (1222°C). Bisqued sample wells containing loose crystals of compound one and compound two showed signs of yellowish staining, as well as a white crystalline residue, after being fired to cone 6.

Base Glaze in Water and Acid. Base glazes were tested incorporating both **I** and **II** in water and acid at both high and low concentration. Before firing, these glazes were a series of blues and blue-grays varying with concentration and time elapsed. After being fired to cone 6, all sample tiles mixed with water were white silky matt in color. All tiles that were mixed with 1M HCl were primarily clear with areas of mottled white matt coloration.

Glaze Component Bleaching Test. It was observed that over a period of time the blue unfired tiles would bleach to white. Several attempts were made to control and understand what was causing the loss of color. After each compound was tested in water and acid with each of the five glaze components, potash feldspar, zinc oxide, silica, whiting, and kaolin, it was observed that the whiting and the zinc oxide both readily bleach out each compound completely in only a matter of twenty minutes.

Glaze Alterations. Based on the knowledge that both whiting and zinc oxide drained compounds one and two of their color, and aluminum oxide seemed to protect it, alterations were made in the glaze formula. Four glazes were chosen for testing, glaze unaltered, glaze without whiting, glaze without whiting with aluminum oxide substituted for zinc oxide, and glaze with aluminum oxide substituted for zinc oxide. Tiles of all glazes, both alone and with the addition of compound two, in water and acid were fired to cone six, after which most lost their color. Only one tile showed a tint of blue, base glaze without whiting substituting aluminum oxide for zinc oxide with compound two. As seen in Fig. 3.

Colorant Concentration. Separate concentrations, (2, 4, and 6%), of two colorants, compound two and aluminum oxide/compound two grind, showed little variation after firing. Tiles containing compound two were a darker tint that those containing the aluminum oxide grind, with the darkest being at 6%. However, all tiles were still primarily white.

Colorant Concentration in the Presence of Argon. In an attempt to control or limit the oxidizing atmosphere during firing, a flow of argon was introduced through a needle at the base seam of the kiln. The stream of argon was kept constant

Concentration Test	2% Compound two	4% Compound two	6% Compound two	2% Al ₂ O ₃ Compound two	4% Al ₂ O ₃ Compound two	6% Al ₂ O ₃ Compound two
G200	2.2371g	1.1181g	0.7456g	0.8985g	0.4493g	0.2998g
Al ₂ O ₃	0.7670g	0.3836g	0.2553g	0.3081g	0.1550g	0.1030g
Silica	1.5330g	0.7669g	0.5115g	0.6155g	0.3071g	0.2049g
Kaolin	0.3197g	0.1600g	0.1060g	0.1289g	0.065g	0.0422g
HCl	small amount	small amount	small amount	small amount	small amount	small amount
Compound two	0.1278g	0.1278g	0.1275g			
Al ₂ O ₃ :compound two				0.0513g	0.0511g	0.0516g
Observations before firing	blue grey	slightly darker blue grey	darkest blue grey	light robins egg blue	robins egg blue	darker powder blue
Observations after firing	slightly off white with some yellow green staining	slightly off white with some yellow green staining	most off white with some yellow green staining	white	white	white

Figure 3: Glaze formulation

through the entire firing process and the concentration test was carried out again. After firing the tiles containing compound two showed more of a blue tint than before, also the tiles containing the aluminum oxide grind were tinted a slight blue. Still, these colorations are not strong enough to be significant.

Addition of Antioxidants. In another attempt to better control oxidation, silicon carbide and activated carbon were added to the glaze mixture at 2%. Silicon carbide reacts with oxygen readily to form silicon dioxide and carbon dioxide while activated carbon reacts to form carbon dioxide. Both are very active under oxidizing conditions, making them ideal candidates for selective oxidation in the glaze mixture. We hoped that these compounds would oxidize well before compounds one and two therefore acting as a protecting agent for the colorant. In addition to these additives, zinc metal was substituted for zinc oxide. During firing, the zinc metal should oxidize to form the zinc oxide that it is replacing. After firing, the tiles containing silicon carbide remained a tint of blue, including the control. The tiles containing activated carbon went white, while tiles containing zinc metal in base glaze without whitening remained a tint of blue. All tiles using base glaze without alteration went white.

Reduction Results. A small Raku kiln was altered and fired with propane to create a good reduction kiln (as seen in Fig. 4). This kiln was only able to be fired once due to time and fuel restraints. Over a period of four hours the kiln was ramped to just below cone six with heavy reduction at cone 08 and at cone five. Seventy-two tiles were tested giving the following results.



Figure 4: Modified Raku kiln

Base glaze. Both **I** and **II** in acid and water turned a silvery-gray while molybdenum oxide in acid and water behaved as a silvery-gray lichen glaze which crazed but did not flake off. The unfired aluminum oxide/molybdenum oxide grind went glossy while in water while in acid it behaved as a glossy white lichen glaze. Both unfired aluminum oxide/compound one and two went white in both acid and water while the fired aluminum oxide/compound one and two went clear in both acid and water. The fired aluminum oxide/molybdenum oxide grind showed obvious blue gray in both acid and water. The yellow tungsten compound went clear in both acid and water, and the yellow molybdenum oxide compound did not dissolve in glaze leaving mottle black surrounded by glossy white (see Figures 5 and 6).

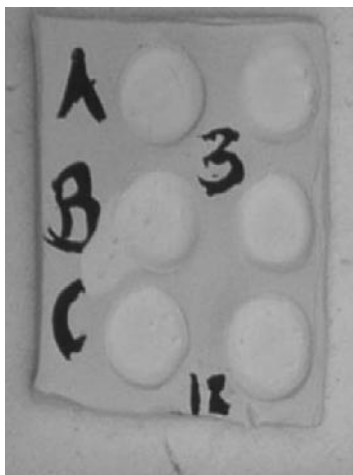


Figure 5: Reduction before fire

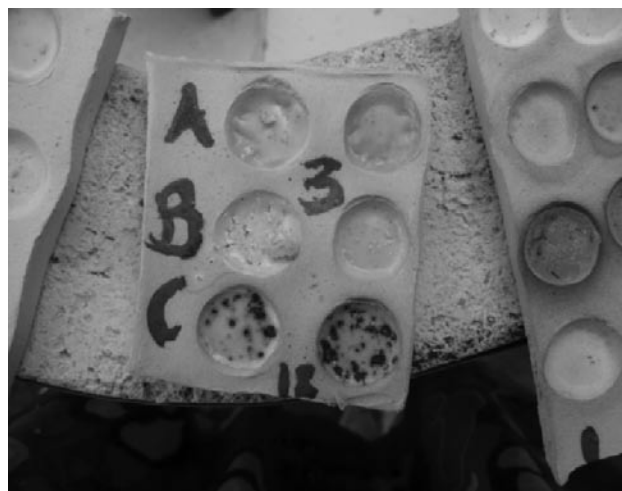


Figure 6: Reduction after fire

Base glaze without whiting. The control tiles went white in both acid and base while compound one went light gray in water and slightly darker in acid. Compound two went gray in water and blue gray in acid. The molybdenum oxide went very dark gray in both acid and water. All unfired and fired aluminum oxide grinds in water and acid went white and both yellow compounds went white with areas of mottled black.

Base glaze substituting aluminum oxide for zinc oxide. All control tiles went white in both acid and water. Compound one went dark gray in water and light gray in acid while compound two went gray in both acid and water. The molybdenum oxide went darker blue gray in both acid and water. The tungsten compound went white with small areas of mottled black in both acid and water, and the yellow molybdenum oxide compound went white in acid and white with mottle black in water.

Stains. Compound one went dark gray in water and more so in acid while compound two went dark gray blue in water and more so in acid. The molybdenum oxide went gray in both acid and water.

Conclusions

Although no deep blues were obtained, there is evidence that at least some of the compound maintained through firing. Better characterization of the fired compound needs to be carried out using x-ray powder diffraction to determine exactly which phases and oxidation states are being seen. We were able to reproduce the literature findings without the use of hydrogen, despite the difference in kiln atmospheres. It seems that we are over reducing and over oxidizing the compounds, possibly down to molybdenum metal during reduction. There is potential to achieve the desired results with further tests on firing conditions to find the optimal atmosphere. In the future we would like to characterize the fired tiles using x-ray powder

diffraction and perform more tests under a variety of firing conditions. To make this possible, we also aspire to design and build a small reduction test kiln so to use both space and fuel more efficiently and to be able to run multiple firings through the coming semester.

Experimental

General Synthetic Procedures. The molybdenum clusters were obtained from modification of previous reported literature procedures.⁷ All manipulations were carried out in air unless noted otherwise. All chemical reagents were obtained from commercial sources and used as received.

$\text{Na}_{15}[\text{Mo}^{\text{VI}}_{126}\text{Mo}^{\text{V}}_{28}\text{O}_{457}\text{H}_{14}(\text{H}_2\text{O})_{70}]_{0.5}[\text{Mo}^{\text{VI}}_{124}\text{Mo}^{\text{V}}_{28}\text{O}_{427}\text{H}_{14}(\text{H}_2\text{O})_{68}]_{0.5}$ hydrate (I). An amount of $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$ (3.00 g, 0.0124 mol) was added to 10 mL deionized water with a spin vane producing a colorless solution. While stirring vigorously, 0.200 g $\text{Na}_2\text{S}_2\text{O}_4$ (0.0011 mol) was added to the solution followed immediately by 30 mL 1.0 M HCl (aq). This resulted in a mustard yellow solution that abruptly changed to dark blue. The solution was allowed to stir for twenty minutes before being sealed and left undisturbed for three days. After this period, the still dark blue solution was vacuum filtered through a medium porosity glass fritted funnel. Dark blue crystals were obtained and washed with a very small amount of ice cold water. Yield, 0.340 g

$\text{Na}_{21}[\text{Mo}^{\text{VI}}_{126}\text{Mo}^{\text{V}}_{28}\text{O}_{462}\text{H}_{14}(\text{H}_2\text{O})_{54}(\text{H}_2\text{PO}_2)_7]$ hydrate (II) A 125 ml Erlenmeyer flask with a spin vane was charged with $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$ (3.00 g, 0.0124 mol) were combined with 1.00g NaCl in 25 mL 1.1M HCl (aq). The clear solution was then stirred and purged with argon for ten minutes before the addition of 0.200 g $\text{NaH}_2\text{PO}_2 \cdot \text{H}_2\text{O}$ (0.0019 mol). The solution was stirred under argon for thirty minutes before it was sealed and left to sit undisturbed for three days. After three days,

the dark blue crystals were collected using a medium porosity glass fritted funnel with the aid of a vacuum and washed with a small amount of ice cold water. Yield, 0.630 g.

Preparation of 90:10 by weight aluminum oxide/colorant grinds. To mimic literature, 90:10 by weight mixtures of aluminum oxide/compound one, aluminum oxide/compound two, and aluminum oxide/molybdenum oxide were made by grinding the two components together using a mortar and pestle. Half of each grind was set aside, while the other half was placed in a crucible and fired to cone 10 (1300°C).

Preparation of glazes. All glaze materials were obtained from Sheffield Pottery. The glazes were mixed in individual batches, an example is shown in figure three. The base glaze used consisted of 35% potash feldspar, 24% zinc oxide, 22% silica, 12% calcite (whiting), and 5% kaolin (EPK).

Preparation of modified glazes. There were a few modifications to the base glaze that were used independently and in conjunction with each other. In some cases whiting was removed, zinc oxide was replaced by aluminum oxide, and several antioxidants were added.

Preparation of test tiles. All tiles were made using B-mix, a white stoneware clay body that mimics porcelain from Laguna Clay. All oxidation firings were done in a small Sentry X-press test kiln to cone 04 (1063°C) for bisque and to cones 6-10 (1222-1285°C) for glaze fire. The reduction was done in a modified Raku kiln fueled with propane. All glazes prepared in acid used a 1M solution of HCl.

Stains. Stains were made up in both high and low concentrations of compounds one and two in both acid and water. The stains were then applied to green ware or unfired clay body. Small amounts of compound one, compound two, and aluminum oxide/compound two grind were kneaded into small pieces of clay. All tiles were fired to cone 04 in oxidation. This test was repeated with stains on bisqued clay bodies and fired to cone 6.

Base glaze in water and acid. Compounds I and II were incorporated into the base glaze at low and high concentrations in both acid and water. The various shades of blue tiles were then fired to cone 6 in oxidation.

Glaze component test. Small amounts of I and II were combined with a small amount of each glaze component in water and acid and monitored over a period of an hour and then left overnight.

Glaze alterations. Four glazes were chosen for further testing: base glaze without alteration, base glaze without whiting, base glaze substituting aluminum oxide for zinc oxide, and base glaze without whiting and substituting aluminum oxide for zinc oxide. Tiles for all four glazes were tested in water and acid both alone and with the addition of compound two. The tiles were then fired to cone six in oxidation.

Colorant concentration. Compound two and the aluminum oxide/compound two mix were incorporated into base glaze without whiting substituting aluminum oxide for zinc oxide in acid at concentrations of 2%, 4%, and 6%. The tiles were then fired to cone six in oxidation. This test was then repeated in the presence of argon, where a thin metal needle was inserted in the base of the kiln to provide a steady stream of argon throughout the firing process.

Addition of silicon carbide, activated carbon, and zinc powder. Silicon carbide and activated carbon were incorporated into the glaze at 2%. Both base glaze and base glaze without whiting substituting aluminum oxide for zinc oxide were tested using either additive at 2% and colorant at 10%. Zinc powder was also used to replace zinc oxide in base glaze and base glaze without whiting. All tiles were then fired in oxidation to cone 6.

Reduction preparation. Seventy-two tests were carried out for the reduction fire. The glazes used were base glaze in water and acid, base glaze without whiting in water and acid, base glaze with aluminum oxide, and base glaze without whiting with aluminum oxide. A series of colorants were tested with each glaze: compound one, compound two, unfired and fired aluminum oxide/compound one, unfired and fired aluminum oxide/compound two, molybdenum oxide, fired and unfired aluminum oxide/molybdenum oxide, a yellow tungsten ion, and a yellow molybdenum oxide ion. Stains were also made with compound one, compound two, and molybdenum oxide in both acid and water. These glazes were applied to test plates and fired to just under cone 6 over a period of four hours with heavy reduction at cone 08 and at cone 4.

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The section of National Conference on Undergraduate Research includes some work that was produced under an ATP Summer Grant, but then presented at this prestigious annual conference. Student submissions for this conference face rigorous competition from applications from across the nation.

Exploring the Nature of Anti-Federalist Thought: Republicanism and Liberalism in the Political Thought of Cato

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Christopher is currently pursuing a double major in political science and history. After graduation, he intends to undertake graduate study in political theory beginning in the fall of 2009. He developed this paper during the summer of 2008 under the supervision of Dr. Jordon Barkalow as a part of his Interdisciplinary Honors Thesis. Christopher would like to thank the Adrian Tinsley Program for Undergraduate Research and the Bridgewater State College Foundation for their generous support of his research through an Adrian Tinsley Program Summer Grant.

Scholarship of the American founding remains divided as to the nature of Anti-Federalist political philosophy. One school of thought contends that the Anti-Federalists were the heirs of the republican tradition, while the other maintains that the Anti-Federalists operated from a liberal worldview. Thus in what manner and to what extent Anti-Federalists draw upon the republican and/or liberal political traditions remains unclear. In answering this question I examine the writings of the Anti-Federalist Cato, analyzing what conceptualizations characterize Anti-Federalist thought and from what traditions of political philosophy these ideas arose. I also analyze texts of the major traditions that may have had a formative influence on Anti-Federalist thought in order to provide a basis of comparison with the Anti-Federalists. As the Anti-Federalists played a crucial role in creating the Bill of Rights, these understandings will establish a framework for interpreting its role in American governance and jurisprudence.

Unlike their Federalist counterparts, the nature of whose political theory is widely agreed upon, the Anti-Federalists continue to stir debate over how to characterize their political philosophy. Various interpretations have categorized the Anti-Federalists as classical republicans, modern republicans and liberals. This inability to arrive at a consensus is perhaps best illustrated by Gordon Wood's work on the subject. In *Creation of the American Republic*, Wood characterized the Anti-Federalists as traditionalists operating from a republican political worldview.¹ Subsequently, Wood has revised his position on the Anti-Federalists, describing the Anti-Federalists as political innovators who break from traditional republican political principals and embrace liberal ones.² These contrasting analyses are endemic of the disagreement that permeates scholarship on Anti-Federalist political philosophy. Given the diversity of opinions and lack of consensus over the nature of Anti-Federalist political thought, a more narrowly focused study that simultaneously tests for both liberal and republican influences in Anti-Federalist thought is warranted.

The opportunity for such a study is provided in the writings of the Anti-Federalist Cato. Focusing on Cato allows for a natural experiment as his political theory can be compared to three other works of political theory that present political philosophy using the motif of the Roman statesman Cato the Younger. These three Catos – Plutarch's "Life of Cato the Younger,"

Joseph Addison's *Cato: A Tragedy* and John Trenchard and Thomas Gordon's *Cato's Letters: OR, Essays on Liberty, Civil and Religious, and Other Important Subjects* – correspond to the classical republican, modern republican and liberal traditions, respectively. Implementation of this natural experiment reveals that in regards to the mechanisms required for the supervision and safe operation of government and the ills of the governors possessing interests divergent from those of the governed, the Anti-Federalist Cato operates from the basis of a liberal political theory.

Liberalism: An Overview

In the liberal tradition, men preexist government and only create it for their “mutual preservation and defense,” so that they may enjoy liberty, which they possess as a natural right, and its benefits.³ In order to ensure that government serves these ends, a number of safeguards are implemented by which the people can monitor their government and influence its actions. These mechanisms include numerous representatives, frequent elections and rotation in office.⁴ Such precautions serve to bind the interests of the governors to those of the governed, which is essential to ensuring that those in government act for the benefit of the people as “most men will act for interest against duty, as often as they dare.”⁵ This supremacy of interest over duty necessitates that government be structured in such a way as to make it in men's interest to do their duty. Hence the use of frequent elections to create constant competition among the people for elected positions.⁶ This constant competition makes it in the interest of those in government to do their duty, as if they do not, they will simply be voted out of office in the near future.⁷ Liberal government is thus structured so as to give the people control in ensuring that it protects their liberty instead of curtailing it.

Political Liberty: The Centrality of Representation

While liberty is the great end for which government it formed, it is not a monolithic concept. Cato's understanding of liberty is twofold. The first type of liberty that Cato is concerned with is political liberty. Political liberty takes the form of freedom from government tyranny. Accordingly, Cato advocates placing numerous restrictions upon the governors that are designed to preserve the people's liberty. These protections serve to prevent the consolidation of power into one of a few hands with sufficient time to use them to establish and perpetuate despotism.⁸ Fundamentally, these safeguards are designed to make the governors accountable and responsive to the people. This is particularly evident when Cato insists on the direct election of the executive on the grounds that otherwise “the president cannot represent you [the people] because he is not of your [the people's] own immediate choice.”⁹ But, where that direct choice exists, accountability and responsiveness follow.

Furthermore, all citizens must possess the ability to partake in directly selecting the governors.¹⁰ If not all of the citizenry are able to participate in the selection of the members of their government, than those in power would be able to perpetuate their own authority.¹¹ This continuation in power would occur by using a numerical minority to elect a government of a composition that is both favorable to the governors and not what the totality of the electorate would have chosen.¹² Additionally, the other fundamental manner in which these mechanisms operate is to create constant competition among those seeking office to demonstrate who among them can best serve the people as the frequency with which they must answer to the people for their actions prevents them from following their own course independent of the people's will.¹³ Thus, the structures of government are designed specifically to maintain the people's freedom from arbitrary rule.

Despite its being formed by the consent of the governed, Cato does not see government as something that can be left alone to run its course. When it comes to preserving the ends of government, “a general presumption that rulers will govern well is not a sufficient security;” a sentiment that Trenchard and Gordon's Cato shares.¹⁴ To ensure the proper operation of government, the people must supervise their government.¹⁵ Perhaps the most direct way that the people are able to do this is through a participatory representation, a subject on which Cato refers his readers to the writings of the Anti-Federalist Brutus on the grounds that “this subject has been so ably and fully treated by a writer under the signature of Brutus, that I shall content myself with referring you to him thereon.”¹⁶ Cato's referral serves as grounds for consideration of the two writers' views on representation in tandem, as two disciples of the same principles of representation.

Before examining the nature of representation according to Brutus, it is important to first consider the role representation plays in Brutus's conception of government. To Brutus, government has no natural right to its authority, and therefore draws its legitimacy from the consent of those who choose to form it.¹⁷ The reason men decide to thus leave the state of nature by forming government is that in each individual pursuing his own ends in the state of nature, “the possessions or enjoyments of one were sacrificed to the views and designs of another; thus the weak were prey to the strong, the simple and unwary were subject to impositions from those who were more crafty and designing. In this state of things, every individual was insecure.”¹⁸ To alleviate this insecurity, men consent among themselves to form government with the purpose of protecting their natural rights, including liberty.¹⁹ These liberties are protected by “the whole force of the community,” which, placed in the hands of government, is used to enforce the rule of law.²⁰ To ensure that

the government is dutiful in using the rule of law to carry out its function of protecting natural rights, the people have the right to remove from government those who fail to properly protect the people's natural rights.²¹ Accordingly, "a full and just representation of the people," the defining feature of free government, is required so that the people can exercise their will to ensure that government fulfills its purpose of protecting natural rights through the rule of law.²² If such representation is lacking, "let the administration be good or ill, it still will be government, not according to the will of the people, but according to the will of the few."²³

The fundamental principle upon which Brutus builds his theory of representation is that the relationship between the people and their representatives is that of principal and agent.²⁴ Representation is the mechanism by which the people "give their assent to the laws by which they are governed," and accordingly it is the function of the representatives to "declare the sentiments of the people."²⁵ This requires the representatives to know and understand the needs, wants and will of the people, "for if they [the representatives] do not know, or are not disposed to speak the sentiments of the people, the people do not govern, but the sovereignty is in a few."²⁶ That failure by the representatives to accurately carry out the will of the people, thus substituting their own will for the will of the people, shifts governance from the people to a smaller body of individuals is essential as Brutus maintains that the people consenting to the laws "is the true criterion between free government and an arbitrary one."²⁷ Consequently, representatives as agents of the people are necessary for the people to ensure that government acts in accordance with the purpose for which they established it, the preservation of their natural right of liberty. In conceiving of representative as agent, Brutus echoes the sentiment of *Cato's Letters*, where the prospering functioning of government requires that the people select "deputies, whose interest is the same with their own [sic], and whose property is so intermingled with theirs, and so engaged upon the same bottom, that principles and deputies must stand and fall together," and therefore the deputies, the representatives of the people, will act as proper agents of their principles, the people.²⁸

The most basic mechanism for preserving such a system is annual elections. The Anti-Federalist Cato favors annual elections on the grounds that "power connected, with a considerable duration, may be dangerous to the liberties of a republic."²⁹ This danger stems from the fact that a long term in office delays the individual's accountability to the people, presenting man's ambition with the opportunity to thwart his duty.³⁰ Just as Trenchard and Gordon's Cato sees the opportunity for self-aggrandizement winning out over duty whenever the opportunity arises unaccompanied by significant consequences,

so the Anti-Federalist Cato views terms of extended duration as causing those in government to pursue their own ends instead of the will of the people.³¹ Any time the term of office is for "any considerable time," the officeholder "*fancies that he may be great and glorious by oppressing his fellow citizens.*"³² To counter such a threat, the Anti-Federalist Cato favors annual elections, asserting that, with the constant competition they create, the people "never will want [lack] men to execute whatever you [the people] could design."³³ The constant competition thus forces officeholders to remain continually abreast of the will of the people and carry it, and only it, into execution in order to remain in office. Therefore, annual elections, the penultimate example of the frequent elections argued for in *Cato's Letters*, by providing for short terms in office, prevent the governors from viewing their time in office as sufficiently long to allow them to aggrandize themselves at the expense of the people without fear of electoral reprisals and instead bind representatives to the will of the people as true agents.³⁴

In order for this system to function properly, it is necessary that these agents must represent the will of the entire people.³⁵ Accordingly, more is needed than simply annual elections. Numerous representatives are required to ensure that the representative body is "capable of understanding the true interests of the society for which it acts."³⁶ Such understanding is only possible when the representatives of the people "are sufficiently numerous to be acquainted with the local condition and wants of the different districts" of the nation.³⁷ In order to be acquainted with their constituents in such a manner, it is necessary that the representatives be chosen from among the people they are to represent, because "the very term, representative, implies, that the person or body chosen for this purpose, should resemble those who appoint them—a representation of the of the people of America, if it be a true one, must be like the people."³⁸ For Brutus this means that representation should be based on the characteristics of the people.³⁹ Therefore, "the farmer, the merchant, mechanic, and other various orders of people, ought to be represented according to their respective weight and numbers" in society.⁴⁰ Additionally, to properly function as representatives, "the representatives ought to be intimately acquainted with the wants, understand the interests of the several orders of society, and feel a proper sense and becoming zeal to promote their prosperity."⁴¹ In order to bring such a circumstance about "each class [of men] ought to have an opportunity of choosing their best informed men for the purpose [serving as representative]."⁴² Thus, for any country, and especially one as large as the United States, representation must be numerous in order to properly represent all facets of the people and their will, for "one man, or a few men cannot possibly represent the feelings, opinions, and characters of a great multitude."⁴³

A second major reason why annual elections must be for numerous representatives is that a small number of representatives, such as called for in the proposed Constitution, are “too few to resist the influence of corruption, and the temptation to treachery.”⁴⁴ Brutus concurs with Cato’s assessment, asserting with regards to the proposed size of Congress that “there will be no security in so small a body, against bribery, and corruption.”⁴⁵ That a majority of a quorum of the legislature has the power to legislate causes him to warn that “twenty-five men will have the power to give away all the property of the citizens of these states – what security therefore can there be for the people, where the liberties and property are at the disposal of so few men? It will literally be a government in the hands of the few to oppress the many.”⁴⁶ This danger is especially acute considering the power the executive can utilize to corrupt the legislature, for “this government will have in their gift a vast number of offices of great honor and emolument. The members of the legislature are not excluded from appointments; and twenty-five of them, as the case may be, being secured, any measure may carry.”⁴⁷ In this manner, the small size of the legislature makes it easy for the executive to corrupt them into favoring the executive’s policies regardless of the will of the people, which it is the representatives’ duty to follow. Moreover, Brutus addresses not just the former of Cato’s qualms, corruption, but also the latter, treachery. Brutus considers treachery a very real and very likely possibility on the grounds that “it is not to be expected that a legislature will be found in any country that will not have some of its members, who will pursue their private ends, and for which they will sacrifice the public good.”⁴⁸ Furthermore, this threat exists not from one individual, or even multiple individuals each acting alone for his own limited ends, because “men of this character are, generally, artful and designing, and frequently possess brilliant talents and abilities; they commonly act in concert, and agree to share the spoils of their country among them; they will keep their object ever in view, and follow it with constancy.”⁴⁹ There is thus an ever-present danger of cabals working deliberately and systematically against the interests and liberties of the people. These cabals are abetted by the small size of the legislature, as they need to secure fewer accomplices either through bribery or “where they find members [of the legislature] proof against direct bribery or gifts of offices, they will endeavor to mislead their minds by specious and false reasoning, to impose upon their unsuspecting honesty by an affection of zeal for the public good.”⁵⁰ Either way, the small size of the legislature aids the cabal.⁵¹ Thus, for Brutus and Cato, numerous representatives are also necessary to secure the legislature against bribery, corruption and general betrayal of the public, the purpose for which they are advocated for in *Cato’s Letters*.⁵²

Finally, to prevent the numerous, annually elected representatives from becoming an aristocracy, it is necessary that the elections create a rotation in office.⁵³ One benefit of such a rotation is that it would prevent individuals from serving so long that, despite facing elections each year, they develop, due to the habit of winning again and again, a separation from their constituency that undermines their effectiveness as agents of the people.⁵⁴ A rotation in office would counter this separating tendency in that it “would give opportunity to bring forward a greater number of men to serve their country, and would return those, who had served, to their state, and afford them the advantage of becoming better acquainted with the condition and politics of their constituents.”⁵⁵ It would thus rotate into office men who had more recently lived as constituents and accordingly have fresher understandings of the needs and will of the people and return to life as a private citizen those who had served so that they can refresh their own understandings and therefore be better representatives if they are rotated back into office. This goal for using rotation in office of reminding the representatives of the conditions of private citizens is not limited to the Anti-Federalists; it is also the rationale utilized by the Cato of *Cato’s Letters* when advocating rotation in office.⁵⁶

This combination of annual elections, numerous representatives and rotation in office creates the constant competition that binds the interest of those in government to the interests of the people, the achievement of which is “the great art . . . in forming a good constitution.”⁵⁷ Constant competition causes governors to act in accordance with the peoples’ desires in order to retain office.⁵⁸ As those who seek to take the place of those in power will also have to obey the people for the same reasons, “you [the people] never will want men to execute whatever you [the people] could design;” thus the will of the people will always be served as opposed to the government being self-serving at the expense of the people.⁵⁹ In this manner, the annual election of numerous representatives who are frequently rotated out of office serves to bind the interests of the governors to those of the governed, which Cato considers essential as he sees government as deteriorating into tyranny when it “erects[s] an interest separate from the ruled.”⁶⁰ While taken together, these safeguards demonstrate that Cato’s ideal government possesses the electoral and representative safeguards called for in *Cato’s Letters*, what is even more significant is that the Anti-Federalist Cato conceives of these safeguards as acting through interests.⁶¹ Not only do the Anti-Federalist Cato and the Cato of *Cato’s Letters* utilize the same mechanisms – annual elections, numerous representatives and rotation in office – but they envision them as protecting liberty in the same manner, by bringing the interest of those in government in line with the interests of the people.⁶² It is the commonality of this underlining justification for taking similar precautions that speaks to the commonality

of the political theory of the Anti-Federalist Cato and *Cato's Letters* with regards to representation.

Economic Liberty

The other type of liberty that Cato considers essential is economic liberty, the freedom to pursue and enjoy the fruits of one's labor. To this end, Cato insists that taxation be light and tariffs low, or ideally nonexistent. Of the former, he writes that "the most natural and equitable principle of apportioning taxes, would be in a ratio to their [the states'] property."⁶³ If other principles are used to assess taxation, the people will be subjected to "a long train of impositions which their [the rulers'] ingenuity will suggest" as those with power seek to prevent their lands from being taxed.⁶⁴ The end result will be that the people are forced to "submit to be numbered like the slaves of an arbitrary despot," while their property is taken and the wealthy rulers escape tax free.⁶⁵ In this manner, the free citizen is deprived of a measure of his liberty, the liberty to enjoy the benefits of his virtuous industry and frugality. Thus, when the people consent to the formation of government, it is to protect these two types of liberty, political and economic.

However, it is with regards to the results of this economic liberty that at first blush Cato can appear to be less than liberal, that is in his concern for the negative effects of commerce in relation to virtue. Cato does express concern that "the progress of a commercial society begets luxury, the parent of inequality, the foe to virtue, and the enemy of restraint."⁶⁶ However, upon further examination it becomes evident that Cato is a staunch advocate of free trade. He envisions tariffs as a pernicious foe of prosperity. When tariffs are imposed "the price of commodities, useful as well as luxurious, must be increased."⁶⁷ As a result people will buy less, causing merchants to import less and trade to stagnate.⁶⁸ With less trade, the import duties will yield less revenue, defeating the purpose of the tariffs, which Cato says are advocated by arguments that the revenue they produce will finance the federal government and eliminate the need for federal taxes.⁶⁹ Regardless, the increased prices will require increased income in order for the people to not be harmed by the tariff.⁷⁰ Cato thus concludes that ruin "must be the case for the farmer, whose produce will not increase, not in the ratio, with labour, utensils, and clothing; for that he must sell at the usual price or lower, perhaps caused by the decrease of trade; the consequence will be, that he must mortgage his farm, and then comes the inevitable bankruptcy."⁷¹ As a result of these tariffs, the people are deprived of their liberty to the extent that the merchant is not free to trade, the consumer is not free to buy and the farmer is not free to work his lands. Thus, for Cato liberty and commerce go hand and hand, with liberty and the subsequent ability to enjoy the fruits of one's own labor a necessary condition for trade to flourish. This formulation is

essential in that it demonstrates that with regards to trade the Anti-Federalist Cato is again in concurrence with the liberalism of *Cato's Letters*, where Trenchard and Gordon's Cato considers liberty to be perquisite that trade cannot exist without.⁷²

This concern for virtue could cause one to initially suspect a republican element to the political thought of the Anti-Federalist Cato. Evaluating such a hypothesis requires examining just what constitutes the virtue that Cato is concerned with. While Cato does not engage in an extensive discussion of what virtue is, consideration of Cato's purpose for virtue allows for the inference of what constitutes virtue for Cato. The principle purpose of virtue for Cato is that it allows for the preservation of liberty.⁷³ Accordingly, virtue exists in regards to the people's relationship with government.⁷⁴ Significantly, Cato conceives of the people as doing more than merely agreeing to the government as if it were some separate entity, to him they are also the ones whom the government consists of, staffing the government through constant competition as has been previously discussed.⁷⁵ As the government is thus composed of the people, they must possess the qualities that are required of good government. Thus, as "the magistrate should govern with wisdom and justice," and "mildness and moderation" must prevail in government, the people must possess each of these virtues.⁷⁶ Otherwise there is nowhere for a government staffed by the people to draw them from. In addition to staffing the government, the people also require virtue in their role of checking the government. It is the duty of the people to safeguard liberty by preventing government from acting too autonomously.⁷⁷ The way to do this is with constant vigilance and distrust towards those occupying the government.⁷⁸ Being sovereign, the people can vote out those who endanger liberty or even move to further constrain the actions available to government in order to defend their liberty. However, in order to fulfill these duties, the people must possess and cherish virtue. Armed with industry and frugality, men will naturally rally to cause of liberty; having to "acquire property by their own toil," and be thrifty with what was gained by the sweat of their brow, men will be tenacious in defense of their liberty.⁷⁹ But when these virtuous are undermined by "luxury, dissipation and a passion for aristocratic distinctions," liberty is "of course, less respected, and protected" by the people, making them more likely to accept tyranny.⁸⁰ Thus, the virtue that Cato requires from the people for the proper operation of government and defense of liberty is a multifaceted combination of wisdom, justice, mildness, moderation, vigilance, industry and frugality. Being thus broken down into its component parts makes it evident that the virtue Cato conceives of is a far cry from the self-sacrificing austerity of classical republicanism. Granted, both the Anti-Federalist Cato and Plutarch's Cato conceptualize frugality as having a role in public life, however, the Anti-

Federalist Cato lacks a constant dedication to state before self as a component of virtue. Instead, the Anti-Federalist Cato's virtue focuses on the preservation of the individual's right to liberty, an inherently liberal formulation.

Conclusion

That the Anti-Federalist Cato makes properly structured representation the essential tool for the preservation of the people's political and economic liberty in much the same way that Trenchard and Gordon do in *Cato's Letters* demonstrates the liberal nature of the Anti-Federalist Cato's political thought. What makes this particularly fascinating is that, in light of the general agreement regarding the liberal nature of Federalist political theory, it means that the debate between the Federalists and the Anti-Federalists was not a debate between two separate schools of thought, as would be the case if the debate were between republicanism and liberalism, but was in fact a debate within liberalism. On the one hand, Anti-Federalist liberalism shows the influence of John Locke, emphasizing the preservation of the natural rights of the individual and considering the most significant threat to these rights to be government. Conversely, Federalist liberalism demonstrates the influence of the Scottish Enlightenment, viewing the greatest threat to the rights of the individual as being not government, but the people themselves. This difference is at the very core of the debate between the Federalists and Anti-Federalists, shaping their opinions with regards to the proper scope, role and structure of government, particularly whether steps are to check the government or the people. Thus, what is gleaned from the study of the Anti-Federalist Cato is that the debate between the Federalists and the Anti-Federalists was driven not by the fundamental differences between liberalism and republicanism, but by differing fundamental assumptions within liberalism.

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Endnotes

¹ Gordon S. Wood, *The Creation of the American Republic: 1776-1787* (Chapel Hill: The University of North Carolina Press, 1969).

² Gordon S. Wood, "Interests and Disinterestedness in the Making of the Constitution," in *Beyond Confederation: Origins of the Constitution and American National Identity*, ed. Richard Beeman, Stephen Botem, and Edward C. Carter III, (Chapel Hill: University of North Carolina Press, 1987), 69-109.

³ John Trenchard and Thomas Gordon, *Cato's Letters: OR, Essays on Liberty, Civil and Religious, and Other Important Subjects*, ed. Ronald Hamowy, (Indianapolis, IN: Liberty Fund, Inc., 1995), 411. See also 427.

⁴ *Ibid.*, 418, 423.

⁵ *Ibid.*, 417.

⁶ Cato, *Letters to the Citizens of the State of New-York*, ed. Herbert J. Storing, The Complete Anti-Federalist, Vol. 2 (Chicago, IL: The University of Chicago Press, 1981), 118.

⁷ *Ibid.*

⁸ *Ibid.*, 114, 116.

⁹ *Ibid.*, 117.

¹⁰ *Ibid.*, 125.

¹¹ *Ibid.*

¹² *Ibid.*

¹³ *Ibid.*, 118-119.

¹⁴ *Ibid.*, 117. See also Trenchard and Gordon, 416.

¹⁵ *Ibid.*, 105.

¹⁶ *Ibid.*, 119.

¹⁷ Brutus, *Essays to the Citizens of the State of New-York*, ed. Herbert J. Storing, The Anti-Federalist: Writings by the Opponents of the Constitution, Abridged by Murray Dry (Chicago, IL: The University of Chicago Press, 1985), 117-18.

¹⁸ *Ibid.*, 118.

¹⁹ *Ibid.*

²⁰ *Ibid.*

²¹ *Ibid.*, 187.

²² *Ibid.*, 128.

²³ *Ibid.*

²⁴ *Ibid.*, 130.

²⁵ *Ibid.*, 114.

²⁶ *Ibid.*

²⁷ *Ibid.*

²⁸ Trenchard and Gordon, 418.

²⁹ Cato, 114.

³⁰ *Ibid.*

³¹ *Ibid.* See also Trenchard and Gordon, 417.

³² *Ibid.* Italics original. For that portion that is in italics Cato was

quoting Montesquieu, *The Spirit of the Laws* VIII, ch. 16.

³³ Ibid., 118.

³⁴ Ibid., 114. See also Trenchard and Gordon, 418.

³⁵ Brutus, 116.

³⁶ Ibid., 127.

³⁷ Ibid., 116.

³⁸ Ibid., 124.

³⁹ Ibid., 125.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Cato, 119. Cato is here responding to Article I, Section 2, Clause 3 and Article I, Section 3, Clause 1 of the Constitution which respectively set the initial size of the House of Representatives at sixty-five and the initial size of the Senate at twenty-six. The size of the House of Representatives is discussed in *The Federalist* Numbers 55 and 56, while the size of the Senate is discussed in *The Federalist* Numbers 39, 45, 60, 62 and 63.

⁴⁵ Brutus, 126.

⁴⁶ Ibid. 126.

⁴⁷ Ibid.

⁴⁸ Ibid., 128.

⁴⁹ Ibid.

⁵⁰ Ibid., 126.

⁵¹ Ibid.

⁵² Trenchard and Gordon, 418.

⁵³ Cato, 122.

⁵⁴ Brutus, 189-90.

⁵⁵ Ibid., 190.

⁵⁶ Trenchard and Gordon, 423.

⁵⁷ Brutus, 127. It is significant to compare this great art of government, binding the interests of the representatives and the people so that the representatives will advance the interest of the people, with the great art of government articulated by John Locke in *The Second Treatise*. See John Locke, *Two Treatises of Government*, ed. Peter Laslett (New York: Cambridge University Press, 1988), 298.

⁵⁸ Cato, 118.

⁵⁹ Ibid.

⁶⁰ Ibid., 125.

⁶¹ Trenchard and Gordon, 418, 423.

⁶² Ibid., 417.

⁶³ Cato, 121-122.

⁶⁴ Ibid., 121.

⁶⁵ Ibid.

⁶⁶ Ibid., 117.

⁶⁷ Ibid., 121.

⁶⁸ Ibid.

⁶⁹ Ibid., 120-21.

⁷⁰ Ibid., 121.

⁷¹ Ibid.

⁷² Trenchard and Gordon, 445.

⁷³ Cato, 112.

⁷⁴ Ibid.

⁷⁵ Ibid., 118.

⁷⁶ Ibid., 117 and 112 respectively.

⁷⁷ Ibid., 125.

⁷⁸ Ibid.

⁷⁹ Ibid., 112.

⁸⁰ Ibid.

Modeling Weak Gravitational Lensing Through C++

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Chris is a junior majoring in Physics with a minor in Chemistry. His research was funded with an Adrian Tinsley Program summer grant under the mentorship of Dr. Thomas Kling of the Physics department. This work was also accepted for presentation at the 2009 National Conference of Undergraduate Research. Chris plans to attend graduate school in Applied Physics.

G *gravitational lensing has become an integral part of astrophysics and the study of matter in the universe. In weak gravitational lensing, an object appears distorted when viewed from the observer's perspective. This is caused by the bundle of light being distorted by an object of considerable mass. Because the distance to each part of this bundle is not the same, the rays of light are affected differently causing a shearing and magnification of the image. This alteration in the image we see can be modeled using the thin lens approximation. By integrating the equations for light travel based on general relativity, a more accurate model can be created. Over the summer of 2008, my mentor and I have worked on creating a program through this method. By coding numerous mathematical operations and rewriting existing code to support a new coordinate system we have created a full program.*

I. Introduction

In space, there is a phenomenon that occurs when an object of exceptionally large clump of matter is positioned in the direct line of sight between an observer and a source of light. Under these circumstances, the gravitational pull of the matter will alter the path taken by light. The resulting path is deflected from its initial straight path into and curves from the source to the observer. This unique event is known as Gravitational Lensing.

There are two types of gravitational lensing: strong lensing and weak lensing. Strong gravitational lensing is the effect caused when the interfering matter has a very large gravitational pull, and is situated close to the source. The gravitational pull is so strong that it causes multiple images to appear around the area of the lens. It can also cause the appearance of an Einstein ring, a distortion of a set of images into a connected ring centered on the lens. Regardless of what happens to the image, the results are of such a magnitude that the distortion itself can be used in calculations.

Our research involves the second type of gravitation lensing called weak lensing. Weak gravitational lensing occurs when the large mass near the line of sight. The light rays under normal circumstances would travel straight to the observer, but with a lens so close to the line of sight the rays are curved into a different direction, while other rays are bent towards the observer. The resulting image that arrives at the observer can be affected in a variety of ways. In some cases, it may be elongated and warped. In other cases it may be magnified, or appear in a different location than it should. The biggest

difference between the distortions of weak lensing and strong lensing is that weak lensing causes altering of the image that are not significant enough to make calculations with. Furthermore, they may be so slight that without knowledge of its initial state, it is impossible to tell where and how it was affected. Therefore, in weak gravitational lensing, we must generally use statistical analyses of many observed objects.

The basic purpose of our research is to model weak gravitational lensing exactly for the first time— with none of the usual approximations. To do this, we will write a computer program in c++ that will model this phenomenon. By making use of the Runge-Kutta Adaptive Step Size process (RFK Step), we can integrate a differential equation to find the path of the light. This particular method of calculating the location of light as it travels is superior to the current technique being used, which only calculates it at three points in its path.

In addition, our program will also need to account for the distortion of the light ray as it is traveling closer and farther from the lensing mass. To do this, we consider the fact that light travels in curved space during gravitational lensing. As such, the difference in the paths that light rays take can be described by the geodesic deviation equation. By coding this into our program, we can calculate how the image is affected.

II. General Relativity

In General Relativity, there are specific equations that describe the path a ray of light travels. Through the use of the calculus of variations, the geodesic equations for light can be derived from these equations. In short, geodesic equations describe the shortest path between two points, while accounting for any factors that affect the distance. For example, the geodesic describing the shortest path between two points on the surface of a sphere will account for the curved surface it is on. It is these equations that will be used to find the length of the path, and the gravitational potential of the lensing object.

Our goal in this project is to determine the accuracy of the current approach. This approach, known as the thin lens approximation, considers the area where light is affected by the lens to be so thin that it is essentially its namesake, a thin lens. The effect gravity has on light is considered to occur only within a small area where the lens is considered to be, and has a much larger effect than normal to keep it accurate for the small area. Rays of light are considered to travel undisturbed until they reach this particular area and are then redirected, as if shining a light through a lens made of glass. The advantage this has is that the calculation will be solved geometrically. The problem with it is that in actuality, the light is affected the entire time it is within range of the lensing object, and so it

changes continually until it leaves the influence of the lensing object. Since the path changes so constantly, it makes sense to use integration to account for the changes. This is where the RFK Step program comes into play.

The idea behind the step size method is that before the light is within the range of the gravitational field, it travels with very little change. Then, when the rays come within range of the field, their paths change drastically. Once it leaves the gravitational field, the path is then changes very little again. The advantage of the adaptive step size is that when it integrates it takes two steps, followed by one large step that should be equal to the first two, and then calculates the difference between them. If the difference is within a predefined range, the program will consider it a good step and proceeds to take another of the same size. If it is outside of the range, the program then cuts down the step sizes and repeats the process. This allows for the program to quickly integrate the consistent areas the light travels, and then accurately integrate the areas where the rays are affected by gravity by cutting its step size down.

This method will calculate the change at all points along the geodesic, as opposed to only within a small area. This approach is closer to the actual process that light undergoes, and should yield more accurate results when making calculations. In addition to the path of light, we are creating code that describes the distortion of the light rays as they travel.

The distortion in the image is caused by different particles of light in these rays being pulled away from each other. The result is that the ray itself extends and rotates as the lens pulls on it. Mathematically, this distortion of light is called geodesic deviation. We model it by creating vectors that travel with the ray as it progresses through the geodesic. These vectors describe how two rays of light move in tandem with one another as time passes. By including them in the program, we will be able to examine how the rays of light change before they reach the observer. For the mathematical equations, please refer to the appendix.

III. Computer Code

Our program main file is similar to a previous program that was written by Dr. Kling, with some adjustments made to it. The basis of the old program is that it uses the RFK- Adaptive Step size method to integrate along the light path from the observer to the source of light. We have changed it to the more appropriate scenario for this study of integrating from the source to the observer. The program is designed to output the angle theta, between the observer and the apparent source, and the bisection value. The next change we made was to the

coordinate system. It is necessary for us to calculate in a system of three coordinates: φ , r , and t .

To calculate the geodesic of the light ray and its root bisection value, we use the calculus of variations. Basically, we take an equation known as the Lagrangian, and we insert it into the Euler-Lagrange equation. This calculation is coded using the RKF Step size method. The program calculates the gravitational potential and the root bisection value, outputting both for the user. In order to use the RKF step process, we coded the necessary derivatives from the calculus of variations into functions for use in the integration file. This is necessary because the program cannot easily calculate multiple variables at once. The functions find specific variables based on other initial constants input by the user. In addition, we have coded the program that calls these functions to find the amount of error generated when taking the steps.

The next alteration to be coded was the creation of a function that calculates the geodesic deviation. By using the geodesic deviation equation, we can account for the distortion of light rays as they travel through space. This program is called by the main file as it runs a for loop. The bisection and angle values already calculated by the program are passed into the function to ensure that when the geodesic deviation is calculated, it is for the same ray of light we are examining. After this, the for loop causes the program to repeat its actions. Before combining the two parts into one program, there was one more file to be coded. We needed to create four functions that would be used to calculate the deviation with predetermined values.

Once complete, our program will integrate the geodesic of a specific light ray and output the angle between the observer's line of sight to the lens and the source of light. It will also output a bisection value. These values will then be passed into a function that calculates the geodesic deviation of that particular light ray, and will output the result of that calculation onto the screen. This completes one loop in the main file, and the program will change the position of the source and make the same calculation again, up to ten times.

IV. Mathematical Equations

The Lagrangian (1.1) is defined in the (φ, r, t) coordinates system, and is inserted into the Euler-Lagrange Equation (1.2).

$$L = \frac{1}{2} \left((1+2\varphi)\zeta^2 - (1-2\varphi)(r^2 + r^2\phi^2) \right) \quad (0.1)$$

$$\frac{\partial f}{\partial y} - \frac{d}{dx} \frac{\partial f}{\partial y'} = 0 \quad (0.2)$$

Because computer code cannot solve for more than one variable, it was necessary for us to create the following four functions (1.3 – 1.6).

$$\phi = \frac{b}{r^2} (1+2\varphi) \quad (0.3)$$

$$\zeta = \frac{b}{r^2} (1+2\varphi) \quad (1.4)$$

$$r = -2\varphi_{,jr} + 2(1+2\varphi)\varphi_{,jr}r^2 + \frac{b^2}{r^3}(1+4\varphi) \quad (0.4)$$

$$r = v_{r_o} = \sqrt{1 - \frac{b^2}{r^2}(1+4\varphi)} \quad (0.5)$$

These functions are parts of the derivative calculation that are called by the RKF step program where at different points in its operation to take a complete derivative.

The geodesic deviation equation is calculated using the Riemann Curvature Tensor. The Riemann Curvature Tensor is made up of first and second derivatives of the gravitational potential. In our study, we used the truncated NFW potential introduced by Baltz et al.:

$$\varphi = \left(\frac{GM_0}{r_s} \right) \left(\frac{\tau^2}{(1+\tau^2)^2} \right) \times F \quad (2.1)$$

where

$$F = \arctan(x/\tau) \left(\frac{1}{\tau} - \tau - 2\frac{\tau}{x} \right) + \ln \left(\frac{1+(x/\tau)^2}{(1+x)^2} \right) \left(\frac{\tau^2-1}{2x} - 1 \right) + \frac{\pi(\tau^2-1)}{2\tau} - 2 \ln \tau$$

where $x = r / r_s$ and $\tau = r_t / r_s$, for the radial coordinate r , and the “scale radius” r_s and “tidal radius” r_t .

After taking the x , y , and z derivatives (dx , dy , dz) we are left with the Reimann Curvature Tensor, which indicates the presence of spacetime curvature caused by a massive lens.

$$R_{bcd}^a = g^{ga} R_{abcd}$$

The following equations show the components of the Reimann Tensor:

$$ds^2 = (1 + 2\phi)dt^2 - (1 - 2\phi)(dx^2 + dy^2 + dz^2) \quad (2.2)$$

$$R_{oioi} = -\phi_{ii} \quad (2.3)$$

$$R_{oioj} = -\phi_{ij} \quad (2.4)$$

$$R_{ijij} = -\phi_{ii} - \phi_{jj} \quad (2.5)$$

$$R_{ijik} = -\phi_{jk} \quad (2.6)$$

Where $j \neq k$

After computing each Riemann tensor term, we used the geodesic deviation equation, which explains how a vector Y changes as it is carried along the light rays. The geodesic deviation equation for Y is a second order differential equation,

$$\ddot{Y}^a = -R_{bcd}^a \dot{Y}^b \dot{Y}^c Y^d,$$

where here we are using the standard Einstein Summation Convention of general relativity. When we write out the full equations, using the definitions of the Riemann tensor terms above, we get four, very complicated differential equations (3.1 – 3.4), which together will calculate the geodesic deviation.

$$\begin{aligned} \ddot{Y}^o = & -\phi_{xx} l^x l^o Y^x + \phi_{xx} l^x l^x Y^o - \phi_{yy} l^y l^o Y^y + \phi_{yy} l^y l^y Y^o - \phi_{zz} l^z l^o Y^z + \phi_{zz} l^z l^z Y^o \\ & -\phi_{xy} l^x l^o Y^y + \phi_{xy} l^x l^y Y^o - \phi_{xz} l^x l^o Y^z + \phi_{xz} l^x l^z Y^o - \phi_{yz} l^y l^o Y^z + \phi_{yz} l^y l^z Y^o \\ & -\phi_{xx} l^y l^o Y^x + \phi_{xx} l^y l^x Y^o - \phi_{xx} l^z l^o Y^x + \phi_{xx} l^z l^x Y^o - \phi_{xx} l^z l^y Y^x + \phi_{xx} l^z l^y Y^o \end{aligned} \quad (3.1)$$

$$\begin{aligned} \ddot{Y}^x = & \phi_{xx} l^o l^x Y^o - \phi_{xx} l^o l^o Y^x + \phi_{xy} l^o l^y Y^o - \phi_{xy} l^o l^o Y^y + \phi_{xz} l^o l^z Y^o - \phi_{xz} l^o l^o Y^z \\ & + (\phi_{xx} + \phi_{yy}) l^y l^x Y^y - (\phi_{xx} + \phi_{yy}) l^y l^y Y^x + (\phi_{xx} + \phi_{zz}) l^z l^x Y^z - (\phi_{xx} + \phi_{zz}) l^z l^z Y^x \\ & + \phi_{yz} l^y l^x Y^z - \phi_{yz} l^y l^z Y^x + \phi_{yz} l^z l^x Y^y - \phi_{yz} l^z l^y Y^x - \phi_{xz} l^y l^y Y^z + \phi_{xz} l^y l^z Y^y \\ & -\phi_{xx} l^z l^x Y^y + \phi_{xx} l^z l^y Y^z \end{aligned} \quad (3.2)$$

$$\begin{aligned} \ddot{Y}^y = & \phi_{yy} l^o l^y Y^o - \phi_{yy} l^o l^o Y^y + \phi_{yx} l^o l^x Y^o - \phi_{yx} l^o l^o Y^x + \phi_{yz} l^o l^z Y^o - \phi_{yz} l^o l^o Y^z \\ & + (\phi_{yy} + \phi_{xx}) l^x l^y Y^x - (\phi_{yy} + \phi_{xx}) l^x l^x Y^y + (\phi_{yy} + \phi_{zz}) l^z l^y Y^z - (\phi_{yy} + \phi_{zz}) l^z l^z Y^y \\ & + \phi_{xz} l^x l^y Y^z - \phi_{xz} l^x l^z Y^y + \phi_{xz} l^z l^y Y^x - \phi_{xz} l^z l^x Y^y - \phi_{yx} l^z l^y Y^z + \phi_{yx} l^z l^x Y^x \\ & -\phi_{xx} l^z l^x Y^x + \phi_{xx} l^z l^y Y^z \end{aligned} \quad (3.3)$$

$$\begin{aligned} \ddot{Y}^z = & \phi_{zz} l^o l^z Y^o - \phi_{zz} l^o l^o Y^z + \phi_{zy} l^o l^y Y^o - \phi_{zy} l^o l^o Y^y + \phi_{zx} l^o l^x Y^o - \phi_{zx} l^o l^o Y^x \\ & + (\phi_{zz} + \phi_{xx}) l^x l^z Y^x - (\phi_{zz} + \phi_{xx}) l^x l^x Y^z + (\phi_{zz} + \phi_{yy}) l^y l^z Y^y - (\phi_{zz} + \phi_{yy}) l^y l^y Y^z \\ & + \phi_{xy} l^x l^z Y^y - \phi_{xy} l^x l^y Y^z + \phi_{yx} l^y l^z Y^x - \phi_{yx} l^y l^x Y^z - \phi_{zy} l^x l^z Y^y + \phi_{zy} l^x l^y Y^x \\ & -\phi_{xx} l^y l^z Y^x + \phi_{xx} l^y l^y Y^z \end{aligned} \quad (3.4)$$

The subscripts represent partial derivatives, while the superscripts represent vectors in the matrix. Each of these equations describes a particular component of the geodesic deviation. For example the third equation describes the amount of change along the y direction of two rays of light.

In order to find the potential we used, it was necessary to derive the numerical derivative for use in the computer code. The most accurate way to do this is to find the Taylor Series expansion.

$$f(x + \zeta) = f(x) + f'(x)\zeta + \frac{1}{2} f''(x)\zeta^2$$

$$f(x - \zeta) = f(x) - f'(x)\zeta + \frac{1}{2} f''(x)\zeta^2$$

By combining these two expansions, we are left with the derivative we need.

$$f''(x) = \frac{f(x + \zeta) + f(x - \zeta) - 2f(x)}{\zeta^2}$$

We have also taken a second expansion resulting in four equations.

$$f(x + \zeta, y + \zeta) = f + f_x \zeta + f_y \zeta + \frac{1}{2} f_{xx} \zeta^2 + \frac{1}{2} f_{yy} \zeta^2 + f_{xy} \zeta^2$$

$$f(x + \zeta, y - \zeta) = f + f_x \zeta - f_y \zeta + \frac{1}{2} f_{xx} \zeta^2 + \frac{1}{2} f_{yy} \zeta^2 - f_{xy} \zeta^2$$

$$f(x - \zeta, y + \zeta) = f - f_x \zeta + f_y \zeta + \frac{1}{2} f_{xx} \zeta^2 + \frac{1}{2} f_{yy} \zeta^2 - f_{xy} \zeta^2$$

$$f(x - \zeta, y - \zeta) = f - f_x \zeta - f_y \zeta + \frac{1}{2} f_{xx} \zeta^2 + \frac{1}{2} f_{yy} \zeta^2 + f_{xy} \zeta^2$$

The subscripts once again represent partial derivatives. These equations were combined in the same manner as before, resulting in:

$$4f_{xy}\zeta^2$$

V. Research Activities

Over the summer, we have made a great amount of progress toward our goals. There were many tasks we set about in order to allow us to use the most accurate method to model thin lensing. The following is a table of completed objectives for the research.

Our project is in the final stages of the process we set out to achieve. Presently, we have finished combining each segment of code we have written into a complete computer code. While each particular segment ran properly before combining them, the complete file does not function correctly. When we manage

to run the file, it outputs a geodesic deviation that is too large to be correct. Because of this, we must search through the code to find the error that is causing the problem. This error could be a simple bug in the program, or it could be as serious as a conceptual error in the calculations. As such, the future of this project is to find the source of the error in this computer code and fix it.

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Item Description	Status
Introduced more physical truncated NFW potential	Complete
Changed equations of motion to be time independent	Complete
Changed from integrating backwards in time to forwards	Complete
Confirmed code working to find true path	Complete
Coded the equations for geodesic deviation	Coded and checked with maple
Derived and wrote code for numerical derivatives	Complete
Modified RKF code to integrate path and geodesic deviation	Code written, tested, but not fully implemented
Examine shape of objects with geodesic vector	Incomplete

A Bridge between the Mind and Body: The Effects Of Massage On Body Image State

BONNIE FLETCHER

Bonnie Fletcher is a senior majoring in Psychology and Physical Education, with a concentration in Exercise Physiology, and a minor in Art. She conducted this research under the mentorship of Dr. Teresa King of the Psychology Department. After presenting this research at the 2009 National Conference for Undergraduate Research in Wisconsin, Bonnie will begin working on her interdisciplinary Honors Thesis.

While research suggests positive effects of massage on psychological health, little is known about the effects of massage on body image. The purpose of this study was to examine the effect of massage on body image and to examine relationships between body image and attitudes toward massage. Twenty-one female college students aged 18 to 67 ($M=25.2$, $SD=13.20$) were randomly assigned to either a massage or control condition. Participants completed questionnaires measuring body image state and trait, attitudes toward massage, and demographics. It was hypothesized that the experimental group would show greater body image change than the control group. Results showed improved body image in both conditions, while large correlations were found between body image and attitudes toward massage.

With unrealistic appearance ideals being increasingly more present in both the media and society, it is no wonder that body image has been receiving more attention by researchers. The construct of body image is coming under scrutiny more and more, both empirically and clinically (Cash, Morrow, Hrabosky, & Perry, 2004). Body image was once defined as “the picture of our own body which we form in our own mind” (Pruzinski & Cash, 2002). Due to its increasingly more recognized complexity, it has been more recently described as “a person’s mental image and evaluation of his or her physical appearance and the influence of these perceptions and attitudes on behavior” (Foster, 2004).

Body dissatisfaction is so common in women that it has come to be known as “normative discontent” (Rodin, Silberstein, & Striegel-Moore, 1985). Research has shown that women typically want to be smaller than their actual body size. For example, in a study of 101 female university students, about two fifths of the women reported moderate to strong negative feelings about both individual body parts and their bodies as a whole (Monteath & McCabe, 1997). The high prevalence of body dissatisfaction, coupled with its association with health compromising behaviors, makes female body image an important focus for continued research.

Body image disturbance had been defined as a continuum of a person’s body-image dissatisfaction, distress, and dysfunction (Cash, Phillips, Santos, & Hrabosky, 2004). Not restricted to weight and body shape alone, body image dissatisfaction extends to include hair, muscle tone, or any of numerous

other personal characteristics. General body dissatisfaction has been shown to be related to several indicators of psychological health. For example, a study on adolescent females revealed body dissatisfaction to be a strong predictor of low self-esteem (Johnson & Wardle, 2005). Further associations have been found between negative body image and depression (Noles, Cash, & Winstead, 1985), social anxiety (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002), and sexual difficulties (Wiederman, 2002).

Body Image and Health Behaviors

A negative body image has been shown to be related to several health behaviors such as eating disorders, excessive exercise, and difficulty quitting smoking (King, Matacin, White, & Marcus, 2005). In 2005, Johnson and Wardle showed that body dissatisfaction is strongly correlated with dietary restraint, which is directly connected with the purging characteristic of bulimia nervosa (Herman and Mack (1975). There is also evidence to show that improved body image may lead to improved health behaviors. For example, according to a report on body image coping in women with breast cancer, women who felt better about their bodies held stronger personal confidence in dealing with illness and more empowered coping abilities (Pikler & Winterowd, 2003). Thus, improving body image may not only affect body image, but also improve health behaviors.

Massage and Body Image

While massage is an often recommended technique to improve body image, very little research has examined what happens to body image as a result of massage. The American Massage Therapy Association (AMTA) defines “massage” as “manual soft tissue manipulation that includes holding, causing movement, and/or applying pressure to the body.” The AMTA further defines massage *therapy* as “a profession in which the practitioner applies manual techniques, and may apply adjunctive therapies, with the intention of positively affecting the health and well-being of the client” (AMTA, 2008).

According to Cash (1995), a poor body image may lead to emotional upset due to pressing body anxieties. When an individual is emotionally upset, the body may react through muscle contraction. This muscular tension may remain well after the causal emotions have passed, which may leave the individual even more prone to future emotional upset. He further suggests that the control of muscle tension may be important for emotional control, in cases of body image and other issues. Massage therapy is a treatment that may be used specifically to reduce muscular tension.

Research does support a relationship between massage treatment and improved psychological health. For example, massage

therapy is positively correlated with lower depression levels in patients with bulimia nervosa (Field et al., 1998) and with decreases in cortisol levels in patients with anorexia nervosa (Hart, 2001). Massage has also been shown to aid female body acceptance post-mastectomy (Bredin, 1999).

In addition to relieving muscular tension in emotionally upset individuals, massage may also be beneficial to individuals with negative body image. It is possible that the experience of massage may cause the person to be less likely to see his or her body solely as an object. A person with a negative body image often objectifies his or her body, that is, it is viewed as an object to be evaluated. Thus, the body brings unhappiness because it is perceived as not measuring up to society’s ideals (McKinley, 2002). The rationale behind the use of massage as an intervention is simple; when an individual receives a massage, his or her body becomes a vehicle for the experience of relaxation. This is in sharp contrast to how the body is typically experienced by an individual with a negative body image.

Body Image States and Traits

Because body image is greatly impacted by context (Cash, 2002), an understanding of the differences between “traits” and “states” is especially crucial in body image research. “State Anxiety” (A-State) is defined as “a transitory emotional condition characterized by subjective feelings of tension and apprehension.” This may be best described as how an individual feels in a given moment, which by definition is expected to have varying intensities and to fluctuate over time. “Trait Anxiety” (A-Trait) can be considered as a relatively stable baseline level of proneness towards anxiety. Rather than a feeling in a given moment, A-Trait may be described as how an individual feels generally (Spielberger, Vagg, Barker, Donham, & Westberry, 1980). For the purposes of understanding body image state and trait, they may be viewed as parallel to A-State and A-Trait.

The Current Study

The current study closely examined the effects of a single massage on body image state through a randomized controlled pre-post test experiment. It was hypothesized that massage would improve body image state. A secondary aim was to examine relationships among body image and attitudes toward massage.

Method

Participants

A total of 23 female college students were recruited through an introductory psychology student subject pool at a Northeastern state college. Of the 23, one decided not to participate after reading the informed consent document, and a second dropped out due to emotional discomfort after the pre-test. Of the 21 final participants, 8 were randomly assigned to the

massage condition and 13 to the control condition. They were aged 18 to 67 ($M=25.6$, $SD=12.9$). Weight ranged from 95 to 230 pounds ($M=143.9$, $SD= 31.9$) and height ranged from 61 to 71 inches ($M=64.7$, $SD= 2.6$). Participants were 85.7% Caucasian.

All participants were treated in accordance with APA guidelines, and were informed of their right to cease participation at any time before, or during the study in the event of physical or emotional discomfort.

Measures

Body Image State Measures

Two scales were employed in this study to measure body image state. The Body Image States Scale (BISS) has six items that are used to assess and individual's evaluative and affective body image state at a given moment in time (Cash, 2008). Possible scores range from 1 to 9, and higher scores indicate more positive body image. The Physical Appearance State and Trait Anxiety Scale (PASTAS) was developed to measure the anxiety of appearance concern immediately before and after a treatment session, and participants rate the anxiety associated with 16 body sites. This scale has a two week test-retest reliability of 0.87, indicative of good reliability (Reed, Thompson, Brannick, & Sacco, 1991).

Body Image Trait Measures

The Figure Rating Scale (FRS) was used in this study as a trait measure to assess body image disturbance. Participants marked their current and ideal body sizes, and the difference between the two was used as a measure of body image disturbance (Stunkard, Sorenson, & Schulsinger, 1983). The second scale used to measure body image trait was the Multidimensional Body-Self Relations Questionnaire- Appearance Scales (MBSRQ-AS; Cash, 2000). This 34-item measure consists of 5 subscales to measure various aspects of body image. Higher scores in the Appearance Evaluation and the Body Areas Satisfaction Scales reflect higher body image satisfaction. Higher scores on the Appearance Orientation reflect more investment in appearance. For the remaining two subscales, Overweight Preoccupation, and Self-Classified Weight, lower scores indicate higher satisfaction. Participants respond to questions on a scale of 1 ("Definitely disagree") to 5 ("Definitely agree").

Reed, D., Thompson, J.K., Brannick, M.T. and Sacco, W.P., 1991. In: Allison, Editor, 1991. *Handbook of assessment methods for eating behaviors and weight-related problems*, Sage Publications, CA. p.126 *Attitudes toward Massage Scale (ATOM)*

The Attitudes toward Massage Scale (ATOM; Moyer, 2008) was included to measure how participants view various aspects of massage. The global ATOM scale is comprised of the "Massage as Healthful" and the "Massage as Pleasant" subscales. With a total of 9 items, higher scores on each subscale indicate a more positive attitude toward massage. Subscales have been found to be both reliable and valid (Moyer, 2008).

Additional Measures

A demographic questionnaire was included at the end of all post-tests which included age, sexual orientation, ethnicity, and height and weight as measured by the researcher. Those participants assigned to the massage condition were also asked to fill out a health history form that included massage treatment preferences silhouettes.

Other Materials

Participants randomized to the control condition viewed the 50-minute episode "Pole to Pole" from the Planet Earth series with commentary by David Attenborough. Those randomized to the massage condition received massage on an Oakworks portable massage table, with Pure Pro Hypoallergenic massage oil and freshly washed natural color cotton linens. Selections from the Planet Earth soundtrack by the BBC Orchestra were played softly as background music during the massage treatment. All heights and weights for participants in both conditions were measured using a Detecto medical scale.

Procedure

Approval to conduct this study was obtained from the Bridgewater State College Internal Review Board (IRB). Time slots were randomly assigned to either the massage condition or the control condition by the flipping of a coin prior to being posted for sign ups. All researchers involved were female, and the primary researcher was also the massage therapist.

Pre-test

After informed consent was obtained, the participant was given a pre-test which consisted of the FRS, the MBSRQ-AS, the PASTAS, the BISS, and the ATOM. Upon completion of the pre-test, the participant was informed of the condition to which she was assigned.

Conditions

If the participant was assigned to the control condition, she watched a 50-minute nature video. If assigned to the experimental condition, the participant received a 50-minute massage. Prior to the massage she completed a health history form that included marking on a silhouette any areas that she did not wish to have touched. She then signed the bottom of the form indicating her consent to be massaged. Each massage

treatment was identical, with the exception of avoidance of areas marked by each participant.

Post-test

Following the 50-minutes spent in a condition, the participant completed a post-test consisting of the BISS, the PASTAS, and a demographic questionnaire. Height and weight were then measured by the research assistant before debriefing and dismissal.

Results

Paired sample t-tests were conducted for each condition to evaluate the effects of the condition on body image state. Results indicated that the mean pre-score for the PASTAS in the massage condition (M=.74, SD=1.75) was significantly greater than the post-score (M=.54, SD= .52), $t(7) = 3.3, p < .05$. In the control condition, the mean pre-score (M=.64, SD=.51) was also significantly greater than the post-score (M=.50, SD=.54), $t(12) = 3.4, p < .01$. Both indicate a decrease in state anxiety which can be seen in Figure 1. Additional results in the control group indicate that the mean BISS pre-score (M=4.97, SD=1.30) was significantly less than the post-score (M=5.4, SD=1.17), $t(12) = -2.6, p < .05$. These results, shown in Figure 2, also indicate an improvement in body image state after the 50 minute condition. There were no significant correlations between the ATOM subscales and the body image scales (see Table 1.).

Discussion

The purpose of this study was to examine whether or not massage treatment would improve state body image. As body image state and anxiety improved significantly in both the massage and the control conditions, results do not fully

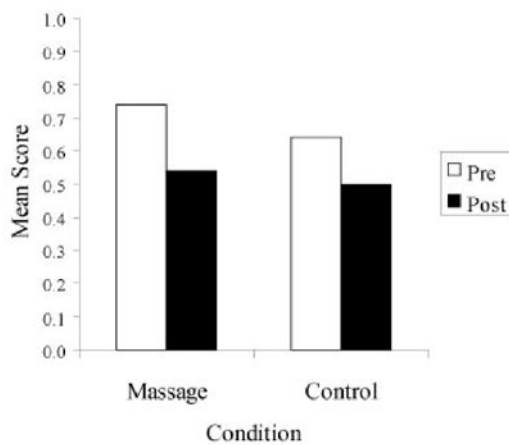


Figure 1. Mean scores of the Physical Appearance State and Trait Anxiety Scale (PASTAS) for each condition, pre and post manipulation

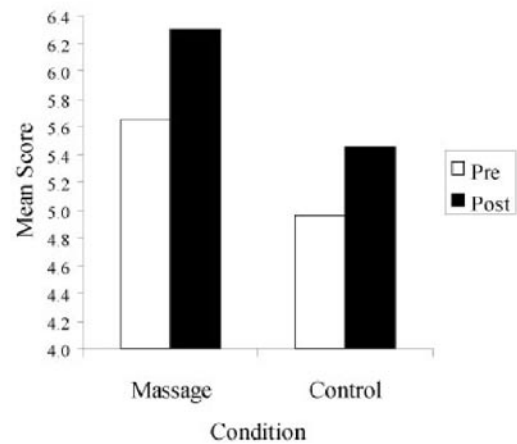


Figure 2. Mean scores of Body Image States Scale (BISS) for each condition, pre and post manipulation

Table 1. Intercorrelations (Pearson's r) between Subscales of the Attitudes toward Massage Scale (ATOM) and Body Image Scales (N=13)

ATOM Scales	BISS	PASTAS	FRS	AE	AO	BAS	OP	SCW
Massage as Healthful	.25	-.08	-.25	.36	.02	.05	-.20	-.17
Massage as Pleasant	.32	-.06	-.27	.44	-.01	.32	-.30	-.19
Global	.32	-.08	-.29	.45	.01	.21	-.29	-.20

Note. Reported state scale data are from pre-tests only.
*p < .05.

support the hypothesis. Since the primary variable of interest was body image state, which by definition can fluctuate with the passage of time, it was important to control for the passage of time. However, the control condition may have also had an unintended effect on body image. It may also be the case that engaging in any type of relaxation for a sufficient period of time may have a positive effect on body image state; however, the difference in the means was greater for both of the measures in the massage group. This suggests that the massage condition was more powerful than the control condition, but that the study did not have enough statistical power to detect differences in body image state.

It was also interesting to note the correlations between the ATOM and pre-test body image measures. While none of the correlations reached statistical significance, ATOM subscales were consistently positively correlated with positive body image state scores, positive appearance evaluation scores, and positive body areas satisfaction scores. ATOM subscales were

also consistently negatively correlated with physical appearance state anxiety, body image disturbance (as measured by the FRS), and overweight preoccupation. It seems evident from these results that individuals with more positive attitudes about their bodies in general may carry more positive attitudes toward massage therapy treatment.

Strengths and Limitations

The major strength of this study is the fact that the effect of massage on body image state has never been examined before, thus the findings make a contribution to the current literature. The experimental nature of the study should also be highlighted. Participants were randomly assigned to each condition. Although random assignment was used to create equivalent groups, there were some differences between the two groups. Increasing the sample size should result in more equivalent groups. Another strength of the study included using the same therapist for each massage. It is difficult in massage therapy research to control consistency of massage treatment elements across subjects, due to the cost, and matched therapist experience, and technique. As the therapist was also the primary researcher, extreme care was taken to monitor every aspect of treatment for high control levels.

As noted above, the major limitation of this study was the very small sample size. With only 8 final participants in the massage condition, results are inconclusive. Additionally, it was very difficult to control for extraneous participant anxiety pre-massage. For most of the participants, the massage treatment received was their first massage experience.

Future Research

Continued progress in the current study leading to a larger final sample size will be important to determine whether the relationship between massage and body image change is greater than the control. Besides increasing the statistical power, a larger sample size would allow the researcher to examine characteristics of individuals who would benefit from massage treatments. Participant experience with massage should also be taken into consideration, in order to control for the introduction of pre-manipulation anxiety. Future research should also examine the effect of massage therapy over time on body image trait to see if changes in body image stabilize.

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An Optical Scalar Approach to Weak Gravitation Lensing

LOUIS BIANCHINI

Louis will graduate summa cum laude in May of 2009, with a Bachelors of Science in Physics and Mathematics. Louis conducted this research, which was funded by the Adrian Tinsley summer program, with his mentor Dr. Thomas Kling of the Physics Department. This work was presented at the 2009 National Conference of Undergraduate Research. Louis will be entering graduate school in 2009 to pursue a doctorate in Physics.

We assume a thick gravitational lens governed by a Baltz $n=1$ matter density model. From the gravitational potential we then derive expressions for a Weyl tensor component and Ricci tensor component. A perturbative approach is taken to solve for the convergence and shear as given by Sach's equation. By applying the geodesic deviation equation to a bundle of light rays with our expressions for the optical scalars we are able to derive expressions for the image shape and size at any point along the path from source to observer, in the case of an axially symmetric lens and source.

I. Introduction

The pre-relativity idea of gravitation was that objects with mass would interact with each other directly. The strength of this gravitational interaction is dependent on the mass of both objects, as well as the distance between them. However, with relativity came a new interpretation. The first change is that our use of only three coordinates to describe events is insufficient, since the inclusion of a time coordinate became necessary. Similarly, this changes the distance between objects as now we need to account for a change in time. Formally, this requires the use of tensors and a metric that accounts for gravitational effects when computing the distance or time between two events. Qualitatively, we say that space and time are connected to form a space-time. Moreover, the gravitational force an object of relatively small mass will experience as it moves through space-time is not best thought of as an interaction between it and all other massive objects. Instead, the force such an object experiences is caused by its movement through a curved space-time. The curvature of space-time, in turn, is caused by other massive objects.[1,2]

To work in relativistic physics, it is necessary to introduce four component vectors. This fact alone does not require any change in our geometry, however. It is the concept of curvature which requires the change in geometry. In a flat geometry, the metric is given by $ds^2 = -dt^2 + dx^2 + dy^2 + dz^2$, in coordinates of (ct, x, y, z) . Another representation of the metric is as a tensor, denoted by g . A tensor, of rank (k, l) , is a multi-linear map taking k dual vectors and l vectors into a real number. There are often different interpretations, for example a $(1, 1)$ tensor can take a dual and ordinary vector into a real number, or it can take an ordinary vector into an ordinary vector. For the flat

geometry described by the above coordinates, $g_{ab} = g^{ab}$. This expression tells us that every vector is its own dual. It turns out that we don't need to keep track of whether a vector is a dual vector or a regular vector, if our vector space is governed by flat geometry.^[1,2,6]

In curved space, however, this does not hold. In general, $g_{ab} \neq g^{ab}$. This curved space is best handled in a new type of geometry, based on the concept of Riemann manifolds.^[1,6] Simply put, a manifold is a space which operates similar to flat geometry, in a local region, but whose global structure is allowed to deviate from Euclidean space. An example of this is the Earth, which we can associate a flat Euclidean geometry to, on a local scale (such as a room or a town), but the Earth is clearly curved overall. A Riemann manifold is an extension of a differentiable manifold, which is a manifold where Calculus works as expected, and allows an inner product to be defined in each tangent space of the manifold. In turn, a tangent space is a real vector space, which has the simplest mathematical properties. Whether done consciously or not, pre-relativity physics was performed in a vector space.

We may also note that one great benefit of using tensors is that any tensor equation which is true for one coordinate system is necessarily true for every coordinate system. There are some expressions which depend on what coordinates are used in pre-relativity physics; they would not be tensor equations. The usefulness of tensors is derived in part from the fact they are universal statements, applicable to any choice of coordinates. This allows us to exploit whatever symmetry is present and to choose coordinates that simplify the geometry of that particular problem.

II. Space-Time Curvature

Imagine taking a particular vector associated with a point and moving it around some arbitrary closed loop. By intuition, we expect to get the same vector we started with as our result. However, this only holds for flat geometries^[1]. In the space-time manifold there are indeed regions where this effect fails. The Riemann curvature tensor (denoted R_{abcd}) directly measures how much our choice for the arbitrary closed loop matters when we take our vector along the loop. The loop that we choose also depends on the underlying space-time curvature, which explains why for a flat space-time this effect is not seen, while curved space-times have this effect.

It turns out that we may decompose the Riemann tensor. In general relativity, we take a notation of raised and lowered indices, which mean different things. If we take a Riemann tensor, $R_{abc}{}^b$, by use of the raised and lowered index b , this is equal to the Ricci tensor R_{ac} . Interestingly, if we take the

trace (by letting $a=c$) of the Ricci tensor, we get $R_a{}^a = R$. This expression, R , tells us how much the region of the space-time manifold we are investigating differs from a flat (Euclidean) geometry. Then the Ricci tensor can be used to get a direct measurement of the curvature of space-time. The Ricci tensor, however, is only half of the decomposition of the Riemann tensor. The other half is called the Weyl tensor, denoted C_{abcd} . The Weyl tensor is also called the conformal tensor, since as the name suggests, it is invariant to conformal changes (a mapping which preserves angles) to the metric. In practice, this means that if the Riemann manifold is to be conformally flat, then the Weyl tensor must vanish under contraction. The simplest way to ensure any tensor is to vanish under contraction is to make it strictly trace-free, as contraction will lead to terms that are part of the trace.^[1,2]

It is now necessary to introduce the idea of a null vector, and a null tetrad. In Euclidean geometry, the expression $\vec{A} \cdot \vec{A}$ computes the square of the length of the vector A . In the same manner, with a four dimensional vector and a given metric, we may compute the dot product of any vector with itself. This calculation is performed, assuming the Einstein summation notation, as $\vec{A} \cdot \vec{A} = g_{ab} A^a A^b$. Since in our vector we have three spatial and one time component, it is possible that this result is 0, meaning that the vector is null. If two events were related by such a vector, they would be on the same light cone. A null tetrad is then defined to be a set of four null vectors, $\{l^a, n^a, m^a, \bar{m}^a\}$, where $l^a, n^a \in \square$, $m^a \in \square$, and \bar{m} is the complex conjugate of m .^[1,2,6] The four null vectors are chosen to be combinations of vectors that are part of the original vector space defining the metric. This forms the core of the Newman-Penrose spin coefficients. In this formalism, the Weyl tensor now has 10 independent components, one of which we are interested in. Similarly, the Ricci tensor can be represented by a set of scalars, four real and three complex. The two components of interest to us are given in equations (1) and (2)^[3].

$$\Psi_0 = -C_{abcd} l^a m^b l^c m^d \quad (1)$$

$$\Phi_{00} = -\frac{1}{2} R_{ab} l^a l^b \quad (2)$$

III. Calculating Ψ_0 of the Weyl tensor

We started with a Baltz $n = 1$ mass density model, given by^[4]

$$\rho_{mass} = \frac{M_0}{4\pi r(r+r_s)^2} \left(\frac{r_t^2}{r^2+r_t^2} \right) \quad (3)$$

In this model, r_s is the scale radius for the mass distribution, and r_t is the tidal radius. The value M_0 is a constant, with units of mass given by the formula $M_0 = 4\pi r_s^3 \rho_c$, where ρ_c is the critical density, dependent only upon the area. The choice of this model is based on the success of the Navarro-Frank-White (NFW) dark matter halo distribution, which is the result of running multiple numeric simulations of gravitationally interacting particles. The NFW model has the problem of resulting in a divergent total mass; the Baltz model is essentially a truncation of the NFW model past the tidal radius. As such, this model has a finite total mass and is thus more realistic. Of importance to the calculation for gravitational potential (φ) is the fact that this density function is symmetric with respect to the angular coordinates (θ, ϕ). By solving for the potential (φ) in spherical coordinates, by integrating twice, as given by Poisson's equation we obtained the potential given in equation. We may note that the partial derivatives which appear in equation are actually total derivatives due to symmetry.

$$\nabla^2 \varphi = \frac{1}{r^2} \frac{\partial}{\partial r} \left(r^2 \frac{\partial \varphi}{\partial r} \right) = 4\pi G \rho_{mass} \quad (4)$$

$$\frac{d\varphi}{dr} = \frac{M_0 G r_t^2}{(r_s^2 + r_t^2)^2} \left[\frac{r_s (r_s^2 + r_t^2)}{(r+r_s)r^2} + \frac{r_t^2 - r_s^2}{r^2} \left(\ln(r+r_s) - \frac{1}{2} \ln(r^2 + r_t^2) \right) + \frac{2r_s r_t}{r^2} \tan^{-1} \left(\frac{r}{r_t} \right) \right] - \frac{C_1}{r^2} \quad (5)$$

$$\varphi = \frac{M_0 G r_t^2}{(r_s^2 + r_t^2)^2} \left[\tan^{-1} \left(\frac{r}{r_t} \right) \left(\frac{\alpha}{r_t} - \frac{2r_s r_t}{r} \right) + \ln \left(\frac{r_s^2 (r^2 + r_t^2)}{r_t^2 (r+r_s)^2} \right) \left(\frac{\alpha}{2r} - r_s \right) - \frac{\pi \alpha}{2r_t} - 2 \ln \left(\frac{r_t}{r_s} \right) r_s \right] \quad (6)$$

$$\beta \equiv r_t^2 - r_s^2 \quad (7)$$

Here we chose the constants of integration, C_1, C_2 , such that the potential is defined at $r = 0$, and that $\varphi \rightarrow 0$ as $r \rightarrow \infty$. As such, the last two terms in equation are constants.

Since we are interested in obtaining expressions for the shear and convergence, we must first solve for the first order Weyl tensor component, Ψ_0 given in equation (8)^[3].

$$\Psi_0 = \frac{1}{2} (\varphi_{xx} - \varphi_{yy} - 2i\varphi_{xy}) \quad (8)$$

We used MAPLE to perform the partial differentiation, which left us with a result of approximately thirty terms. Since our mass distribution was symmetric with respect to the angular coordinates our gravitational potential is also only dependent on the radial coordinate. Since the radial component is related to Cartesian coordinates by $r^2 = x^2 + y^2 + z^2$, and the Weyl tensor requires partial derivatives with respect to Cartesian coordinates, we expected to and obtained symmetric results for the real terms. The imaginary term which had mixed derivatives turned out to be similar in functional form. Note

that in equation (9), the square of $(x-iy)$ is not to be performed by complex conjugation. Further, the units of each $F_k(r)$ are per volume.

$$\Psi_0 = \frac{GM_0 r_t^2}{2(r_t^2 + r_s^2)} (x-iy)^2 [F_1(r) + F_2(r) + F_3(r)] \quad (9)$$

$$F_1(r) = \frac{6r_s r_t^2}{r^4(r^2 + r_t^2)} - \frac{3\beta}{r^3(r^2 + r_t^2)} - \frac{4\beta}{r(r^2 + r_t^2)^2} + \frac{4r_s r_t^2}{r^2(r^2 + r_t^2)^2} + \frac{4r_s}{r^2 + r_t^2} \quad (10)$$

$$F_2(r) = \frac{3\beta}{r^4(r+r_s)} + \frac{\beta}{r^3(r+r_s)^2} - \frac{2r_s}{r^3(r+r_s)} - \frac{2r_s}{r^2(r+r_s)^2} \quad (11)$$

$$F_3(r) = \frac{3}{2} \ln \left(\frac{r_s^2(r^2 + r_t^2)}{r_t^2(r+r_s)^2} \right) \frac{\beta}{r^5} - 6 \tan^{-1} \left(\frac{r}{r_t} \right) \frac{r_s r_t}{r^5} \quad (12)$$

IV. Shear and Convergence

The shear and convergence are two important quantities in gravitational lensing. The shear measures how stretched the image of a distant light source appears. This effect would make a circular light source appear to be elliptical. This can be calculated out to any distance from the lensing source (mass distribution) so that we can understand how the image is distorted along its path to an observer. The convergence, on the other hand, shows how quickly the image is being focused. Much like a magnifying glass, a mass distribution can actually enhance the brightness of a distant object by gravitational lensing.

The equations governing shear and convergence are found in matrix form as^[5]

$$DP = Q + P^2 \quad (13)$$

$$Q = \begin{bmatrix} \Phi_{00} & \bar{\Psi}_0 \\ \Psi_0 & \bar{\Phi}_{00} \end{bmatrix} \quad (14)$$

$$P = \begin{bmatrix} \rho & \bar{\sigma} \\ \sigma & \bar{\rho} \end{bmatrix} \quad (15)$$

Here, ρ is convergence, σ is shear, and $D = \frac{1}{\sqrt{2}} \frac{d}{d\lambda}$ where is a parameter which measures the distance along the light ray from the observer. Since Ψ_0 has already been calculated, the next step is to calculate Φ_{00} ^[3]:

$$\Phi_{00} = \frac{1}{2} \nabla^2 \varphi = 2\pi G \rho_{mass} = \frac{GM_0}{2r(r+r_s)^2} \left(\frac{r_t^2}{r^2 + r_t^2} \right) \quad (16)$$

This calculation required by equation (13) is difficult, and is treated perturbatively. To begin the perturbation, suppose that no mass distribution is present. This is called the zeroth order approximation, and accounts for light from a distant source arriving at the observer.

$$\begin{aligned} D\rho_0 &= \rho_0^2 + \sigma_0 \bar{\sigma}_0 \\ D\sigma_0 &= 2\rho_0 \sigma_0 \end{aligned} \quad (17)$$

The zeroth order coupled differential equations (17) given

by equation have the solution $\rho_0 = \frac{-1}{\sqrt{2}\lambda}, \sigma_0 = 0$.

The zeroth order answers tell us that images do not shear in free space and they appear dimmer further away. To the first order in potential, where the mass distribution is now being taken into consideration, but we assume that only linear terms of potential account for this effect, we obtain the following first order inhomogeneous linear differential equations

$$\begin{aligned} D\rho_1 - 2\rho_0 \rho_1 &= \Phi_{00} \\ D\sigma_1 - 2\rho_0 \sigma_1 &= \Psi_0 \end{aligned} \quad (18)$$

These equations therefore have known solutions, given by

$$\rho_1 = \frac{\sqrt{2}}{\lambda^2} \int_0^\lambda \lambda'^2 \Phi_{00}(\lambda') d\lambda' \quad (19)$$

$$\sigma_1 = \frac{\sqrt{2}}{\lambda^2} \int_0^\lambda \lambda'^2 \Psi_0(\lambda') d\lambda' \quad (20)$$

Here, the constant of integration which normally appears in solutions to linear differential equations has been taken into account via the use of a definite integral. This is especially useful in equation (20), which has no exact solution, however the definite integral may be evaluated by numerical techniques.

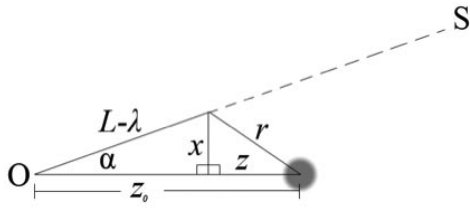


Figure 1. At the right is the mass distribution, the center of which takes on the coordinates $(0,0,0)$. The relation between r and λ is given in equation (23). At the source, S, we take $\lambda=0$. At the observer, O, we have $\lambda=L$.

In figure 1, the geometry which is necessary for ρ_1 and σ_1 is given. Using Pythagorean theorem, and taking $z_0 < 0$ we find

$$x = (L - \lambda) \sin(\alpha) \quad (21)$$

$$z = (L - \lambda) \cos(\alpha) + z_0 \quad (22)$$

$$r = \sqrt{x^2 + z^2} = \sqrt{(L - \lambda)^2 + 2(L - \lambda)z_0 \cos(\alpha) + z_0^2} \quad (23)$$

V. Distortion of an Elliptical Image

The distance along a path taken by two neighboring light rays already is governed by the geodesic deviation equation. This equation, which depends on the shear and convergence previously derived is given as^[5]

$$D \begin{bmatrix} \zeta \\ \bar{\zeta} \end{bmatrix} = - \begin{bmatrix} \rho & \bar{\sigma} \\ \sigma & \bar{\rho} \end{bmatrix} \begin{bmatrix} \zeta \\ \bar{\zeta} \end{bmatrix} \quad (24)$$

By letting $\zeta = a + ib$, and choosing a and b such that they represent the semi-major and semi-minor axes of an ellipse, we can describe how neighboring light rays will appear to an observer. For the case we are concerned with, the convergence is real, so $\bar{\rho} = \rho$. By substituting our new expression for ζ , we obtained the following form:

$$D\zeta = -\rho\zeta + \bar{\sigma}\bar{\zeta} \quad (25)$$

$$Da + iDb = -\rho a - i\rho b + (\text{Re}(\sigma) - i\text{Im}(\sigma))(a - ib) \quad (26)$$

$$\begin{aligned} Da &= -\rho a - \text{Re}(\sigma)a + \text{Im}(\sigma)b \\ Db &= -\rho b + \text{Re}(\sigma)b + \text{Im}(\sigma)a \end{aligned} \quad (27)$$

Equation (27) now represents a set of coupled differential equations. The simplest way to decouple these equations would be if $\sigma \in \mathbb{R}$, as it would naturally separate. We can do this by proper choice of Ψ_0 , namely if we let $y = 0$ be the path along our zeroth order light ray, with any choice of x .

In the case that $y = 0$, we may still observe some interesting conclusions. Note that since $\sigma \in \mathbb{R}$, it is understood that $\text{Im}(\sigma) = 0$, and that $\rho = \rho_0 + \rho_1$ by perturbation. Then equation (27) turns into a set of decoupled separable first order homogenous differential equations given as

$$Da = -(\rho_0 + \rho_1)a - \sigma_1 a \quad (28)$$

$$Db = -(\rho_0 + \rho_1)b + \sigma_1 b \quad (29)$$

Since these equations are separable, we are free to integrate the first order terms as definite integrals, while dealing with the zeroth order term indefinitely. We choose a constant of integration such that, in zeroth order, $a(\lambda+L) = 1$. Here, we are choosing L to be the overall distance from source to observer, whereas λ measures the distance along the path. As we will see, this implies that $a(\lambda+0) = 0$, which physically means that the light rays are coming from the same point source. The integration of equation (28) yields

$$\frac{1}{\sqrt{2}} \frac{da}{d\lambda} = -\frac{-1}{\sqrt{2}\lambda} a - (\sigma_1 + \rho_1)a \quad (30)$$

$$\frac{da}{a} = \frac{d\lambda}{\lambda} - \sqrt{2}(\sigma_1 + \rho_1)d\lambda \quad (31)$$

$$\ln a = \ln \lambda + \ln C - \sqrt{2} \int_0^\lambda (\sigma_1 + \rho_1) d\lambda' \quad (32)$$

Then the choice of C is clear, $C = \frac{1}{L}$. Taking the exponential of both sides, we obtain a direct result for a as:

$$a = \frac{\lambda}{L} e^{-\sqrt{2} \int_0^\lambda (\sigma_1 + \rho_1) d\lambda'} = \frac{\lambda}{L} e^{-\sqrt{2} \int_0^\lambda \sigma_1 d\lambda'} e^{-\sqrt{2} \int_0^\lambda \rho_1 d\lambda'} \quad (33)$$

The result for b follows a similar procedure, and we ultimately obtained

$$b = \frac{\lambda}{L} e^{\sqrt{2} \int_0^\lambda \sigma_1 d\lambda'} e^{-\sqrt{2} \int_0^\lambda \rho_1 d\lambda'} \quad (34)$$

Given these two values we can obtain expressions for the area of the image, as well as the ratio of axes, which gives direct information about the shape of the image. To this end,

$$A = \pi ab = \pi \frac{\lambda^2}{L^2} \exp\left(-2\sqrt{2} \int_0^\lambda \rho_1 d\lambda'\right) \quad (35)$$

$$\frac{b}{a} = \exp\left(2\sqrt{2} \int_0^\lambda \sigma_1 d\lambda'\right) \quad (36)$$

Not only do we have expressions for the area and shape of the image of light rays, we also can make an interesting observation due to their functional form. We already know there are points along the path of a light ray where the image collapses to zero area. These points are called conjugate points, and they are the location of caustics. By looking at the expression for A , we can see that there is no term capable of making $A = 0$, aside from $\lambda=0$. In this process, the possibility for caustics has been lost. This is actually due to the choice of using a perturbation theory approach.

VI. Data Results

For this section we have used the following parameters to correspond to a plausible lensing scenario in units scaled by the age of the Universe and where $G = 1$: $z_0 = -0.41718$, $L = 0.67514$, $M_0 = 5.227 \times 10^{-9}$, $r_t = 0.00136$, $r_s = 1.21 \times 10^{-5}$. The angle α from figure 1 is allowed to vary and essentially controls the path which the light takes to reach the observer. The first quantities we need to evaluate are Ψ_0 , Φ_{00} , ρ_1 and σ_1 . We chose to evaluate ρ_1 , as given by (19), by use of a Riemann sum. By l'Hôpital's rule both $\sigma_1(0)$ and $\rho_1(0)$ evaluate to zero, and as such we use a right-handed approximation of n -intervals. In this case the approximation is given by

$$\int_0^\lambda f(\lambda') d\lambda' \approx \sum_{k=1}^n f(k\Delta\lambda') \Delta\lambda' \quad (37)$$

Here we used a fixed interval, which causes $\Delta\lambda'$ to be constant, and thus can come outside the summation. Further, since we started the integral at 0, $\Delta\lambda' = \lambda/n$.

$$\rho_1 = \frac{\sqrt{2}}{\lambda^2} \left[\Delta\lambda' \sum_{k=1}^n (k\Delta\lambda')^2 \Phi_{00}(k\Delta\lambda') \right] \quad (38)$$

$$\rho_1 = \frac{\sqrt{2}}{\lambda^2} \left[\Delta\lambda'^3 \sum_{k=1}^n k^2 \Phi_{00}\left(\frac{k\lambda}{n}\right) \right] \quad (39)$$

$$\rho_1 = \frac{\sqrt{2}\lambda}{n^3} \sum_{k=1}^n k^2 \Phi_{00}\left(\frac{k\lambda}{n}\right) \quad (40)$$

Since equation (20) has no known integral it is necessary to evaluate σ_1 by numeric methods. We are free to apply the same technique, and obtained a similar result given by equation (41).

$$\sigma_1 = \frac{\sqrt{2}\lambda}{n^3} \sum_{k=1}^n k^2 \Psi_0\left(\frac{k\lambda}{n}\right) \quad (41)$$

In figure 2 we have the graph of Φ_{00} versus λ from 0 to L . From the parameters chosen we may see that the lensing galaxy is located at $\lambda=0.25796$, which corresponds to the large spike that appears on the graph. This suggests that the effect of the gravitational lens is concentrated close to the galaxy, as expected. By not specifying any angle in the graph, this is actually taken along the light path which goes through the middle of the gravitational lens. Away from the lens, the effect is several orders of magnitude lower. In figure 3, the graph of σ_1 is presented, for the same parameters as figure 2, with the exception of the angle. As σ_1 is defined as an integral of Φ_{00} , we would expect that the abrupt spike seen in figure 2 would also appear in figure 3. Indeed, this is the case. However, in figure 3 it is not appropriate to go through the middle of the lens, as this is where the perturbative technique is least applicable. Instead, we choose three angles, $500''$, $750''$, and $1000''$. These effectively control the path the light takes from source to observer. By doing so, our light paths do not go through the middle of the lens and are thus in the region where the perturbation applies. Up to the lens, there is very little convergence as shown in figure 3. We would expect this, as there is effectively no lens between the source and values of $\lambda < 0.25796$.

Figure 4 is a graph of Ψ_0 versus λ from 0 to L . As with figure 2, this graph is not made with a specific angle and thus goes through the middle of the gravitational lens. Figure 4 also has the same abrupt spike at the lens, except here it is downward. In figure 5, a graph of σ_1 versus λ , this manifests itself in a similar manner as figure 3. We chose the same angles in figure 5 as were used in figure 3, for the same perturbative reasons. As with figure 3, there is almost no shearing up to the gravitational lens.

In figure 6, the exponential part of equation (35) is graphed. While not showing explicitly the size of the bundle of light rays as it passes from the source to the observer, this is a necessary portion of that ultimate result. As is expected from figure

3, we observe that there is a magnifying effect by the galaxy which becomes noticeably apparent at the lens. The amount of magnification is relatively small, well under 1%. To calculate the actual size, an additional factor of $\pi\lambda^2/L^2$ would need to be introduced to this graph. However, the dominant effect seen on such a graph is λ^2 , which makes it difficult to determine what effect the lens plays. In addition, the outside factor merely tells us how light expands in the absence of a gravitational lens.

VII. Conclusion

In this research, we have created the formalism for a new approach to gravitational lensing in situations where a thin lens approximation is not appropriate. Beginning with a fully three-dimensional mass distribution model, and solving for the gravitational potential we derived expressions for the optical scalars, convergence and shear, by taking a perturbative approach to the Sach's equation. With this, the geodesic deviation equation was applied to a bundle of light rays to determine the shape parameters and size. Graphs of the optical scalars as well as the Weyl tensor component and Ricci tensor component which controls the optical scalars were

presented. In addition, the effect of the gravitational lens on the size of a bundle of light rays was shown graphically to cause magnification of less than 1% for reasonable lensing scenarios. Further research is expected to be conducted to obtain further graphs and to extend the formalism.

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Painting the Words: Language and Literature in the Visual Arts

STEPHANIE LAWRENCE

Stephanie Lawrence graduated from Bridgewater State College in January 2009 with a B.A. in English and a B.A. in Fine Arts. She conducted this research in the Summer of 2008 after receiving the Adrian Tinsley Program Summer Research Grant. Stephanie will be moving to Prague this summer to teach English and plans to attend Graduate School for Fine Arts.

In his essay, *The Poet*, Ralph Waldo Emerson writes: “The poet is the sayer, the namer, and represents beauty. He is a sovereign and stands on the centre. For the world is not painted or adorned, but it is from the beginning beautiful; and God has not made some beautiful things, but Beauty is the creator of the universe” (1182). He goes on to say, “The poet has a new thought; he has a whole new experience to unfold; he will tell us how it was with him, and all men will be richer in his fortune. For, the experience of each new age requires a new confession, and the world seems always waiting for its poet” (1183). Throughout time, human kind has struggled to respond to a universal need to express their humanity and their places in the world. According to Emerson, it is the artist (the author, poet, painter, etc.) who is best able to express beauty and either verbally or visually represent the thoughts of others.

For centuries, artists have been building on the language, techniques, and ideas expressed by their predecessors, and from there, applying that knowledge to their own lives to find a unique perspective. That is precisely what I aimed to do with this research. Using the American Romantics as my springboard and experimenting with techniques used by visual artists before me, I absorbed their knowledge and ideas and responded to my own artistic need to express myself with language, paint, and found objects, and began to find my own artistic voice in the process.

My goal for this study was to incorporate both of my academic disciplines, Fine Arts and English. I began by studying the American Romantics, specifically Walt Whitman, Henry David Thoreau, and Ralph Waldo Emerson. I wanted the poems and essays by these authors to be the inspiration for a cohesive body of artwork, with the content focusing on the themes from these texts, while exploring the idea of using text in my artwork.

In the work of each author I found a connection to the Divine and how they use language to reflect God’s presence in humanity and the environment. Through each author’s literary work I was able to make discoveries of language and content, while equally finding how I relate to the ideals and beliefs woven through the language. I began the project by reading several works by Thoreau and Emerson, including *Walden*, and *The Poet*, *Self-Reliance*, and *Nature*. Additionally, I read the poems of Walt Whitman. While reading a piece, I

made notations in my studio journal; I was most concerned with any ideas or lines I found inspirational and I spent hours each day journaling as to why specific ideas spoke to me the way they did. I wanted to take the fundamental beliefs of the Transcendentalists and apply them to my own life. It is through this reading that I began the visual structure of language as a point of origin for the artwork.

While conducting the research, the overall intent of the project transformed, allowing me to find a new visual direction. The result was an autobiographical body of work that drew inspiration from the texts of the American Romantics, but focused the content and language to those issues which are of most relevant to me at this point in life. In order to show how this progression happened, I have included in the following pages my most successful pieces or the works where I made the most discoveries. Using my studio journal as a guide, I will explain how the underlying content of the work transformed and what I learned while struggling through each piece.

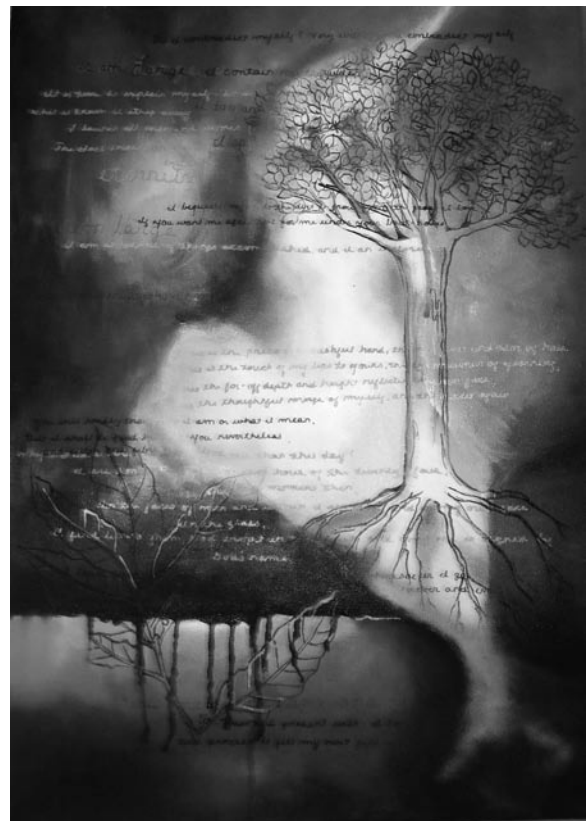
Sketchbook/Journal Entries



Study 1, Acrylic on canvas panel, 9×12 in

Study 1 was my first piece and my first attempt to create work based on the Romantic texts. I was unsatisfied with this piece because it is too much like other work I have produced in the past and it just barely touches the surface of the deep issues I wanted to engage the viewer in. I think a huge obstacle that I needed to overcome was how to visually represent abstract

concepts, such as one's relationship with God and nature. I had been so focused on a representational painting style, that I did not realize that it was not the best way to approach this research. I could not simply illustrate what I was reading; the visual compositions became too predictable—a matter of fact approach. Needing to shift the conceptual approach became necessary, thereby, this crossroad led to a more abstracted style.



Transcending Truth, Acrylic on canvas, 22×16

Learning from my first painting, *Transcending Truth* focused on Walt Whitman's poem *Leaves of Grass*. I am most attracted to this poem because of Whitman's use of sensual language to describe the connection and unity between people, and an individual's personal relationship with God and the environment. I wanted the painting to have that same sensual feeling, as well as a unity within the composition of the piece to reflect the unity described in the poem. I began the piece breaking the picture plane into three vertical segments and from there built up layers of paint in vibrant, sensual colors.

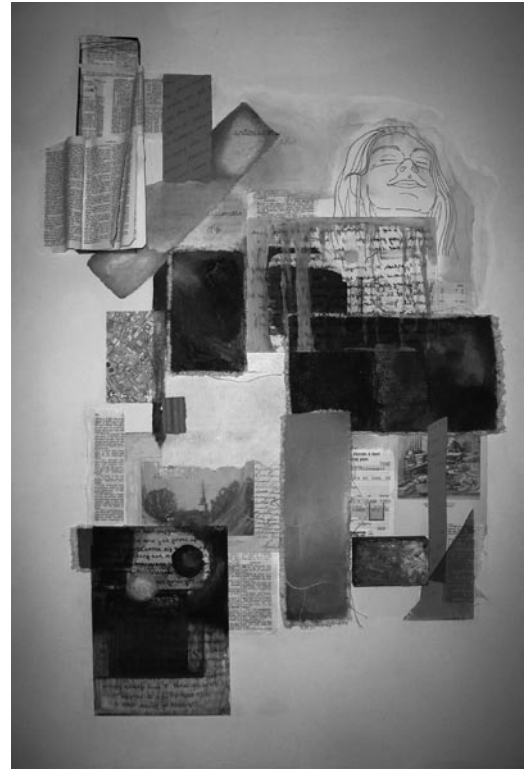
This was the first time I was attempting to incorporate text in my artwork and struggled with how to make the transition from the text into the painting cohesive. I began by adding a stanza in the middle of the painting. After critiquing the piece with my mentor, I realized that the text was too dominant. The

lines of poetry were in the center of the piece, fixed on top of what was already painted. There was no transition between the text and paint. I also realized that if I wanted to use text in the work, I needed to use it throughout the piece rather than only in one place. I then went back in and added text in various sizes and colors throughout the painting. Then to keep the text from having a hierarchy over the rest of the piece, I went back in with paint and built up more layers, covering over some of what was written. Finally, I painted natural elements onto the canvas with India ink, allowing the ink to bleed into the paint and text. Allowing the text, ink, and paint to overlap and flow into each other gave the piece the consistent feeling of unity I had wanted. This piece taught me that in order to have unity in the piece, all the elements of the piece need to be planned out and put on the canvas at the beginning; the text needs to be put down on the picture plane before painting or before going back in with paint.

While I thought this piece was very successful, I still felt like I needed to take the research a step further. I did not just want to paint images and use the Romantic's texts in each piece because I still felt as if I was simply illustrating their works and ideas. Unsure of how to proceed, I began journaling about what it was that attracted me to the works by these authors. As a Christian, I was drawn to how each author described his relationship with God. Additionally, I loved how each writer spoke about the importance of the individual and how writers and artists have a unique role because they are able to express what everyone is thinking. They are able to describe humanity and emotions in ways other people cannot. I was especially moved when I read Emerson's essay, *Self Reliance*. He explains:

Man is timid and apologetic. He is no longer upright. He dares not say 'I think,' 'I am,' but quotes some saint or sage. He is ashamed before the blade of grass or flowering rose. . . .But man postpones or remembers; he does not live in the present, but with reverted eye laments the past, or heedless of the riches that surround him, stands on tiptoe to forsee the future. He cannot be happy and strong until he too lives with nature in the present above time. (1172)

Once I read this, I immediately knew that I had been acting as the person he had described, always looking to the thoughts of past writers and painters rather than trusting my own voice. I realized there was so many things that I needed to say and that my art gave me a perfect outlet to do that. From that point on, I decided the body of work should be an autobiographical series that reflected my own interpretations of the themes described in the Romantic texts.



The Christian Life, Mixed Media on gesso board, 30x20

In order to experiment with different ways to incorporate text, I decided to begin exploring a mixed-media style. Mixed media refers to a work of visual art that uses a variety of materials: paper, wood, glass, paint, etc., combined to convey a unified concept/idea. This style is something I have always been curious about and drawn to, although I was never able to articulate what it was that was so fascinating about the style since it was so different from my own painting and aesthetic. After studying works by Robert Rauschenburg and other mixed-media artists, I decided to try and venture into this new style.

I began by making several stream of consciousness pieces; I would listen to music and apply swatches of color without planning a finished piece in my mind. Once the colors and different materials were on the canvas, I would allow myself to begin painting. I wanted to try and let the pieces dictate what they needed as they progressed rather than limit myself by sticking to a planned image. It was very difficult for me to do give up so much control over the piece, but it helped me to progress to my first group of mixed-media pieces.

I made these three pieces simultaneously. Before searching for materials, I wanted to be sure that I had a clear message that would be expressed in each piece (although I have coded the works so strongly that the message may be clear only to me and those who know me well). I decided to focus these pieces on

The two artist books, *Contempt for the Wound* and *A Beauty Revealed* are meant to be viewed together because they represent pain and healing. I wanted these pieces to be artist books because they are meant to be held, inviting the viewer to engage in the context of the work, achieving a stronger connection. It seemed appropriate to make these more intimate pieces because of the transparent nature of the subject matter. Additionally, I liked the idea of artist books because it relates back to the beginning theme of finding inspiration from the texts of the Romantics.

When making these pieces, I wrestled with how much information I wanted to give the viewer. I have never been so transparent with my work before, and was not sure if I wanted the viewer to know everything, know some pieces and make their own assumptions about the rest, or reveal very little and let the viewer simply take what they wanted from the piece. I decided that I wanted the pieces to reveal small details about the content, but make it possible for the viewer to find a message if they looked hard enough. To do this, I would write something and then gesso over it so that the text was barely visible, I would collage just certain words, or even rip apart fragments from diary pages. I learned that covering up certain information makes the viewer want to look harder, which is something I continued to play with throughout the series.



Untitled, Mixed-media on canvas, 22x18

I struggled to resolve *Untitled* for several weeks because once again, I had a difficult time making all the elements in the piece work together cohesively. The segments in this piece are made of strips of raw canvas and pieces of torn up paper, so the elements in the piece were already strongly separated. I realized

that I was separating the areas further by adding paint in places that emphasized the separation rather than blending the areas together. Once I finally was comfortable with the mixed-media elements in the composition, I realized the palette was still too cool, which hindered the eye from moving around the picture plane. I countered this by adding the warmer orange-gold to the piece, which made the composition stronger.



Someday...But Not Yet, Mixed-media on canvas, 22x20

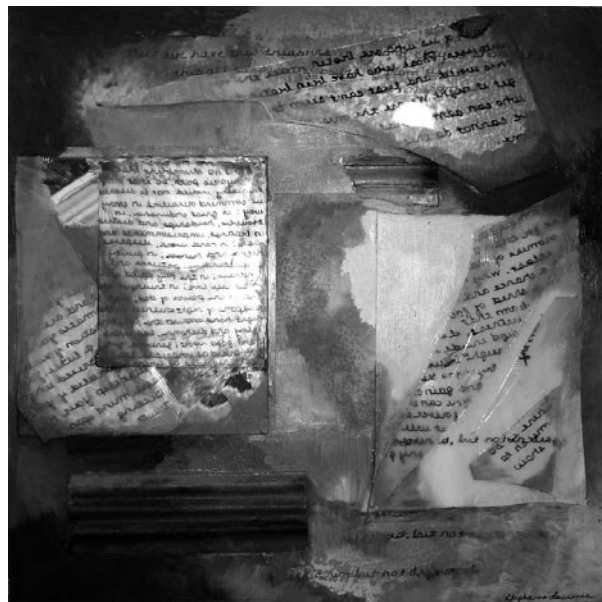
Someday...But Not Yet is another example of one of the mixed media pieces where I tried to apply some of the lessons from the previous piece. In this painting, natural segments were created by canvas string which I adhered onto the canvas with gel medium. In this case, I wanted to use the string as a natural barrier to separate color, but tried to allow blending in some areas in order to keep the eye moving.

At this point in the research, I shifted my focus back to working with acrylic paint. When I first began *Encountering Mystery*, one of my poems appeared on the picture plane, but as I built up colors, I allowed much of the words to be covered up in order to unify and harmonize the overall composition. I am very pleased with this painting because of the palette. When I begin to paint, there are colors that I naturally tend to use far more often than others, but this piece allowed me to spend time experimenting with the palette, building up colors and adding glazes. In this painting, I think the message in the text becomes less important and instead the words act as an element of design.



Encountering Mystery, Acrylic on canvas, 20x20

over the words keep the text from distracting from the rest of the piece.



More Useful When Broken, Mixed-media on steel, 16x16



Caught In Transition, Acrylic on canvas, 24x20

The final two pieces are some of my favorites because they show how far my style has changed through the course of this research. I chose primary colors for these pieces because I wanted to do something else that was out of my comfort zone. I have always been too unsure of primaries since it is impossible to blend them without adding secondary colors into the palette, but I have since realized that it is not always necessary to have smooth, blended color transitions in order to make a piece successful.



Primary Color Study, Mixed-media

Towards the end of the research, I was finally able to implement text with ease without the words being too dominant. In *Caught in Transition*, even though there is an entire paragraph at the bottom of the canvas, the thin layers of color built up

In *More Useful When Broken*, the glass and cardboard is adhered to a piece of steel. The text is written on the glass and then attached to the steel backwards, making the words appear inverted. Once again, most of the information is provided for the viewer to read the words, but he/she would have to go through the trouble of doing so.

What I've Learned from This Research

The Adrian Tinsley Program has allowed me to have an eye-opening and completely rewarding experience. With this grant, I was able to develop a cohesive and focused body of work, where I experimented with new styles and media, texture, palette, and the inclusion of text. Additionally, I have a better understanding of the importance of the content behind a piece and how to formally design a work so that the content and visual image form a unified visual statement. This body of work allowed me to be transparent with the content, enabling me to grow in confidence as an artist and scholar and to express my own creative voice.

Participating in the Adrian Tinsley Program has drastically changed my experience and outlook on art. While working with mixed-media, my aesthetic has completely changed. I now go into museums and galleries and am drawn to vibrant, abstracted works with varying textures and layers rather than photorealist works. This new perspective has given me an appreciation for pieces I had previously paid little attention. In addition to a changed aesthetic, working as an artist this summer made me realize how passionate I am about making and being surrounded by art. I have been unsure whether to

pursue Art or English in the future since I love both fields, but after working this summer I know that I need to have a profession that allows me to be surrounded by the visual arts.

I am so grateful for this opportunity because I had the chance to experiment and “play” and in doing so, made abounding discoveries. I know I will continue to work with mixed-media, and will move onto assemblage pieces and larger sculptural pieces incorporating found objects. For the first time, I am excited to experiment rather than being intimidated by it and I know this is only the beginning of the many areas I will explore in my artwork.

Artist Statement

My main goal as an artist is simply to grow as an individual. I paint because I have to. What I learn about myself from creating a piece is far more valuable than the visual outcome, although I strive to push myself into new territory with each new piece. I hope to never lose the hunger to learn and grow.

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Peacemaking Criminology

JOSEPH MOLONEY

Joe worked under the mentorship of Dr. Mitch Librett of the Criminal Justice Department on this research project. This work was also accepted as a presentation at the National Conference of Undergraduate Research in April of 2009. Joe plans to pursue a career in Criminal Justice once he completes his post graduate studies. Currently, he is hoping to continue his research with Dr. Librett this summer, studying the relationship between eyewitness identification and DNA exoneration.

T*his article is focused on exploring the practical implications of applying Pepinsky and Quinney's (1991) theory of 'peacemaking criminology' to criminal justice policies. Peacemaking criminology is a perspective on crime that suggests that alternative methods can be used to create peaceful solutions to crime. Peacemaking criminology can be implemented in society to reduce the amount of violence in the criminal justice field, and I argue that this perspective on crime can improve the administration of equitable justice more so than the current approach. The implementation of peacemaking criminology would be a radically different approach than current practices and methods of policing and the judicial process. The underlying goal of peacemaking criminology is to use a non-violent approach to solving crime. The uniqueness of peacemaking criminology and its lack of use within the administration of justice leave many within the criminal justice field skeptical of its efficacy. This article will explicate those features of peacemaking criminology that are criticized or supported by criminologists in the field today. Focusing on these critiques of this perspective on crime, I will attempt to demonstrate how peacemaking criminology can be used to address issues of domestic violence, mandatory arrest policies and community policing. Of these three issues, the examples illustrated in this paper are intended to demonstrate how the implementation of peacemaking criminology can create a more effective criminal justice system in America.*

The approach of the criminal justice system in America today focuses on dealing with crime in one manner: fight fire with fire. Although many brilliant criminologists and theorists have developed a great collection of theories and approaches on how to deal with crime in America, the criminal justice system has spent the majority of its existence using violent tactics and strategies to solve the crime problem. However, one man has spent most of his career considering the peacemaking perspective on crime. This criminologist, Richard Quinney, has developed a perspective on crime that suggests the current approach that violence can be overcome by violence could be altered in such a way that peacekeeping methods can be used to create an outcome of peace (Pepinsky & Quinney, 1991). The hope of this perspective is to achieve the ultimate goal of peace on the macro level in society. Also, a review of the critiques of peacemaking criminology according to other criminologists that have studied this work will be featured. However, one question still remains unanswered. Can peacemaking criminology improve the criminal justice system? Furthermore, has this perspective had any success in its attempts to become part of the criminal justice system?

The concentration of this paper will focus on three issues of the criminal justice system. Peacemaking criminology has the potential to impact the issues of mandatory arrest policies, domestic violence and community policing. The three noted areas that will be evaluated (domestic violence; mandatory arrest policies; community policing) have been problematic in terms of social justice issues in the first two cases and hold great promise in that regard in the case of the third. These problems, if not addressed properly, can become more serious issues that could have been avoided had the correct procedures been in place. Peacemaking criminology holds the potential to address all three of these issues.

To effectively solve a problem, one must find the source and correct it. This relates to the criminal justice field today because the current method of correcting problems often results in incarceration or financial repercussions. This method has been perceived as effective in reducing crime because it simply removes the criminals from the streets, but, only temporarily. Peacemaking criminology aims to correct the source of the problem without arrests, but with a peaceful approach that results in peace.

Literature Review

Although the existing articles on peacemaking criminology demonstrate a good understanding of the matter, the most eloquent source of this perspective on crime can be found in the work of Richard Quinney and Hal Pepinsky. One of the greatest perceived problems America has faced for the past few decades is crime. There have been numerous advances in technology and resources that would allow one to believe crime could so easily be eliminated entirely. Unfortunately, the United States of America currently has some of the worst crime rates in the world. Each year, billions of dollars are put forward to create public policy to solve this problem. These policies in conjunction with the current perspective on crime only further removes ourselves from any solution to reducing crime in America (Quinney, 1991). The criminology of peacemaking, however, is said to have a different effect on society and crime.

The pain and suffering experienced by individuals daily are often translated into acts of violence toward others (Quinney, 1991). Acknowledging that this suffering leads to violent acts, the peacemaking approach focuses on ending this suffering. Our actions are said to be our thoughts, and to reduce crime and suffering we must change the way we think (Quinney, 1991). In doing so, open mindedness is crucial. One with an open mind can solve problems objectively, rather than subjectively. To be open minded, one will be able to let in new ideas and approaches and be more willing to address problems as one sees fit. In order to solve this problem of crime, one must begin at

the root of the problem and work outward. In changing the way one thinks, one must be open to letting go the attempt to control the world and prepare to come upon one's natural self (as cited in Levine, 1979: 38). This will allow the individual to empty the mind and be ready for anything, thus, being open to everything. This brings the individual back to the beginner's mind, which allows for many possibilities (as cited in Suzuki, 1970: 21). The open mindedness can allow for change in the criminal justice system because people will gain a sense of understanding for peacemaking. The current methods of crime control today cannot be changed nor corrected without the thought and the acceptance for change.

The perspectives and methods in place today leave those in the field of criminal justice aware that violence is founded on violence. Currently, the criminal justice system holds the values that violence can overcome violence, as evil can overcome evil (Quinney, 1991). This puts the criminal justice system in a difficult position, according to Quinney. The fight against crime uses dangerous sources of energy to create anger and fear among people. These dangerous sources of energy would not exist in a world of nonviolence. To use these forces to fight crime creates a war in society that will lead to a creation of more crime every day (Quinney, 1991). When we find that our hearts are full of love and the courage to hold pain to ourselves before inflicting it upon others, the suffering can end. In this way, we find the truth of reality and the way of peace (Quinney, 1991). Quinney himself (1991) states, "[what] is to be said seems outrageous and heretical..." realizing that this perspective on crime is not conventional.

The more radical approaches to policing can be more appealing during time of crises. In all aspects of life, crises stimulate progress (Goldstein, 1990). As pointed out by Herman Goldstein in *Problem-Oriented Policing*, in the 1960s and 1970s the police were faced with pressure from the change in social standards of America. From this, came a great change in the structure of police administration (Goldstein, 2000). Five national studies were conducted between 1967 and 1973 which gave police valuable information on how to police the public and their current status with society (Goldstein, 2000). Although the changes suggested at the time were not as radical as peacemaking criminology, they were different from the standard of that time period.

Others have contributed more descriptive definitions of peacemaking criminology. Peacemaking criminology has been referred to as a global critique of the entire criminal justice system and its warlike history (Wozniak, 2000). The reference to peacemaking criminology that suggests it is radical is based on the fact that this perspective on crime turns the traditional

world of criminology upside down. Peacemaking is described as being geared toward respecting the dignity of the individual. To create a new, radical perspective on crime, that of peacemaking is hard to accept when the current system has been in place for decades. This is especially realized because peacemaking criminology designates the police officer as a “peace officer” (Wozniak, 2000).

The current perspective on crime has encouraged police departments to mandate arrests for specific crimes. For example, in the United States, the solution to a crime such as domestic violence is a mandatory arrest. In 1994, United States Congress passed the Violent Crime Control and Law Enforcement Act, 18 U.S.C., Section 40001-40703, which called for a mandatory arrest in cases of domestic violence. A study on this policy by Victoria Frye, Mary Haviland and Valli Rajah concludes that the mandatory arrest policy in New York has led to a reduction in re-assault cases (2007). The goal of these arrests is to remove the offenders from the picture, thus, reducing the chance of the crime occurring again. These policies have been proven to substantially lower cases of domestic violence in states that have mandatory arrest policies. However, it is interesting that the cases of women offenders of violent crimes have increased since the implementation of the mandatory arrest policy in New York (Frye, Haviland & Rajah, 2007). If women defend themselves, it is more difficult to decide initial aggressor if both parties appear to have assaulted each other. This leads to more cases where the officers are forced to arrest both parties since it is required by the mandatory arrest policy.

In a similar study of domestic violence and mandatory arrest policies, Kris Henning and Lynette Feder found that men outnumber women in arrests for domestic violence by only a slight margin (2004). These increasing numbers of women offenders in cases of domestic violence have come as a shock to the researchers of the criminal justice community (Henning & Feder, 2004). This recent study has found that there may be an explanation of this increase. For example, women that defend themselves in a fight with their significant others are more likely to be arrested under a mandatory arrest policy (Henning & Feder, 2004). However, police reports indicate that women are still disproportionately the victims of domestic violence, regardless of the fact that the equivalency of offenses of each gender has grown close.

Solutions other than mandatory arrest are implemented within other cultures in America. For example, Donna Coker studied the domestic violence of Navajo Nation and saw different approaches on domestic violence. In cases where the conclusion was a separation, the result much of the time was greater violence. Although separation is intended to secure the

safety of the victim, as well as the offender, the unintended result could be more detrimental to the process than one would expect (Coker, 2006). The Navajo approach is a peacemaking approach. The overall goal of peacemaking in this society is to offer women assistance in healing their relationship by means other than separation or arrest (Coker, 2006). The majority of the cases were self-referred, allowing the victim to voice their thoughts and opinions on what result they are looking for from the authorities. The responses to these self-referrals are not police officers, but are trained Peacemakers. Of the 110 chapters within Navajo Nation, there exist 250 Peacemakers that have undergone extensive training (Coker, 2006). The Peacemakers are also knowledgeable individuals that use creation stories as well as journey narratives to help couples relate to a part of their culture and deal with their problem (Coker, 2006). This process has been found to be effective, but the Navajo Nation officials also resort to arrests in some cases. In this situation, peacemaking can be a sanction referred by a judge, social service agencies and police officers (Coker, 2006).

This type of a process requires time, great effort and patience. The community policing movement, however, seems to be the first step (Jesilow & Parsons, 2001). Since peacemaking calls for action on both sides, the citizens as well as the police, community policing can allow the police to work together with neighborhood residents to improve the community (Jesilow & Parsons, 2001). Historically, residents of neighborhoods controlled the behavior of the police officers. The officers’ ideologies were usually those of the citizens in their area. Otherwise, the police officers were rickin’ losing control of the area and the support of the citizens (Jesilow & Parsons, 2001). Also, the use of the patrol car has since lessened the direct contact between citizens and the police. Police officers are less likely to socially interact with citizens if they are in a vehicle than if they were on foot patrol. Since community policing has had struggles with connecting the police officer with the citizens due to the patrol car, peacemaking will struggle to be implemented as well.

The technological changes in policing hinder the process of new perspectives on crime (Jesilow & Parsons, 2001). Also, the evaluation of peacemaking as a means of community policing will be immeasurable as far as efficiency. Furthermore, officers may have a difficult time adopting the peacemaking perspective. Many officers join the police force for an exciting and thrilling career (Jesilow & Parsons, 2001). Due to this, peacemaking may not fulfill its potential simply because police officers may not be welcoming of this new approach. Peacemaking, like any perspective on crime, works best when the whole team is on the same page.

The principles of peacemaking criminology support the implementation of community policing as part of an overall scheme of 'community justice'. Since problem solving is the basis of peacemaking criminology, community justice is another way of opening the door for peacemaking. Problem solving is the approach to resolving the underlying causes of criminal incidents rather than simply reacting to 911 calls (Clear & Karp, 1999). This, also referred to as "911 policing", will not be more effective than problem solving. Neither more aggressive police officers, shorter response times nor more sophisticated 911 technology will be as effective (Clear & Karp, 1999). To find the underlying cause of crime will lead to police officers becoming more involved with the community and be more adapt to solving problems rather than just making an arrest.

Although the work of Richard Quinney on peacemaking criminology is remarkable and respected, it is considered by some to be "unreal" (Mobley, Pepinsky & Terry, 2002). The concept of opening one's mind to a new world of crime perspective can be difficult. This perspective is a combination of finding oneself and connecting with the inner nature of the being (Quinney, 1991). It also incorporates religion, Buddhism in particular, which is not a familiar lifestyle to most Americans. This perspective may be the most "real" criminology until this day, but is also the most radical (Mobley, Pepinsky & Terry, 2002). Since peacemaking criminology is so radical and different this may be the reason it is so difficult to accept. The current system today has been in place for decades. As with community policing and problem-oriented policing, it takes time for society and police administration to adjust to such changes (Jesilow & Parsons, 1999). As in *The Way of Peace*, Quinney warns his audience, "If what is to be said seems outrageous and heretical... Only by entering another world-yet one that is very simple and ultimately true- can we become aware of our own condition"(1991, p.3).

In the Navajo Nation, Peacemakers are not police officers, but rather viewed as professional mediators (Coker, 2006). In American policing today, when attention is needed for a domestic violence dispute, the police respond and often make an arrest. The Navajo Peacemakers respond to domestic violence disputes when requested by one of the parties (Coker, 2006). This is an example of one of the many ways in which criminal justice administrators would have to adjust to peacemaking criminology. This is also an example of how the duties of police officers could change under the peacemaking perspective. The police will be called upon less frequently which could dramatically change the job, as well as police officers attitudes toward the public. Such dramatic changes may not be well-received by law enforcement agencies. So, peacemaking criminology could easily be rejected by the criminal justice field due to the drastic changes that could occur.

The Analysis

Peacemaking criminology, if effectively incorporated to our criminal justice system, would reduce the incidence of domestic violence, eliminate the need for mandatory arrest policies, and support the resurgence of community policing models. I believe that peacemaking criminology holds the potential to effect cases of domestic violence. In situations where conflicts arise between couples or members of households, an arrest is not the only solution under the peacemaking perspective. Police officers would be able to respond to calls of domestic violence to gather information on the situation, mediate and find a solution. The solution will be deeper than just the conflict that called for police presence, which requires police officers to understand the relationship of the parties. As the Navajo have experienced, this process not only makes the victims and the offenders feel better about the situation, it also creates a sense of accomplishment for women because they feel as though they have explored all of their options and are able to move on in the relationship (Coker, 2006). Although this is a benefit of peacemaking criminology, one could argue that it would require more training of officers and it may not be very well received by the police.

The police officers will also see benefits of peacemaking criminology in cases of domestic violence. For example, when police officers receive calls for domestic disputes they are often called to the same home on multiple occasions. These households that are frequently visited by the police are twice as likely to witness an arrest as the solution (Frye, Haviland & Rajah, 2007). With peacemaking criminology, police officers will have the opportunity and be encouraged to spend time mediating the situation. To be done effectively, officers must spend time talking to the parties in the dispute and find the source of the problem as opposed to finding the initial aggressor to make an arrest to resolve the situation. Also, finding the source and correcting it may fix the relationship in greater picture (Coker, 2006). This may lead to less calls for police assistance to this household, therefore reducing the amount of police attention to a just a small portion of the community.

The mandatory arrest policies that are practiced by many law enforcement agencies today will be affected by peacemaking criminology. As previously mentioned, in cases of domestic violence, an arrest is not the only solution under peacemaking criminology. However, with mandatory arrest policies, it is usually the case that the aggressor will be arrested. This increases arrest rates and does not always solve the problem from the source (Coker, 2006). Under peacemaking criminology, mandatory arrest policies will be nearly extinct. Although it has been proven that households in states that have mandatory arrest policies in cases of domestic violence experience less

violence than those in states without mandatory arrest policies, one could argue that there is still a way of resolving cases of domestic violence without an arrest (Frye, Haviland & Rajah, 2007). The alternative route, according to peacemaking criminology is to find the source and end the creation of negative tension in relationships.

The goal of mandatory arrest policies is to reduce the rate of recidivism. This has been achieved in many situations throughout America (Frye, Haviland & Rajah, 2007). However, mandatory arrest policies make calls for police attention just another statistic. To effectively solve the problem, police officers must give the situation more attention than what is currently expected of them. For example, when one looks at each case of domestic violence as just another number and the people involved as if they are just subjects they are losing touch with the community. Police officers must bring themselves down to the same level as the parties involved in disputes and create a personal relationship. With a mandatory arrest policy this can be difficult to accomplish. In many cases, police officers do not have the opportunity to use their discretion but instead are forced to make an arrest due to the policies of their department.

As for police administration, the ability to measure the success of unique crime perspectives is necessary to measure the effects of peacemaking criminology. It is much easier to measure police effectiveness and quality by looking at crime rate statistics and their status than to measure the happiness of citizens. As for domestic violence, the same number of crimes may occur under the peacemaking perspective, but the relationships between the offenders and the victims are the focus. What is important in peacemaking is that the situation, or conflict, is resolved to a point where both parties are satisfied and at peace. In typical restorative justice processes the outcome that leads one to believe the situation has been resolved may simply be an arrest. With peacemaking, this is not the case.

In regards to community policing, peacemaking criminology can improve relationships between the police officers and the neighborhoods. As police attempt to connect more with citizens in community policing techniques, peacemaking will allow officers to go even further on a personal level. To be able to look past the badge and see a person that cares about the community may be difficult for some citizens. To solve this, officers can be viewed more as peacemakers and help direct communities toward a more pleasant environment. As this relationship can grow, citizens may be more willing to cooperate with law enforcement and give information to officers (Jesilow & Parsons, 2001).

Peacemaking also requires officers to break down the technological wall that has separated the community from law enforcement agents. Since the implementation of the police cruiser, we have seen a tremendous decrease in personal contact between officers and citizens (Jesilow & Parsons, 2001). The technology that is now available to police officers makes it easier for them to cover more ground on a patrol, which may lead to a decrease in neighborhood friendliness since officers might spend less time in one area, but rather become spread across a region. Both peacemaking philosophy and community policing models will encourage officers to become more familiar with the families in their community. Officers will spend more time engaging in conversation and illustrating to the community that they are more than just a badge and a uniform. It is crucial to create cooperation with the community that police officers establish authority as well as approachability.

The most important aspect of peacemaking criminology is the introduction and use of non-violent police tactics. Today, law enforcement agencies use strategies that bring violence upon those that break the law. This is not proactive to the crime solution since violence creates violence (Quinney, 1991). To end violence, we must each individually know peace. Our actions are our thoughts and our thoughts are an extension of our knowledge. To know peace, we must be educated in a sense that we are aware of our actions and what they may cause. If violence creates violence, then non-violent approaches to crime, such as peacemaking criminology is a more idealistic perspective on crime.

Discussion

This discussion on peacemaking criminology introduces a radical perspective on crime that can be used to address the issues of domestic violence, community policing and mandatory arrest policies. The work of Richard Quinney and Hal Pepinsky has made such an impact on the criminological perspectives on crime in America. Although peacemaking criminology is not used at all today, it is admired by the field of criminologists as remarkable work. I have come to realize that this approach may be viewed as unique and radical by many, but it should be accepted as essentially a realistic criminological perspective. It has been said that peacemaking criminology is unreal and has even been referred to as outrageous; the research I have presented proves otherwise. It can be effectively used by those that are willing to be open to a new approach.

Although peacemaking criminology is unprecedented in the American criminal justice system, we have seen it implemented in the Navajo Nation. Navajo peacemaking practices are great examples of the successes of peacemaking criminology. As we have not seen much of the peacemaking perspective used

by law enforcement agencies today, we cannot come to a conclusion that the perspective will not be effective. One can assume that the implementation of peacemaking criminology will be difficult and will have to overcome obstacles such as a hesitant welcoming from the criminal justice field due to its radical approach.

Community policing can be greatly improved under peacemaking criminology. It will encourage police officers to become more involved with the community on a personal level. Cases of domestic violence will also be positively affected by peacemaking criminology. Police officers will have to take the time to negotiate and mediate conflicts between domestic relationships and ultimately solve the problem to prevent further violent acts. This approach, in and of itself will lead to better community policing while solving the problem with domestic violence. Mandatory arrest policies will be rendered unnecessary because the underlying goal of peacemaking criminology is to solve problems peacefully and usually without an arrest. It will also be greatly affected because it may no longer exist in the departments that practice the peacemaking approach.

Critics of peacemaking criminology may be missing the point. Throughout my research I have found that the peacemaking approach just might be the best solution to America's crime problem. On the other hand, I can understand why many may find it to be difficult to implement in public policy because it challenges everything the criminal justice system has evolved into. To suggest that the current practices are not effective would be wrong, but to explore beneficial changes that can be made to the criminal justice system is an ideal worth pursuing. Peacemaking criminology holds the potential to reduce the violence in America and ultimately lead to a more peaceful society. Peacemaking criminology is a perspective on crime that may be in the best interest of the criminal justice field to further weigh as an option for consideration in policy making.

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Reconsidering the Mind/Body Distinction: Towards a Continuist Ontology of Consciousness

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“Nature stretches *without a break* from lifeless objects to animals through things that are animated but not animals, so that there seems to be very little difference between one thing and the next, they are so close together.”

Aristotle, *De Partibus Animalium* ¹

In his paper, “*The State and Fate of Contemporary Philosophy of Mind*,” John Haldane likens the present condition of Philosophy of Mind to that of the philosophically stultifying period of late scholasticism, where naming took the place of explaining, and philosophy was reduced to taxonomy.² Haldane argues that our current physicalistic lexicon has made it virtually “impossible to accommodate the basic features of mindedness revealed in reflection and direct experience.”³ For Philosophy of Mind to progress, Haldane argues, we must “make space” for alternative modes of knowing that exist beyond the bounds of our current, overly physicalistic terminology.

Similar to Haldane, but offering a much bleaker picture of contemporary Philosophy of Mind, is Colin McGinn. In his essay, “Can We Solve the Mind-Body Problem?” McGinn advances what he refers to as his *Mysterian* view of consciousness, the view that human cognition is, by design, simply incapable of generating the concept(s) necessary for adequately explaining psycho-physical interaction. Just as a dog’s mind is cognitively closed to the concepts of Einsteinian Physics, so too, McGinn argues, is the human mind cognitively closed to the property that links mind and body. McGinn therefore concludes that the mind-body problem is fundamentally insoluble.⁴

Surveying the landscape of contemporary Philosophy of Mind from two rather different vantage points, Haldane and McGinn nonetheless arrive at very similar conclusions. Whereas both agree that contemporary Philosophy of Mind has reached an impasse, and that the language we currently use when speaking about consciousness is fundamentally inadequate, Haldane argues that what is necessary for Philosophy of Mind to advance is the generation of new language, and McGinn concludes that such language is nowhere to be found.

In this paper I argue that the impasse suggested by Haldane and McGinn directly stems from the presupposed notion of a sharp, binary distinction between mind and body. Hardly ever stated outright, this presupposition

is instead expressed tacitly through their presentation of the hard problem—that the physical as we define it cannot in any meaningful causal way bring about the mental, for the two are divided by a seemingly unbridgeable gap. What is therefore necessary, I argue, is a new way of looking at the mind-body problem that gets us away from seeing and speaking of reality strictly in terms of a discrete subject/object divide. In this paper I propose that the sharp distinction between mind and body, often assumed by many philosophers to be metaphysically foundational, is in fact false, and rather, that mind and body coexist upon an unbroken, graded continuum. If we thereby grant ontological primacy to a *continuum* of mind and body, we are now presented with a possible alternative explanation of consciousness that avoids to a large extent, the glaring inconsistencies of substantial Dualism as well as the woeful incompleteness of classic Physicalism.⁵ Furthermore, this new ontology provides a possible new starting point for both Haldane and McGinn; one that might provide Haldane the new language he is searching for, and likewise, one that might serve to rescue McGinn from the conceptual dead-end created by our present language. Accordingly, for the functional purposes of this paper I will here on out refer to this alternative viewpoint as a *Continuist* explanation of consciousness.

In this paper I will attempt to further develop this Continuist conception of mind and body. I will do so in two parts. The first part of this paper will be devoted to the task of finding an adequate metaphysics in which to ground our theory. Borrowing from Stephen R.L. Clark’s, “Deconstructing the Laws of Logic”, I will attempt to show how the epistemological problems raised by Clark suggest a metaphysical reality that is fundamentally continuous rather than discrete or atomistic. Once this grounding is firmly established, I will move on to the second part of this paper where I will attempt to extend this concept of continuity specifically to the mind-body problem, building upon the conceptual scaffolding laid forth in the Synchism of C.S. Pierce. Using Pierce, I will attempt to advance this Continuist position in strong hopes that it will allow us to view consciousness and the mind-body problem through fresh eyes.

Blurring the Line

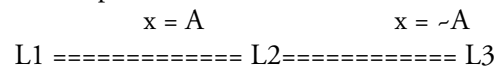
Before we set about the task of further developing this Continuist position, we must first provide it with an adequate metaphysical foundation on which to stand. As briefly stated before, one incipient solution fit for the task can be found in Stephen R.L. Clark’s, “Deconstructing the Laws of Logic”. In his essay, Clark challenges the ontological status of some of the bedrock foundations of formal Logic. Clark argues that our lived reality is that of an unbroken, continuous spectrum of experience, absent of the clean, crisp, and discrete distinctions

found in the world of bivalent logic and language. Given this incongruity between abstract logic and the experienced world, Clark concludes that these so-called “laws” are either false, or alternatively, that they “identify a reality *distinct* from the ordinary world of experience, and also from the ultimate source of reality.”⁶ Clark’s argument thereby suggests that without clear-cut, distinct boundaries differentiating between one atomic simple or “thing” and another (as the laws of logic would lead us to believe), reality is therefore not at all discrete but instead, an unbroken, contiguous spectrum. As Clark puts it, “our reality is *ineradicably continuous*, and there are therefore no abrupt changes of the kind that logic and language might lead us to suppose.”⁷

In his essay, Clark exposes some of the paradoxes and inconsistencies latent within formal logic by pitting the law of Non-Contradiction against the law of Excluded Middle. He does so in the following manner. Clark first reminds us of the two laws of logic in question;

- 1.) The Law of Excluded Middle (EM): either p or \sim p
- 2.) The Law of Non-Contradiction (NC): not both p and \sim p.

He then asks us to imagine a given segment, spatial or temporal, extending from L1, through L2, to L3. That is, L1 – L2 – L3 could represent one thing next to another (in space) or one thing leading to another (in time). Next, Clark asks us to imagine an x, such that, from L1 to L2, x is A, and from L2 to L3, x is \sim A (as depicted below).



With this scenario firmly in place, Clark asks; if x is A *prior to* L2, and x is \sim A *after* L2, then what is x immediately *at* L2? Here is where the problem begins to rear its head. If we conclude that x is *both* A and \sim A then the Law of Non Contradiction fails. Conversely, if we say that x is *neither* A or \sim A then the Law of Excluded Middle fails.⁸ A potential solution that appears to get us around this problem, while preserving the integrity of both laws, is to assert that, “the laws of logic only apply within a discontinuous world, where there are no points *between* adjacent points, so that the object is A from L1 to L2, and not A from L2* to L3, but through L2 and L2* are different, there are *no points* at all between them.”⁹ But even this move leads us to an equally undesirable conclusion.

If we are to assert that there are in fact *no points* through L2 and L2*, then what we are left with, it would seem, is a peculiar type of ‘nothing’; a concept very similar, Clark argues, to that of Epicurus’ “void”. To assert this void, Clark argues, still does

us no good, for it would seem that there must be a place where point and void touch, and in so doing, leaving that place of contact subject to the same argument as before. Furthermore, the ontological consequence of asserting a void go far beyond the localized case of L2 and L2*; its ramifications extending throughout the entire segment of L1 to L3. If we assert that it is neither true nor false that x is A (or -A) *at the specific point* of L2, then the implication is that we cannot say that x is A at *any point* between L1 and L3. As Clark puts it, “While it may seem that, if there are truths, they must be true at any point in the period during which they are true, we might conclude instead *that periods are not made up of points*. That is; our reality is *ineradicably continuous*.”¹⁰ (My italics.)

What then must we conclude from the problems raised by Clark’s argument? If Clark is correct, then it seems we are unable to definitively pin down the truth status of a single, atomistic point. This conclusion forces us to ask the following question; what must reality *fundamentally be like* to allow for such consequences? One possible metaphysical solution, not too far reaching, is to conclude that reality is not at all discrete or atomistic, but rather, that it is fundamentally continuous. If reality is continuous in the way that Clark suggests, then may it also not be continuous in regard to Mind-Body, where the two are not sharp metaphysical categories but, rather, poles on a continuous line? By following this line of thought, we can begin to solve the hard problem.

Towards Continuism

How then does this Continuist ontology specifically apply to the mind-body problem? One immediately recognizable advantage to positing a continuum of mind and body is that it promises to eliminate the problem of having to bridge the so-called “explanatory gap” between the world of the mental and the world of the physical. For on the Continuist view, there is no gap. Since Descartes, the Achilles’ Heel of substantial Dualism has been that of trying to explain psycho-physical interaction without reliance upon some sort of “bridge entity” to fill this gap.¹¹ For Descartes this bridge entity took the form of the pineal gland. Descartes posited that the pineal gland contained additional bridge entities, *both* will (mind) and spirit (body), and thus could function as the interface point where the worlds of mental and physical came into contact with one another. This move however failed to resolve the issue, as all it did was compress the problem of mind-body interaction into the localized microcosm of the pineal gland, leaving us with the same inherent dualism as before. That is, as long as we are dealing in terms of mental and physical, then the bridge spanning the chasm between mind and body must therefore *be made of* either the mental or the physical. If it is physical then

it fails to connect to the mental. If it is mental then it fails to connect to the physical. Thus, the positing of a bridge entity does us no good in crossing the mind-body divide.

Mind-Body Continuism, however, provides us with a potential way around this problem. By putting mind and body on a continuum, we are no longer faced with the intractable problem of having to reconcile two radically dichotomous worlds. Rather, the world of the mental and world of the physical would now inhabit *one shared world* along the continuum, with aspects of both mind and body extending into and interpenetrating one another in myriad forms and fashions.¹² In short, mind and body would now differ only *in degree* but no longer *in kind*. Thus, the problem of bridging the explanatory gap between mind and body would be effectively eliminated, for the gap would no longer be there.

As a further remark, and one pointing to the profound advantage of Continuism, consider the issue of causation and the hard problem. Under the common formulations of causation, a given object or event, existing in prior space-time, is often said to be the cause of another object or event existing in later space-time, if it meets certain criteria. However, under a Continuist ontology, this formulation of causality fails, for it depends on there being these independent, discrete identities of the objects of cause and effect. However, since Continuism does away with all sharp, discrete edges, the integrity of the atomic identities of cause and effect dissolve. Thus, it would make little sense to speak of A causing B, for in a sense, at the point of contact *A is B*, or, in the spirit of Aristotle’s *De Partibus Animalium*, “there seems to be very little difference between one thing and the next, they are so close together.”¹³

As Clark demonstrates, just as there is ambiguity regarding truth status of a given point (in time or space), so too is there ambiguity regarding the *point of causal contact* between cause and effect. With no clear distinction as to where cause ends and effect begins, discussion of *mind-body interaction* becomes increasingly difficult on the standard dualist line. But this is precisely the strength of Continuism, since it offers a way out of the hard problem by denying that there is a sharp distinction between mind and body in the first place. Hence, the possibility is now created for formulations of mind-body interaction without reliance upon *dualistic* bridge entities or dualistic language that take the standard form of *either* “mind” *or* “body” and thus result in contradiction. Instead, under this new Continuist ontology, we can now make formulations of mind-body interaction using *Continuist* entities that take the form of *neither* “mind” *nor* “body,” *or both* “mind” *and* “body.” Whatever language we come up with to “bridge the gap,” so to speak, it will have to be of a Continuist order, according to

Continuism, and thus, following Clark, will present us with entities that are neither/nor or both/and “mind” and “body.”

A final advantage of Continuism is that it preserves, equally, aspects of *both* mind and body without seeking to reduce one to the other. Unlike an Idealism that attempts to explain matter in terms of mind, or a Physicalism that attempts to explain mind in terms of matter, Continuism provides a metaphysics that puts mind and body on equal ontological footing. Another position that likewise attempts to end the tug of war between Idealism and Physicalism by granting equal ontological status to mind and body is Russell’s Neutral Monism. However, unlike Neutral Monism, Continuism does not run into the problem of introducing a third metaphysical category, “the neutral”, and then having to explain how it is that this third category interacts with or brings about the categories of mind and body. Rather than introducing an additional metaphysical category, Continuism, in fact, does the complete opposite by attempting to dissolve the absolute division of the metaphysical categories of mind and body altogether into a continuist relation.

More so than Russell’s Neutral Monism, Mind-Body Continuism most closely resembles the doctrine of Synechism advocated by C.S. Pierce. Pierce defines Synechism as “the tendency to regard *continuity* as an idea of prime importance in Philosophy.”¹⁴ This theme of continuity echoes throughout all of Pierce’s works to include his writings regarding mind and body. Under a Piercean ontology, mind is seen as extending continuously throughout all of nature by different degrees and in different concentrations. Thus, what we commonly call matter is, according to Pierce, really mind but in a “degraded or undeveloped” form.¹⁵ Likewise, Pierce regards the mechanical laws of nature as being, “acquired habits, like all the regularities of mind.”¹⁶ Pierce therefore concludes that “[t]he idealist has no reason to dread a mechanistic theory of life.”¹⁷ Although Pierce advocates more of an Idealist position than a truly Continuist position his writings nonetheless present a conception of mind that attempts to avoid the sharp mind/body distinction.

Conclusion

It has been said that if you do what you’ve always done, you’ll get what you’ve always gotten. Such is the case with contemporary Philosophy of Mind. New versions of old Dualist and Physicalist solutions, no matter how dressed up in the latest in vogue technical language, still carry with them the same old problems. Hemmed in by classic dualistic/ binary blinders, our conceptual and linguistic framework has simply been too narrow for the task at hand. The resulting tunnel vision has kept us locked into standard inadequate formulations of the question with equally inadequate formulations of solutions.

What is necessary for contemporary Philosophy of Mind to progress is the reformulation of both solution *and* question in a way that allows us to speak of things *in any other way* than in terms of a strict mind/body dichotomy. The Continuist viewpoint that I have advanced in this paper, though far from perfect, *at the very least* makes an honest attempt to break out from the standard mold and to try something new, for the old certainly isn’t working. From Maxwell’s merging of electricity and magnetism, to Einstein’s unification of matter and energy, to the formulation of a “space-time continuum”, and even to the fall of the Berlin Wall; *progress*, as it were, in virtually every area of human endeavor, has come in the form of the dissolution of presumed boundaries and the unification of seemingly irreconcilable parts. Is it really then so hard to imagine that one day we might come to discover that the impenetrable wall separating mind and body, subject and object, seer and the thing seen, might turn out to be equally permeable and not so solid after all?

Endnotes

1. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” *Philosophy* 83 (2008) 25-53; p.29.
2. John Haldane, “The State and Fate of Philosophy of Mind,” *American Philosophical Quarterly* 37:3 (July, 2000) 301-310; p. 301.
3. For instance, Merleau Ponty’s notions of being-the-world or “inhabiting one’s body” have, as a result, been excluded from virtually all contemporary discussions regarding mind. See John Haldane, “The State and Fate of Philosophy of Mind,” pp. 303-304.
4. Colin McGinn, “Can We Solve the Mind-Body Problem,” *Philosophy of Mind: Classical and Contemporary Readings* Ed. David Chalmers. Oxford: Oxford University Press, 2002. 394-405; p.395.
5. Furthermore, this viewpoint likewise circumnavigates the solipsistic dead end often suggested by classic Idealist explanations of consciousness.
6. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” p. 25.
7. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” p. 27
8. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” p. 26
9. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” p. 26
10. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” p. 27
11. J. Passmore, *Philosophical Reasoning* (New York: Charles Scribner’s Sons, 1961) p.140.
12. Edward James, “Mind-Body Continuism: Dualities Without Dualism,” *Journal of Speculative Philosophy* 5:4(1991) 233-55; p. 235. The term and ontology of “Continuism” builds upon this original work.
13. Stephen R.L. Clark, “Deconstructing the Laws of Logic,” p. 29

14. Charles Sanders Pierce, "The Law of Mind," *The Philosophers of Process* Ed. Douglas Browning. New York: Random House, 1965. 88-105; p.89.

15. Charles Sanders Pierce, "Man's Glassy Essence," *The Essential Pierce* Eds. Nathan Houser and Christian Kloesel. Bloomington, Indiana: Indiana University Press, 1992. 334-351; p.334.

16. Charles Sanders Pierce, "Man's Glassy Essence," p.334.

17. Charles Sanders Pierce, "Man's Glassy Essence," p.334.

Coursework

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The sections on Coursework include submissions that were originally produced as work for a course, but mentored under the revised review process.

“Tear Down this Wall”: How President Reagan ‘Framed’ the Soviet Union at Brandenburg Gate

PHILLIP KOSTKA

Philip Kostka wrote this piece for
Dr. Jason Edwards of the
Communications Dept.

On June 12, 1987, President Ronald Reagan gave a speech at Brandenburg Gate in West Berlin. This speech was on the 750th anniversary of the founding of Berlin, and in it, President Reagan praised the city and the people of Berlin, while at the same time decrying the government of East Berlin and the Soviet system. Reagan’s rhetorical performance that day is considered one of the one hundred greatest of the twentieth century. The question is what made Reagan’s speech so compelling? This paper seeks to answer this question by examining how Reagan framed the situation at Brandenburg gate.

All speeches place information into specific ‘frames’ that tell the listener what he should think about and *how* he should think about it. There are cultural metaframes that encompass many smaller frames, and there are these smaller frames. Taking place when and where it did, this speech fits into the “Cold War frame” that most foreign policy speeches of the time used (Norris, 1995). Within the speech, however, I argue President Reagan utilized several smaller frames that were part of this larger Cold War frame. President Reagan uses the frames of good versus evil, freedom versus totalitarianism, and nuclear weapons as a necessary evil in his speech before Brandenburg Gate.

To that end, I begin this paper by providing some theoretical background on framing and then use that as a lens to examine Reagan’s speech. Finally, I draw conclusions about Reagan’s address and the impact on U.S. foreign policy.

Framing

Framing is a process used by anyone who communicates; its use may be conscious or not. More specifically, frames are not created consciously, but may be consciously applied. When someone speaks, he places a little piece of himself into the speech, and this self is grounded in his culture and beliefs. The speaker’s culture and beliefs are the bases of framing. Framing, according to Pan and Kosicki (1993), is the act of putting information in a specific order and presenting it in a certain way so that certain elements take focus while others are ignored. Anytime that someone communicates, information is presented through a set of frames.

Rhetorical frames can be likened to picture frames. Picture frames put a nice,

finished edge on a picture and often crop out parts of the picture that we do not want others to see. At the same time, the picture frame serves to draw attention to the picture itself, to make people *want* to look at it. In the same way, rhetorical frames crop out the bad and call attention to the good of a situation. Gamson and Modigliani (1987) provide a good definition of a frame: a “central organizing idea or story line that provides meaning” (p. 143). Seldom is only one frame used; however, one frame can be adapted to many different subjects through frame amplification, frame extension or frame bridging. Snow and others (1986) tell us that frame amplification is the process through which a small piece is shown to fit into a larger frame; its fit is clarified and made obvious. In another study, Snow and Benford (1988) explain that frame extension adds items into a frame that had not previously been a part of it, with the intent being to make the frame attractive to more people. Snow and others (1986) also tell us that frame bridging links two similar, but unconnected, ideas into a single frame.

The reason that framing is effective is that man likes to categorize things. According to Goffman (1974), we use frames to help us to “classify, organize and interpret life experiences to make sense of them” (p. 56). It is much easier for us to lump things into pre-existing groups in our memories than to create new groups. The groups that exist in our memories are known as schemas. These schemas are developed as we grow, and thus reflect our culture. Schemas are integral to priming, through which framing operates. In priming, Hallahan (1999) explains, ideas are placed into pre-existing schemas so that we will judge a new idea based on what we already know about other things in the schema. There are schemas within each of us that create a sense of good and evil, right and wrong, etc. These ideas are based in, and tend to be similar across a single culture.

In a study on news framing during the Cold War, Norris (1995) argues that framing allows a speech or other act of communication to appeal to a particular culture by collecting ideas, images and words in a certain way to reinforce common thoughts. In so doing, Hallahan (1999) demonstrates that framing shapes our view of the world. Framing works to mould one’s view of the world by telling him what he should think about and *how* he should think about it. R.M. Entman (1993), one of the founders of framing theory, tells us that frames do four things; they define problems, diagnose causes, make moral judgements and suggest remedies. Kuypers (2006) states that in order for a frame to be believable and accepted, it must be based in the audience’s culture, it must exist in the communicator (the framer), and it must exist in the audience.

Frames are present in all communication, and everyone uses them every day. Frames help us to understand new and

complicated information. Frames help us to categorize and to rate the importance of things. They also help us to focus on specific parts of large, complicated matters. Frames are often referred to as central organizing ideas, or themes. Hallahan (1999) explains that frames tell the listener what is important, and what he should think about by providing him with the “contextual cues” that he needs to guide his decisions (p. 208).

A framing analysis looks at a particular communication event and finds the frames present therein. In doing this type of analysis, a picture of the themes presented by the communicator begins to emerge. In his book, *Bush’s War*, Kuypers (2006) does this type of analysis and argues that it allows an understanding of what is being said and how we are led to interpret it. A framing analysis is a good way to look at the meaning of President Reagan’s speech at Brandenburg Gate. The President does not explicitly say much of what he communicates in the speech, but rather he hints at it and lets the audience infer his meaning. By utilizing frames that most everyone in his audience is familiar with and can understand, President Reagan assures that his meaning is clear. The framing analysis allows us to see just how he made this meaning clear.

Good versus Evil

One of the frames used by President Reagan in his speech at Brandenburg Gate is that of good versus evil. The basic idea behind this frame is that America and other Western nations are good and right, while the Soviet Union is evil and wrong. Unlike his speech to the National Association of Evangelicals in 1983, President Reagan does not come out and say that the Soviet Union is an “evil empire” (§ 49). Instead, he gives examples that serve to prove his point without explicitly saying it. To create the frame, President Reagan explains how America is good by showing the good things that she has done for Europe and the world. He also shows that the Soviet Union is evil by explaining bad things that it has done.

America “reached out to help” (§ 6) repair Europe following the destruction of World War II. America helped because she, along with the other Western nations, is good. Because America and the other Western nations are good, they helped to create “a strong, free world in the West” (§ 7). Creating this free world was not for America’s benefit, but for the benefit of mankind. To create this strong, free world, America put the Marshall Plan in place, helping to pull West Germany and the rest of Europe out of the “devastation” (§ 6) that had been wrought by the war. America established a policy that was “directed not against any country or doctrine, but against hunger, poverty, desperation, and chaos” (§ 6). This is important because it puts ‘good’ Western nations in contrast to ‘evil’ Communist

nations. While the good nations are willing to help and stand for “freedom for all mankind” (§ 5), evil nations look to expand and “impose” (§ 4) upon others. While the USSR has “divide[d] the entire continent of Europe” (para. 4), the good nation of America helped to “rebuil[d] a city that once again ranks as one of the greatest on earth” (§ 8).

The Soviet Union is an evil nation. It has separated a culture by erecting “a vast system of barriers...a gash of barbed wire, concrete, dog runs, and guard towers” (§ 4). These barriers are a “scar” (§ 4) on the nation of Germany and serve as “instrument[s] to impose upon ordinary men and women the will of a totalitarian state” (§ 4). According to President Reagan, the “totalitarian world produces backwardness because it does such violence to the spirit, thwarting the human impulse to create, to enjoy, to worship” (§ 25). These impulses are allowed, and indeed encouraged, by Western nations. The evil Soviet Union, however, finds “symbols of love and of worship an affront” (§ 25) and tries to crush them. The totalitarian “authorities” (§ 25) of East Germany see symbols of faith, and therefore faith itself, as flawed. These authorities are a “totalitarian presence that refuses to release human energies or aspirations” (§ 24). All of the things that the President says the Soviets try to crush are freedoms that Westerners largely take for granted. They are freedoms that we exercise every day, and so we can see the evil in a government that would take such things away from its people.

While the good nations of the West take care of their own *and* others, the evil nation of the Soviet Union, the “Communist world” (§ 9), can not even care for its own people—“the Soviet Union still can not feed itself” (§ 9). One of the reasons that the Soviets can not feed themselves, it can be inferred, is because they continually build up offensive weaponry, unlike the good nation of America, who merely “maintain[s] defenses” while “seek[ing] peace” (§ 13). Continuing with the weapons, the evil nation “challenge[s] the Western alliance with a grave new threat” (§ 14), while the good nation tries “to negotiate a better solution...the elimination of such weapons on both sides” (§ 14). This comparison makes the Soviets the evil bully, while America and the West are merely protecting themselves. What this says is that the Soviets are selfish and bent on domination while America works for the good of the world and freedom for all—even those under Soviet control.

In summary, President Reagan creates the frame of good versus evil by giving his audience examples of the good things that Western nations have done by contrasting that with the evil deeds of the Soviets. By giving examples and presenting them as he does, the President leads his audience to make the ‘good’ and ‘evil’ connection without it being explicitly made.

Freedom versus Totalitarianism

One of the things that President Reagan uses to frame America as good is that she stands for freedom for all. This relates to another frame used by the President in his speech, that of freedom versus totalitarianism. In this speech, President Reagan uses the word Communist only once, and it is in reference to the area under Communist government, the “Communist world” (§ 9). Otherwise, any references to the Soviet government use the term totalitarian. Good in the world is presented as coming from that ideal central to Western governments—freedom. In doing this, the President sets up the frame of freedom versus totalitarianism.

The President presents us with the basic idea that freedom is the natural state of man, and that one reaches his fullest potential under freedom. In contrast, totalitarianism holds individuals back, keeps one from doing things that he would enjoy and holds the whole nation back. To present this idea, President Reagan gives us several examples of how freedom has worked.

He begins with the idea that freedom creates wealth, when he speaks of the “economic miracle” (§ 8) of West Germany. The reason that this miracle occurred is that “prosperity can come about only when the farmer and businessman enjoy economic freedom” (§ 8). The democratic government of West Berlin gave this freedom, enabling the citizens of West Germany to become prosperous. President Reagan mentions the “busy office blocks, fine homes and apartments, proud avenues, and the spreading lawns of parkland” (§ 8). All of these things, he says, came because of freedom. The connection between freedom and wealth goes far beyond Germany. According to the President, the free nations of the West have “achieved a level of prosperity and well-being unprecedented in all human history” (§ 9). All of these statements lead the President to his conclusions about freedom: “Freedom leads to prosperity. Freedom replaces the ancient hatreds among the nations with comity and peace. Freedom is the victor” (§ 9). This set of simple statements gets to the root of what President Reagan is saying about freedom: it is mankind’s best hope. He supports this by explaining, “freedom itself is transforming the globe” (§ 17), and cites examples of “miracle after miracle of economic growth” (§ 18), and the “technological revolution” (§ 18) that is taking place in the West. Overall, freedom is shown to be the driving force in a strong economy.

Another aspect that is presented is that “freedom and security go together” (§ 11). The implication of this statement is clear: no matter how much control the totalitarian Soviet government exercises over its people, there can not be true security without freedom. The reason that freedom creates security is that “the advance of human liberty can only strengthen the cause of

world peace” (§ 11). This statement tells us that peace can come about only with freedom. In summary, freedom creates wealth and advances world peace through security.

All of the good that the President says about freedom leads to his point that “in Europe, only one nation and those it controls refuse to join the community of freedom” (§ 19). That nation is the Soviet Union, and the President argues, “it will become obsolete” (§ 19) if it does not enter onto the side of freedom. The reason that it will become obsolete is that only freedom can provide all of the good of the modern world. Under Communism (this is the one time where President Reagan uses the term) there is “failure, technological backwardness, declining standards of health, even want of the most basic kind—too little food” (§ 9). These circumstances do not occur in a free state, but only under the iron hand of totalitarianism. Totalitarianism, exemplified by the Berlin Wall, “can not withstand faith; it can not withstand truth. The wall can not withstand freedom” (§ 26). The reason that totalitarianism can not withstand these things is because they are natural to man and yet it rejects them so totally. The President speaks of the “violence to the spirit” done by the “totalitarian world” (§ 25). He speaks of the East German government’s attempts to rid the city of Berlin of the *inadvertent* display of the cross. This is how deep the control by a totalitarian government goes. The government “refuses to release human energies or aspirations” (§ 24), but these things can not be contained, and eventually freedom will be victorious.

Nuclear Weapons as a Necessary Evil

In his speech, President Reagan also frames the issue of nuclear weapons. As far as these weapons are concerned, the United States and the West have them only to keep the peace, while the Soviet Union maintains them to threaten and intimidate. The President’s use of words is very important in this frame. America has “defenses” (§ 13) while the Soviets have “missiles” and “weapons” (§ 14). While America “maintain[s] defenses of unassailable strength” (§ 13), the Soviet Union threatens the West with “hundreds of new and more deadly SS-20 nuclear missiles” (§ 14). The Soviets deploy their weapons “on the threat of offensive retaliation” while America seeks “defenses that truly defend” (§ 17). This language serves to present the Soviets as using these weapons to threaten the West. The West, meanwhile, “seek[s] peace” (§ 13) and is forced by the Soviets to have these weapons. America must have these weapons in order to remain strong, because it is through strength that the West “resist[s] Soviet expansion” (§ 13). It is through strength that the West works toward peace.

The fact that America does not want these weapons is supported by a whole section where President Reagan details all of the

arms control actions taken by the West. America “strive[s] to reduce arms on both sides” (§ 13), and has attempted to do this, he says, but the “Soviets ... walked away from the table” (§ 14). Although “the Soviets refused to bargain in earnestness” (§ 14), Western nations “proposed deep cuts in strategic offensive weapons,” and “made far-reaching proposals to reduce the danger of conventional war” (§ 16). By showing that America has been working to eliminate these weapons, and that the Soviets refuse to discuss the matter, President Reagan presents America as the ‘good guy’ forced to do something that he does not agree with for the benefit of the world. America’s goal is to “deter Soviet aggression,” and she intends to do this while “not target[ing] populations,” as the Soviets do, “but [by] shield[ing] them” (§ 17). In short, America “seek[s] to increase the safety of Europe and all the world” (§ 17) through deterrence while the Soviets seek “expansion” (para. 13), and work through “aggression” and “offensive” threats (§ 17).

Conclusions

President Reagan’s speech at Brandenburg Gate was a crucial moment in Cold War rhetoric. At the time that it was given, many had been resigned to the fact that the Soviet Union would exist forever and had decided that we should accept that fact. President Reagan did not believe this. He firmly believed that the Soviets were evil and that their system was fundamentally wrong, indeed, he considered it “backward” (§ 9). He believed that freedom was fundamentally right. President Reagan knew that many people, American, British, German and even Soviet, agreed with him. This is why the President framed his remarks in Germany as he did. In their study, Rowland and Jones (2006) reveal that even within his own administration, many told the President that he should not be too demanding of Mr. Gorbachev, and that he should not degrade the Soviets, because it would only alienate the two leaders from each other. President Reagan was firm in his beliefs, and framed his speech through these beliefs. Within only a few years even his toughest demand, to “tear down this wall” (§ 12), had been met and the Soviet system had crumbled.

President Reagan’s steadfast adherence to his beliefs is one of the reasons that the Soviet Union crumbled. The speech at Brandenburg Gate is an example of his adherence to these beliefs. By refusing to temper his beliefs that Communism is evil, freedom is good and peace comes through strength, President Reagan showed the Soviet Union and the entire world that he meant business. By utilizing his beliefs in the framing of the speech, the President made the frames that much stronger and more believable. This, perhaps most of all, has implications for foreign policy. All of President Reagan’s speeches regarding the Soviet Union, but especially this one, show us that when a President firmly believes in something

and tells the public so, it can have a dramatic impact on foreign policy, and on the actions of foreign nations.

The framing analysis shows that what is stated in a speech is not all that is *said*. President Reagan did not use the word 'good' in reference to America, nor did he use the word 'evil' at all, yet that message is ever apparent. The other frames are stated more explicitly by the President, but still leave much to be determined and understood by the audience. By utilizing the frames of good versus evil, freedom versus totalitarianism, and nuclear weapons as a necessary evil, President Reagan was able to decry the Soviet government and arouse the anti-Soviet attitudes in his audience while at the same time maintaining the decorum of a statesman.

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Fashion Statement or Political Statement: The Use of Fashion to Express Black Pride during the Civil Rights and Black Power Movements of the 1960's

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Mary is a senior at Bridgewater State College majoring in History. This paper is the result of a research assignment for Dr. Margaret Lowe's African-American History class. With the help and guidance of Dr. Lowe, Mary completed this paper during the Fall 2008 semester. Upon graduation, she plans to pursue a career in secondary education while continuing her education at graduate school.

The Civil Rights Movement brought the plight of African Americans to the forefront of American political and intellectual thought. The ideological foundation of this movement was a feeling of black pride coupled with a strong sense of urgency for equality. Black activists and supporters, to express their solidarity and support of this movement, adorned symbolic clothing, accessories and hairstyles. Politics and fashion were fused during this time and the use of these symbolic fashion statements sent a clear message to America and the rest of the world that African Americans were proud of their heritage, that Black was indeed beautiful and that it was important to embrace ones African identity. Examples of significant cultural symbols that were used by black activists during, and since, the Movement to convey racial identity and pride include the use of Kente cloth in clothing designs, the uniform of the militant group the Black Panthers, and the "natural" African hairstyle called the Afro. These expressions of black pride are key examples of the Afrocentric principles held by the intellectual and political figures of the Civil Rights and Black Power Movements. This use of fashion to express black pride permanently fused the cause of equality with American culture and made the movement accessible to all supporters.

Kente cloth first captured the attention of African Americans in 1958 when Ghana's first president, President Kwame Nkrumah, visited Washington D.C. wearing Kente. Photos of the Ghanaian president adorned several newspapers and magazine covers, helping to establish the African cloth as a symbol of African pride and identity (Hernandez 1999, 46). Kente cloth is a brightly colored strip of cloth that is woven and pieced together to form clothing and accessories. The origin of Kente cloth dates to approximately 1000 BC and is credited to the West African Asante and Ewe people of what is now the Republic of Ghana (*New African* 2008, 32). There is great complexity in the meaning of each Kente cloth, with each color and chosen weave conveying distinct messages. According to a *New African* article on African textiles, in kente cloth gold represents status and serenity, yellow represents fertility, green is symbolic of renewal, blue refers to pure spirit and harmony, red represents passion, and black represents union with ancestors and denotes spiritual awareness (*New African* 2008, 33). This woven cloth of brightly colored strips of fabric became a strong symbolic representation of pride in African identity for African Americans of the 1960's and later. The most popular use of kente cloth in the 1960's was in the development of the dashiki, a loose

fitting tunic style shirt, though it was also made into shawls and large toga-sized wraps (Mead & Pederson 1995, 437).

Black nationalists groups and their supporters popularized Kente cloth in the 1960's. The clothing made from kente cloth directly linked the adorners of the cloth with African heritage and onlookers could not miss this message. It's lack of subtly and clear message made it a productive instrument in conveying to the public one's pride in their African identity. The cloth was often accompanied by slogans such as "Black Power," and "Black is Beautiful" (OMCA History Department, 2001). During a highly publicized trip to Africa in 1964, then-Heavyweight Champion of the World and black activist Muhammad Ali, wore a kente cloth wrap throughout much of his visit (Hernandez 1999, 47). It has since become incorporated into a variety of African American holidays and celebrations such as Martin Luther King Day, Kwanzaa and Black History Month (OMCA History Department, 2001).

As kente cloth's popularity grew throughout the 1960's its potent symbolism began to fade and radical black nationalists, such as the Black Panthers, did not want the cloth being associated with their organization. By the 1970's, dashikis had transcended the black power community, becoming common in many fashion magazine advertisements resulting in the Black Panthers forbidding anyone in their organization to wear a dashiki (Ogbar 2004, 116). In a publication of the newsletter *Black Panther* fashion-inspired wearers of dashikis and bubas (smaller kente cloth wraps) were called "opportunistic cultural practitioners [operating] as front men to further exploit black people and impede on the real revolutionary struggle" (Ogbar 2004, 117). The article conceded "while the African fashion movement may have helped beautify black America, certain practitioners have brought ugliness to its very existence" (Ogbar 2004, 117).

Though the radical black nationalists grew to reject kente cloth as a symbol of their movement, it remained a symbol of black consciousness and pride for mainstream African Americans. Kente cloth in its many forms became popular with the hip-hop culture of the 1980's and can now be found on everything from bookmarks and greeting cards to traditional wraps and artwork (OMCA History Department, 2001). Kente cloths uses have expanded and changed but its symbolic representation of black identity remains intact. In 2001 Reverend Cecil L. Murray of First A.M.E. Church in Los Angeles was asked about the meaning of kente to African Americans and he responded, "Kente reminds us that the world is larger than where you are. The world is larger than what you have suffered, what you have experienced. The world is large enough to step across the Atlantic, the Pacific, and to join people as people. So the

significance for me is that it's a bridge joining worlds together. Kente cloth means dignity, freedom, liberation, joining hands, love" (OMCA History Department, 2001). Reverend Murray's words are reminiscent of the language of both the Civil Rights Movement and Black Power Movement and the adoption of kente cloth by American fashion and merchandise designers has led to the incorporation of the ideals of these movements into American popular culture.

Though the Black Panther's were not comfortable with the commodification of kente cloth, they themselves significantly influenced American fashion and popular culture with their revolutionary attire. Founders of the Black Panther Party, Huey P. Newton and Bobby Seale, developed a uniform for the Black Panther members to adorn. This uniform included a black leather jacket, powder blue shirt, black pants, black shoes, black beret, and optional black gloves (Ogbar 2004, 118). Newton and Seale decided that the black beret would be an essential part of the ensemble after watching a movie about the French resistance to Nazis during WWII. The resisters donned black berets and they felt that it was a strong symbol of militancy and such militancy was what they wished the Black Panther Party to convey (Ogbar 2004, 118). The Black Panther Party's goals were not much unlike those of the less-militant Civil Rights Organizations. They declared in a November 1967 issue of *The Black Panther*: "We want land, bread, housing, education, clothing, justice and peace" (Williams 2008, 19). It was their acceptance of the use of paramilitary action and violence to obtain their goals that set them apart from their non-violence preaching Civil Rights Movement counterparts.

The Black Panther Party uniform sent a powerful message to white society that African Americans fully embraced their "blackness" from head to toe and that they were completely committed to their heritage and cause. The uniform unmistakably made the Black Panther members stand out and be recognized no matter where they were and their appearance, to a great extent, helped them succeed in conveying their seriousness and revolutionary ideal. The uniform also, like kente cloth, surpassed its initial cause and became a prominent symbol of black pride throughout America. The black beret became an iconic symbol of Black Power and came to imply implicit support of the Black Power Movement and the Black Panther Party, even for non-members (Ogbar 2004, 118). It could be found on the heads of college students and inner-city youths throughout the nation who were moved to show their support for the cause of African American pride and equality. The beret even transcended the cause of Black Nationalism, becoming a revolutionary icon for Latino, Asian and various radical political organizations, though each group chose a distinct color for their beret (Ogbar 2004, 119).

The Black Panther uniform, in entirety or parts, also appealed to inner city street tough youth who were not at all participating in the struggle for black liberation and equality. The militancy of the uniform made these youths feel confident, strong and brave. The adoption of aspects of the uniform also brought increased police attention and confusion as to whether young inner city men were gang members or Black Panther members, though in many cases either was equally vilified by the police and white society (Ogbar 2004, 108). The Black Panther uniform succeeded in intimidating adversaries and clearly sent a message of black pride and power though it surpassed its initial intention of communicating solidarity among the Black Panther Party members.

Another example of elements of the Black Panther uniform transcending its militant organization occurred at the 1968 Summer Olympics in Mexico City. After winning the gold and bronze medals in the 200-meter race, African American Olympians Tommie Smith and John Carlos gave clenched, black leather gloved fist salutes on the award stand with bowed heads (Hartmann 1996, 549). Though neither Smith nor Carlos was associated with the Black Panther Party, their actions declared their solidarity with the Black Power Movement and African American struggle. In Tommie Smith's own words, he describes the meaning of his and Carlos' actions that day:

*My raised right hand stood for power in black America.
Carlos' raised left hand stood for unity of black America.
Together they formed an arch of unity and power. The
black scarf around my neck stood for black pride. The
black socks with no shoes stood for black poverty in racist
America. The totality of our effort was the regaining of
black dignity.*

(Hartmann 1996, 550)

Both the physical and political elements of the above demonstration reflect the philosophy and nature of the Black Panther Party. Later in the games, despite the fact that both Smith and Carlos were stripped of their medals and publicly jeered, three African American athletes that received gold, silver and bronze medals in the 400-meter race donned black berets on the award stand (Ogbar 2004, 119). Lee Evans, the gold medal winner of that race explained "the berets were an affirmation of their commitment and solidarity with the struggle of black people worldwide" (Ogbar 2004, 119). The 1968 Summer Olympics became a platform for black nationalists and supporters of black liberation to voice their discontent with their situation in America and they used aspects of the Black Panther uniform to do so.

The Black Panther uniform helped to manifest the ethos "Black is Beautiful." The party and its uniform were alluring and full of mystique that captured the attention of onlookers, supporters or not. This fascination with the group resulted in its image reaching icon status in the fashion, film, music and advertisement industries (Renee and Raiford 2006, 224). Though the Black Panther's image reached commercial proportion, it would continue to be a symbol of revolutionary fervor and so remained popular with those on the outskirts of mainstream fashion.

Another element of fashion that emerged from the Civil Rights and Black Power Movements that served both a political and cultural purpose was the Afro hairstyle. The Afro was so named because it is a way for African Americans to wear their hair in its "natural" state, expressing pride in their "African" features rather than altering or concealing them to conform to white beauty standards, as was the societal norm (Giddings 1990, 152). This new way to show and embrace black identity and pride especially impacted the lives of African American women who had long conformed to white beauty standards. The Afro symbolically rejected those white beauty standards and redefined beauty standards for African American women. Afros became part of a beauty standard that grew out of political struggle and sent a powerful message of change to American society (Walker 2007, 169).

The Afro originated in the United States as a style worn by a small population of chic African American women as early as the mid-1940's (Walker 2007, 178). These women tended to be artists, intellectuals and urban socialites, many with ties to the Civil Rights Movements. The reasons for the adoption of this trendsetting hairdo ranged from convenience and ease of styling to the conscious celebration of African beauty (Walker 2007, 179). Reaction to these early trendsetters switch to "natural" hair was usually negative, even by African American peers. In 1943 an art student named Annabelle Baker decided to let her hair grow in natural and was told by her black dormitory mates that she "should be ashamed to be seen with her hair in its natural state." She became a target for disciplinary action on campus and she equates her troubles to her radical hairstyle because she had had no problems with campus authorities prior to her switch to natural hair (Walker 2007, 180).

The rejection of the white beauty standards and the consequent attention and reaction that such rejection attracted made the Afro an effective symbol of black pride and identity for black liberationists. This visual communication of pride in ones African heritage became a very popular hairstyle for members and supporters of Civil Rights and Black Power Movements. One of the first women to wear an Afro that was

publicly involved with the Civil Rights Movement was Stokely Carmichael's girlfriend at the time, Mary O'Neal. Urged by her black and proud boyfriend, O'Neal claims political motivation for her change in hairstyle in 1961 (Walker 2007, 181). O'Neal helped set a precedent in the black liberation movements of the 1960's. The Afro became one of the most recognized symbols of racial pride for both male and female activists, students, actors, musicians, and even some professionals, though the Afro did remain mostly within the urban youth crowd (Walker 2007, 183).

By the late 1960's and early 1970's, at the height of the Black Power era, the Afro was as fashionable as it was political. It became part of a new standard of beauty that had grown out of political struggle. Commercial response to the new hairstyle was significant and for the first time the ideal of shiny, long, straight hair accompanied by a light complexion was challenged. Marketing agencies and corporations began using black models in their television and magazine ads and product packaging at an unprecedented rate (Walker 2007, 169). Corporations, for the first time, looked at African Americans as viable consumers and targeted them as such in their ad campaigns. Companies, such as Avon and Nadinola that had previously promoted skin whiteners and hair straighteners to black consumers were now embracing new beauty standards and came out with make-up for darker complexions and featured women donning Afros on their hair product packaging (Walker 2007, 170). Like kente cloth and the Black Panther uniform, the Afro became a fashion statement that helped launch and maintain the political and cultural activist's "Black is Beautiful" campaign.

Despite the growing success of the beauty standard revolution, many involved in the Black Power Movement spoke out against what they called "Blacksploitation" by American corporations. Activists such as Bobby Seale of the Black Panther Party, who had also spoke out against the popularity of the dashiki, rejected the integration that white companies producing black products implied (Walker 2007, 170). The Afro hairstyle was also met with mixed reactions by the African American mainstream. In a 1966 article of the African American lifestyle magazine

Ebony, readers were polled as to what they thought of the "natural" look and responses varied quite a bit. One responder called women that wear Afros "lazy, nappy haired females" where others shared ominous words of encouragement such as "may we all become more natural...in every way" (Walker 2007, 184). Support of these natural haired beauties also varied geographically. In 1969, *Newsweek* polled African American's as to their feelings about the Afro and 75% of northern blacks under the age of 30 said they approved where as only 40% of all southern blacks gave their approval (Walker 2007, 185).

Though approval varied and the Afro as a symbol of African pride and identity became complicated by white corporations and fashion magazines, it does not change the fact that the Afro hairstyle served a great and significant purpose during the Civil Rights and Black Power era. It gave African American women confidence and security in being themselves when they had been told by white society for years that their "blackness" was substandard and should be concealed where possible. The Afro was instrumental in awakening American society to a new tradition of beauty and was an impressive visual display of racial identity.

The use of fashion by the Civil Rights and Black Power Movements of the 1960's was a powerful means of altering American consciousness and implementing African elements into American society and popular culture. For the first time in American popular culture "Black was Beautiful." Fashion was a visual means of communication in the 1960's like it had never been before. Black liberationists were extremely effective in using these elements of fashion to express their discontent with their situation and to show America that they were proud of their heritage whether white society felt they should be or not. Though the use of kente cloth, the Black Panther uniform and the Afro hairstyle began as political statements and transformed into fashion statements, the efforts and successes of the black liberationists remained. The political meaning of these African inspired fashions was absorbed by society and allowed African American's to greatly influence the future of American culture.

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Introspection and Self-Transformation: Empathy in Toni Morrison's *The Bluest Eye*

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The ability to connect with and feel empathy for others is an innate quality within ourselves that serves to make each of us human. We empathize with the poor, homeless, and the less fortunate. Empathy drives us to do good for others; it allows us to make a difference in the world in which we live. In her novel *The Bluest Eye* the unfortunate situations and experiences in which Toni Morrison places her characters force readers to place themselves in the characters situation and grapple with the examination of oneself as a result. Moral essayist Samuel Johnson once wrote, "All joy or sorrow for the happiness or calamities of others is produced by an act of the imagination that realizes the event however fictitious... by placing us, for a time, in the condition of him whose fortune we contemplate, so that we feel... whatever emotions would be excited by the same good or evil happening to ourselves" (Johnson 204). Toni Morrison, in her novel *The Bluest Eye*, uses the empathy she evokes from her readers as a tool to teach audiences a lesson about the evils of internalized racism, lack of empathy, and rape.

People often confuse empathy with pity. Whereas sympathy is used to make readers identify with characters, feeling only pity would be a contrite and lazy reading of this text. In her research on cross-racial empathy, Kimberly Chabot Davis clearly states: "Sympathy and compassion are regularly equated with a condescending form of pity, a selfish and cruel wallowing in the misfortunes of others" (Chabot Davis 400). However, Morrison does not create her characters in such a way that you are meant to simply feel sympathy for their tragic situations and then move on with your life. Instead, Morrison evokes empathy not only to engage the reader but also to implicate the reader as well—that is, to pull the reader into the text. Again, Samuel Johnson sheds light on the workings of empathy: "Our passions are therefore more strongly moved, in proportion as we can more readily adopt the pains or pleasures proposed to our minds, by recognizing them as once our own, or considering them as naturally incident in our state of life" (Johnson 204). Morrison relies on the reader's ability to understand and associate with each character so that the reader may approach and view the work differently. Davis points out that "While empathy could be seen as a type of sympathy, empathy usually signifies a stronger element of identification... imaginatively experiencing the feelings, thoughts and situation of another" (Davis 403). There is power in making audiences acknowledge both the wrongs of society and the nature of wrongness in and of itself. Davis reports that one "... reader of *The Bluest Eye*

was moved to self-interrogation and to question her previously uncompassionate and personally disengaged reading of the text” (Davis 409). Morrison did not create *The Bluest Eye* as a vehicle for garnering pity for poor helpless Pecola, but rather as a means of educating audiences on the unfortunate side effects of internalized racism, lack of empathy for one another, and the power of looking at a situation from multiple viewpoints.

Within the novel, readers witness Morrison’s efforts at addressing the issue of African American individuals’ common desire for Caucasian attributes in the 1940’s. What is interesting about this novel is the way Morrison manages to present Claudia, the work’s narrator. Claudia, the youngest character within the work, seems wholly unaffected by society’s affinity for all things white. Claudia explains, “I had not yet arrived at the turning point in the development of my psyche...what I felt at that time was unsullied hatred...for all the Shirley Temples of the world” (Morrison 19). Claudia serves as Morrison’s ideal of what a typical African American should exemplify. Claudia cultivates her loathing of what everyone around her seems to strive for, and therefore cannot understand the beauty people see in the blond haired, blue-eyed doll she is presented with for Christmas. Claudia says:

I had only one desire: to dismember it. To see of what it was made...to find the beauty, the desirability that had escaped me, but apparently only me. Adults, older girls...all the world had agreed that a blue-eyed, yellow-haired, pink-skinned doll was what every girl child treasured (Morrison 20).

Claudia is subsequently outraged by society’s high regard for white culture, and questions what gives white qualities such power and desirability within her African American community. While Claudia is questioning society’s collective desire for white attributes in order to be beautiful, Morrison chastises readers and African American society for not being able to find the beautiful within themselves as a race, thus directly implicating us all in the demise of Pecola Breedlove.

Claudia is the inverse to this work’s main character, Pecola Breedlove. Pecola longs for big, blue eyes, set in a dark-skinned face, in hopes that they will make her beautiful. Evident from the text, Pecola is ostensibly plagued by many of the stereotypical physical characteristics one may associate with African Americans. From her irregular hairline, to her wide, crooked nose, Pecola is the embodiment of African American physiognomy. Both Claudia and Pecola become the tools with which Morrison delves into the recesses of internalized racism. Internalized racism is when a person actively and knowingly discriminates against a member of their own race, and

experiences a tacit or perhaps explicit revulsion for one’s own race, fostered by the society in which the novel takes place. Because the community in Lorain yearns for white characteristics, they make an example of Pecola and associate her with their idea of ugliness. Morrison writes, “Long hours she sat looking in the mirror, trying to discover the secret of the ugliness, the ugliness that made her ignored or despised at school, by teachers and classmates alike” (Morrison 45). It is society’s lack of adoration and reverence for Pecola’s apparent black characteristics that makes the child long for white attributes. Critic Marc Conner concludes by citing Toni Morrison’s own words:

Indeed, the community is part of the very cause for Pecola’s pathetic desire for blue eyes...Morrison has stated that the reason for Pecola’s desire must be at least partially traced to the failure’s of Pecola’s own community: ‘...she wanted to have blue eyes and she wanted to be Shirley Temple...because of the society in which she lived and, very importantly, because of the black people who helped her want to be that. (The responsibilities are ours. It’s our responsibility for her helping her believe, helping her come to the point where she wanted that.)’ (Conner 56)

The empathy readers feel on Pecola’s behalf calls attention to the lack of emphasis African Americans put in the loveliness and beauty of their own cultural and physical attributes. By educating audiences on the evils of internalized racism, Morrison is provoking readers to find beauty within themselves as well. Through Pecola, we witness a tragedy and in doing so, we are encouraged to acknowledge that true beauty is found first within oneself, not in the cultural attributes of anyone else.

In the novel’s “Afterword,” Morrison gives some insight into what inspired her to create this piece of literature. Here Morrison describes a childhood encounter with a friend who sincerely expressed her intense desire for blue eyes, a request that deeply troubled and distressed Morrison. She explains: “Implicit in her desire was racial self-loathing. And twenty years later I was still wondering about how one learns that...Who had looked at her and found her so wanting, so small a weight on the beauty scale?” (Morrison 210). Pecola’s desire for blue eyes is a concept that drives this novel; it is not simply a frivolous episode within the text, as Haskel Frankel has claimed. Frankel, in his article, writes:

...what she wants are blue eyes. In this scene, in which a young black on verge of madness seeks beauty and happiness in a wish for white girl’s eyes, the author makes her most telling statement on the tragic effect

of race prejudice on children. But the scene occurs late in the novel—far too late to achieve the impact it might have had in a different construction...[Pecola's] mental breakdown when it comes, has only the impact of reportage. (Frankel 3)

Frankel is of course referring to the encounter between Pecola and Soaphead Church that comes three quarters of the way through this novel. However, Frankel's opinion that this scene comes too far along into the novel is absurd. Audiences are made aware of Pecola's wish long before her interlude with Church. Specifically, readers recognize this occurring when the omniscient narrator informs audiences, "Each night, without fail, she prayed for blue eyes" (Morrison 46). It is Pecola's impossible desire for blue eyes, as a result of the cruelty she tolerates throughout this novel, which leads her to seek aid from Soaphead Church. If this scene had occurred anywhere else within the text, it would have altered readers' ability to realize how desperate Pecola truly was. The empathy audiences experience on Pecola's behalf comes to a climax upon the realization that Pecola has sought out the help of a known pedophile in order to satisfy her desire.

Also, the notion that Pecola's breakdown only has the impact of reporting is faulty reasoning. *If* that were the case, Morrison simply could have elected to have Claudia narrate to audiences Pecola's eventual descent into madness. Morrison however, elected to include the chapter with the primer, "LookLookHereComesAFriend..." throughout which audiences are given a conversation between Pecola and her imagined alter ego. Within this portion of the text audiences observe a mentally unbalanced Pecola, who has ultimately slipped into insanity in order to truly acquire her blue eyes. If Morrison had simply informed readers of Pecola's demise, without giving some insight into Pecola's frame of mind, Morrison would have been letting readers off the hook too easily. The empathy audiences feel for Pecola during this haunting portion of the text, serves to make readers truly aware of the devastating effects racism, abuse, and intolerance can have, and reader's ignorance regarding such matters implicates them as having shared a part in this young girl's downfall.

As mentioned earlier, internalized racism is implicated as playing a part in Pecola's undoing; however, black society's lack of empathy for their members is also a cause that merits further examination. The very same society that is supposed to sustain and support Pecola, upon learning of her rape and pregnancy, ultimately turns its back on her. The only two characters within the text to exhibit any empathy on Pecola's behalf are Claudia and Frieda. Claudia explains, "Our astonishment was short-lived, for it gave way to a curious kind of defensive shame; we

were embarrassed for Pecola, hurt for her, and finally we just felt sorry for her. And I believe our sorrow was all the more intense because nobody else seemed to share it" (Morrison 190). As a reader, we experience anger and disbelief that any society would act in such a way. However, it happens everyday. A community gossiping about one another is certainly not a new trend; nevertheless it's society's lack of action in Pecola's defense that is being criticized here. Critic Marc Connor accurately states, "Pecola is destroyed within her very community; and that community not only fails to aid her, they have helped cause her isolation" (Connor 55). The Lorain society's lack of empathy for one another serves as Morrison's means of making audiences aware of the comfort community can afford to its members and the acknowledgment that everyone has the responsibility to aid, rather than ridicule, a member of their own community.

Empathy garnered on behalf of a rapist seems like a hard case to sell; however Morrison manages it. Morrison could have written a stereotypical rape scene for audiences where Cholly sadistically dominates young Pecola and savagely rapes her. Yet she elects not to. Morrison, in her "Afterword" explains, "I did not want to dehumanize the characters who trashed Pecola and contributed to her collapse" (Morrison 211). In the chapter headed with the primer, "SeeFatherHeIsBigAndStrong..." in which the rape of Pecola is finally witnessed, the entire chapter is narrated from Cholly's point of view, thereby offering Cholly's thoughts and experiences. By relating to audiences Cholly's past, Morrison is attempting to both humanize Cholly as well as implicate his past as having a distinct responsibility in the heinous act that Cholly commits against Pecola. It is important to note that Morrison makes reference to Cholly's first sexual encounter with Darlene, where he is ordered to continue having sexual relations with Darlene while the white hunters gather round and watch him perform, before readers see the incestual rape. The hate and anger Cholly feels during this first episode, which should be directed at the hunters, is instead turned on Darlene. Morrison then chooses to parallel Cholly's feelings of hate during his Darlene episode again with those he feels during Cholly's rape of Pecola. Cholly expresses:

"Guilt and impotence rose in a bilious duet...What could a burned-out black man say to the hunched back of his eleven-year-old daughter? What could his heavy arms and befuddled brain accomplish that would earn him his own respect, that would in turn allow him to accept her love? His hatred of her slided in his stomach and threatened to become vomit...Again the hatred mixed with tenderness. The hatred would not let him pick her up, the tenderness forced him to cover her."(Morrison 161-3)

Morrison in her "Afterword" is clear that she wanted readers to draw the connection between Cholly's first experiences with Darlene and his experiences with Pecola. Critic Donald Gibson feels, "It would be on the whole easier to judge Cholly if we knew less about him and if we could isolate the kitchen floor episode from the social context in which it occurs and from Cholly's past" (Gibson 170). Morrison's depiction of Cholly's past allows readers to imagine that if Cholly had grown up differently, this tragedy may never have occurred. If Cholly had not been emasculated during his first encounter with Darlene, he may not feel the need to regain his masculinity by violently dominating the females in his life.

It is evident from the text that Cholly's rape of Pecola stems from or at the very least is a result of his past experiences with racism. Gibson believes, "Morrison allows Cholly to be something other than simply evil...Morrison does not tell us what Cholly does to Pecola is all right, rather she says that what happens is very complicated, and that though Cholly is not without blame for what happens to Pecola, he is no less a victim than she" (Gibson 169). We know there is no justifiable excuse for a father having sexual intercourse with his daughter, yet Morrison is not trying to convince readers Cholly's actions are permissible; rather she is merely trying to provoke the reader into examining the reasoning behind Cholly's behavior. Through Morrison's depiction of Cholly's life, Morrison is attempting to encourage readers to look at both Cholly's actions as well as the events that led him to this point. If Morrison had not wanted readers to empathize with Cholly, she would not have bothered relating to readers the whole of Cholly's life that had led him to raping his own daughter.

Through Morrison's beautiful language and insightful delivery of her characters and their circumstances, audiences are forced into empathizing not only with the characters, but also with the

terrible aspects of society that Morrison is revealing. It would be easy to believe each character is the tragic result of his or her own unfortunate situation, but that would be a complete dismissal of the message Toni Morrison is trying to convey, which is that each character is in one way or another affected by his or her societies treatment of him or her and his or her race. The empathy Toni Morrison's characters conjure is not simply a plea for the young, black, helpless, girls in society, but rather a call for change brought about through introspection and self-transformation. By telling these characters' stories, Morrison is using them as examples of the harsh realities that exist, and is hoping to inspire readers to consider the dark aspects of Pecola's life in order to incite a moral distaste which would thereby serve as a corrective to society.

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Is Prospero Just? Platonic Virtue in William Shakespeare's *The Tempest*

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The *Tempest* is often regarded, and rightly so, as Shakespeare's last great play. Many scholars argue that Prospero is an analogue for Shakespeare himself, noting the similarities between Prospero's illusory magic and Shakespeare's poetic genius. The themes of imagination, illusion, and, indeed, theatre itself play an integral role. The line that is perhaps most often cited as evidence for this argument is Prospero's speech directly after he breaks up the wedding masque in which he refers to "the great globe itself" (IV. i.153).¹ There is a danger, however, in appealing to the author's biography or treating the biography as paramount, namely that the art work loses its autonomy. Barbara Tovey, while not adopting this interpretation per se, posits a species of this argument. She reads *The Tempest* as Shakespeare's direct response to, and defense of, Plato's conception of imitative poetry found in *The Republic*. Biographical criticism, however valuable it may be, will not be our main concern; rather, we will shift the focus from Shakespeare's biography to the text of *The Republic*.

Tovey's essay, "Shakespeare's Apology for Imitative Poetry: *The Tempest* and *The Republic*," is an exercise in both historical and political criticism that takes into account the ideal city of which Socrates speaks in *The Republic*.² A more psychological approach using Plato's *Republic*, however, can yield an equally valuable discussion. If we remind ourselves that the main concern of *The Republic* is not to provide a blueprint of the perfect city but rather to provide an account of the nature of justice, we can easily see that the tripartite ideal city is a metaphor or analogy for the human psyche. There are many parallels between *The Republic* and *The Tempest* and, indeed, Platonic philosophy in general. G. Wilson Knight, for example, in his essay "Prospero's Lonely Magic," mentions "Plato's two steeds of the soul" (Knight 137). This is, of course, a reference to *The Phaedrus*, another Platonic dialogue. Knight does not develop the idea fully, but if he had, it isn't obvious where that line of inquiry would have taken us. Knight makes an interesting observation, but a more profitable means of inquiry is to be found in *The Republic*. In order to accomplish this we need to take a look at what Plato considered virtues, which, if properly cultivated, help bring about justice. The Platonic idea of justice and virtue as a lens through which to examine Prospero reveals to us a better understanding of the development of his character throughout the course of the play. We should though offer a brief explication of Platonic justice before addressing *The Tempest*.

The Republic is concerned with the nature of justice in the individual, how Plato arrives at this point, though, is through a lengthy discussion of justice in the ideal city. Socrates states, “let’s first find out what sort of thing justice is in a city and afterwards look for it in the individual, observing the ways in which the smaller is similar to the larger” (369).³ This is not to say that *The Republic* doesn’t contain any political insight; surely it does. Books VIII and IX deal with the way in which the various kinds of governments become increasingly less just i.e. the timocracy becoming the oligarchy and so forth. Again, Plato uses the constitutions of these various governments to talk about the similar process that occurs in the human psyche.

Plato’s conception of the ideal city is tripartite; there is a ruling class (guardians), a soldier class (auxiliaries), and a working class (craftsman). Likewise, the human psyche has three parts: the rational, the spirited, and the appetitive. The city and the psyche are analogous in that each section of the city has a particular function similar to the corresponding section of the psyche: the guardians, auxiliaries, and workers correspond to the rational, spirited, and appetitive, respectively. We will return to this shortly. After laying out the class structure of the city, Socrates’ interlocutors urge him to continue his discussion of justice. Socrates remarks that “[he thinks the] city, if indeed it has been correctly founded, is completely good” (427e). He goes on to say that if the city is completely good then it will be “wise, courageous, moderate, and just” (427e). Socrates and company begin to examine the city with the hope of discovering justice through a process of elimination; finding the other virtues first will ensure that whatever is left over will be justice. Let’s consider the city and the psyche simultaneously.

Socrates and his interlocutors discover wisdom first. Only the guardians possess wisdom which is defined as both good judgment and a special knowledge of ruling; knowing what is best for each part of the city. Guardians are also necessarily wiser than the members of the other classes because they are philosophers. Wisdom in the human psyche is located in “that small part of himself that rules in him and makes . . . declarations and has within it the knowledge of what is advantageous for each part and for the whole soul” (442c). The rational is most suited to ruling the psyche because it is the seat of wisdom, calculation, and learning.

The city is considered courageous “because of a part of itself [auxiliaries] that has the power to preserve through everything its belief about what things are to be feared” (429c). The upbringing of the soldiers allows them to unwaveringly internalize the laws of the city like well prepared wool that once dyed holds its color (429e). Likewise, courage is located in the spirited portion (the same portion that wills, desires,

and emotes) of the psyche and we say one is courageous “when [the spirited part] preserves through pains and pleasures the declarations of reason about what is to be feared and what isn’t” (442c). Courage is a kind of steadfastness or resoluteness which the spirited part exhibits when it obeys the rational part.

Moderation isn’t localized in one class but rather it is shared among them. The city contains a diversity of natures: the guardians are, of course, the best natured while the majority of the remaining citizens have a poorer nature (431c). Nevertheless the “unanimity” or “agreement between the naturally worse and naturally better as to which of the two is to rule both in the city and in each one, is rightly called moderation” (432a-b). Moderation is akin to self-control. One may have self-control when the “naturally better part is in control of the worse” (431b). Likewise, when the larger worse part overpowers the smaller better part (of a person or city) “this is called being self-defeated or licentious” (431b). In the psyche, each part agrees that reason and the rational part should rule and do not seek to “engage in civil war against it” (442d).

The last remaining virtue is justice, what is “left over” in Socrates’ discussion of the city’s virtues. Socrates states that “justice is doing one’s own work and not meddling with what isn’t one’s own” (443b). A more psychic description of the just person is one who does “not allow any part of himself to do the work of another part or allow the various classes within him to meddle with each other” (443d). When reason is allowed to rule and the appetites and emotions are not trying to rule in its stead, only then can a person’s actions be said to be just. The preservation of this “inner harmony” is justice and those actions that disrupt the inner harmony are unjust (443e). *The Tempest* offers us a vivid representation of many of Plato’s remarks concerning the psyche and virtue.

We can point out the similarities and parallels between *The Tempest* and *The Republic* without making claims regarding Shakespeare’s intentions. *The Tempest*, nevertheless, embodies or concretizes the parts of the Platonic psyche in its characters. Prospero, Ariel, and Caliban all exhibit more of one particular psychic portion: Prospero represents the rational, Ariel the spirited, and Caliban the appetitive. Tovey rightly observes that “Caliban is a creature of bodily appetites and impulses” and, indeed, “much of his talk throughout the play turns on food” (291). Each of these characters, though, is not a manifestation of just any spirited or appetitive psyche, but rather, each character is a manifestation of Prospero’s psyche; as Knight puts it, Ariel and Caliban “are yoked in the employ of Prospero” (137). While there is a definite master-slave relationship between Prospero and the other characters there is a great deal of Prospero’s language that is dedicated to ownership

or possessiveness that suggests inclusion. It is not just any Ariel, it is “my Ariel” (I.ii.188) or “my delicate Ariel” (IV.i.49) or “my spirit” (V.i.6). Prospero speaks of Caliban, too, in the possessive but in a much more disparaging tone: “Caliban, my slave, who never / yields us kind answer” (I.ii.308-9). Let’s examine these characters but with Prospero and the Platonic virtues in mind. We shall find that Prospero cannot be virtuous in the Platonic sense until the play’s last act.

Prospero embodies the rational part of the Platonic psyche. We can see his inclination toward wisdom and knowledge in his recounting to Miranda of how it is that they came to the island. Prospero, “being transported / And rapt in secret studies” (I.ii.76-77), casts “the government ... upon [his] brother” Antonio (I.ii.75). This in turn “[awakes] an evil nature” in his brother that ultimately leads him to usurp Prospero’s dukedom, although Prospero is rightfully and technically still duke of Milan. His enthusiasm for the “liberal arts” (I.ii.73) leads him to “[neglect] worldly ends” (I.ii.89) and seek privacy for “the bettering of [his] mind” (I.ii.90). Even the dim-witted Caliban knows that if one wants to overthrow Prospero one can “brain him” (III.ii.88) but only after “having first seized his books” (III.ii.89). Clearly, if there is any character that embodies the rational portion of the psyche, it is Prospero.

Ariel represents the spirited portion of Prospero’s psyche. Ariel’s function on the island, at least to Prospero, is one of subservience. Plato also has this same role in mind when he writes about the spirited portion’s function. Socrates asks Glaucon: “isn’t it appropriate for the rational part to rule, since it is really wise and exercises foresight on behalf of the whole soul, and for the spirited part to obey it and be its ally?” (441e). The answer, of course, is yes. And indeed Ariel fulfills a similar function for Prospero. After all it is Ariel who “[performs] to point the tempest that [Prospero] bade [him]” (I.ii.194), divides the shipwrecked passengers “in troops ... ‘bout the isle” (I.ii.220), and stores the King’s ship “safely in harbor” (I.ii.226). Ariel’s service to Prospero continues into the play’s last act. Prospero, when he demands Ariel’s continued subservience in Act I, scene ii, even assigns Ariel the pejorative “moody;” here it means stubbornness but it can also connote emotionality, something for which the spirited portion of the psyche is responsible (I.ii.244). The other things that fall under Ariel’s domain are things normally associated with the spirited portion: the songs he sings, the dancing spirits he summons, and the banquet he materializes and promptly vanishes for Antonio and company.

If we look at Ariel and Prospero in terms of Platonic virtue, thus far we see that Prospero, the rational, is in control of Ariel, the spirited, precisely as Plato suggests. It is a forced subservience

but the “correct” arrangement; Ariel “obeys” and is a kind of “ally” to Prospero. Prospero, by definition, is not moderate since the arrangement is forced and not completely unanimous and therefore cannot be just. Both Ariel and Caliban protest Prospero’s rule on the island and until all three characters can reach an agreement Prospero cannot be virtuous.

Caliban represents the appetitive portion and, like Ariel, dislikes his position in the hierarchy of the island. Plato conceives of the appetitive portion as the larger and baser portion that includes things like food, drink, and sex. One of the first things we learn of Caliban is his attempted rape of Miranda; Prospero used to allow him to stay in his “cell till [he] ... [sought] to violate / The honor of [his] child” (I.ii.347-8). Plato also urged for a finer control over the appetites and we see Prospero continuously threatening Caliban with “cramps” and “pinches” at various points throughout the play. Ariel is quicker to obey than is Caliban. Prospero and Miranda “cannot miss him”, though, because he does perform for them certain chores (I.ii.311). Despite our baser needs we cannot escape from them.

We have established Ariel’s unruliness, but Caliban’s is of a higher magnitude. Caliban’s run in with Stephano and Trinculo reveals to us just how much Caliban resents Prospero. Caliban sees Prospero as “a tyrant, / A sorcerer, that by his cunning hath / Cheated [him] of the island” (III.ii.41-4). He proceeds to urge Stephano to “revenge it on him” (III.ii.54). If we recall that moderation involves each part of the psyche agreeing that the smaller portion, the rational, should rule over the bigger portions, the appetitive and the spirited, and that “they should not engage in civil war against it” (442d), we see that, still, at this point in the play, by definition, Prospero isn’t moderate, not with his appetitive portion plotting to kill him.

Prospero’s desire for vengeance, to repay his usurping brother, drives much of *The Tempest’s* action. His treatment of Antonio and company via Ariel throughout the play’s middle acts serves as a kind of vengeance so that by the time we reach Act V Prospero’s character is transformed. Ariel remarks how Prospero’s “charm so strongly works ‘em / That if [he] now beheld them, [his] affections / would become tender” (V.i.17-9). Despite Prospero’s indignation, he realizes that he should favor his “nobler reason ‘gainst [his] fury” (V.i.26) and that “The rarer action is / In virtue than in vengeance” (V.i.27-8). Shortly after Prospero explicitly states he will choose virtue over vengeance, Caliban realizes that he mistakenly assumed Stephano “for a god” (V.i.297) and he remarks on “how fine [his] master is” (V.i.262). Prospero, in turn, says of Caliban, “this thing of darkness I / Acknowledge mine” (V.i.275-6). A few lines later, Caliban, after Prospero instructs him to

prepare his cell, assures Prospero that “[he’ll] be wise hereafter” (V.i.295). The appetitive and the rational both agree that the better part should rule. Prospero is finally moderate, but is he just?

All the parts of the psyche must be in harmony for one to be considered just. But in the final act of the play, Ariel is released from service and is no longer there to “obey” and be Prospero’s “ally.” While it seems impossible to divorce oneself from any portion of one’s psyche, we can nevertheless regard Prospero’s choice to let Ariel go as a just act. An action is just if it preserves the harmony among the portions of the psyche: letting Ariel go is just insofar as the action eliminates the strife we observed earlier in the play. There is agreement among both the spirited and the appetitive that the rational should rule and none is trying to do the job or perform the function of the other. At the close of Act V, we can regard Prospero as virtuous and just.

There is no doubt that Prospero undergoes a transformation; he can be regarded as vengeful up until the latter acts of the play. There are, of course, many ways to understand his transformation but the play seems to provide us with characters that fit neatly with Plato’s conception of the human psyche found in *The Republic*. Prospero, Ariel, and Caliban can be understood as the concretized elements of Prospero’s psyche. Prospero’s transformation, then, is found in his movement towards Platonic virtue throughout the play. The tempest within Prospero quiets as the observable elements of his psyche, Ariel and Caliban, settle into harmony, each performing his own function and not interfering with the other.

To claim that Shakespeare had Plato’s work in mind when he composed *The Tempest*, the position of Tovey and others, is to argue for a claim that, most likely, will go unsubstantiated. Arguments like these rely heavily, because they must, on primary texts and their intertextuality. But the next step, claiming that the author consciously incorporated elements of another text, especially when both authors have been dead for centuries, does little to bolster one’s argument. There is no doubt, however, that Ancient Greek philosophy, especially Plato, has shaped the western consciousness. It is entirely possible—indeed likely—that Shakespeare was aware, if only through second hand sources, of basic Platonic notions. Platonic thought, specifically *The Republic*, is one of many underpinnings for *The Tempest*. Shakespeare’s last great play moves us by virtue of its literary achievement while, at the same time, it resonates deeply with a broader tradition in thought and culture.

Notes

William Shakespeare, *The Tempest*. Ed. G. Blakemore Evans. *The Riverside Shakespeare* 2nd ed. (Boston: Houghton Mifflin Company, 1997). All references are to Act, scene, line divisions in this edition.

² Socrates is often regarded as a conduit for Plato. But to regard the character Socrates as such is potentially to undermine the dialectical nature of all of Plato’s writings. For the purposes of this paper, however, “Plato” and “Socrates” will be used interchangeably.

³ Plato, *The Republic*. Trans. G.M.A. Grube, rev. C.D.C. Reeve. *Plato Complete Works*. Ed. John M. Cooper. (Indianapolis: Hackett, 1997). All references are to Stephanus numbers in this translation.

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White People

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Kathryn is a senior majoring in English. Her research paper was created under the mentorship of Dr. Kimberly Davis in her English senior seminar Encountering Whiteness.

J. T. Rogers has carefully constructed his play, White People, to concentrate on the issue of communications between races, to talk to the audience, and to address them in order to make them understand their own shortcomings in approaching the topic of race. Both Alan and Martin, two of the three main characters in this play, have difficulty with the ways in which they communicate their feelings about race and their positions as white middle class men. They argue with themselves about how to communicate while externally showing the audience the struggle between what they both believe to be morally right and wrong. Martin may be an extreme; how much of what he says does he actually mean? He is a hypocrite because what he says and what he actually does are not the same. Alan tries to sympathize with different races; he wants to reach the multitude to explain how we should handle bad situations, but he comes up short and seems helpless in the face of the large number of people whom he has to reach. Both of these situations apply to the audience's concept of how much they should be trying to communicate their views on race in the real world. Rogers' characters confront the white audience and force them to look at their own flaws in their treatment of racism.

Communication between races is an important aspect of overcoming racism and understanding each other. *White People* seeks to show its audience how important their communication methods are and their shortcomings in communication in the hope of improving them. Rogers develops a dialogue between character and audience by only allowing each character to address the audience, not each other. In her article, communications scholar Jennifer Simpson suggests that “dialogue at its best is an interaction among people that produces something greater than the sum of its parts and leaves participants changed by that interaction” (139). Indeed, the audience members are meant to be changed by the interaction they receive with these characters; they are meant to participate in their share of the interaction by spreading a new perspective to others after the performance. While Simpson clearly defines dialogues, the functions of communication, and the relationship to whiteness, her argument comes up short when applied to this play. She states, “[McPhail] argues that White racism and the blinders it produces significantly and perhaps irreparably inhibit the possibility of meaningful interracial dialogues about race” (139). Instead, Rogers can be seen as trying to breach this line; his dialogue within the play aims to expand the horizons of interracial communication and teach his audience to accept

people different from themselves. By depicting whiteness in his play, Rogers actually forces the audience to examine their own communication in everyday life and question their own effectiveness in erasing a color line.

Martin is deeply concerned with the functions of communication and how they affect his life and the lives of those around him. In him, the audience finds someone who brings forth the importance of communication, showing the audience how important it is to listen to the issues within the play. As Martin says, "Here there is definition: *Words are things*" (Rogers 15), and it is the audience's responsibility to pick up on the importance of the meaning behind the words that Rogers is presenting to them.

Martin is an interesting character in the way he grapples with the idea of race and communication. He wants to show the audience members the essence of language, the ability to communicate, and how that affects our actions towards a different race of people. Martin first explains that he feels words have lost meaning for people; he says, "We open our mouths, we spew things out but we are saying nothing!" (Rogers 15). If we are saying nothing, as Martin suggests, then we are also doing nothing to further the cause. However, underneath his personal vendetta against meaningless words, Martin also becomes a hypocrite. In Ben Brantley's review of the play, he states, "Martin [...] is more of a textbook study in dramatic irony, with the audience clued in on what he doesn't understand himself" (Brantley). The hypocrisy Martin shows in his speech becomes apparent to the audience and Rogers invites them to see some of the same hypocrisies in their own lives. Martin tries to group the audience with him as a collective "we" by saying, "We are not thinking about what we are saying! We are not listening to the words we – (*He stops abruptly mid-sentence. He looks outward. Then...*) This is all relevant. What I am saying has a point. If you listen... maybe we can find sense in this" (Rogers 15). While Martin preaches to the audience about having definition behind their words, he is losing the definition behind his own. He gets lost in his rampage of words, pauses to look at the audience, to confront them with his thoughts, and then tries to persuade himself and the audience that what he is saying is important. He is powerless in the face of what he is trying to describe; since his words are becoming nothing, his actions are nothing, just as he suggested earlier in the play.

Another example of Martin's hypocrisy is in his dissection of the new popular music his co-workers and son listen to versus his idea of good music – classic opera. Describing his own music, Martin says, "the best part is I can't understand a word! Totally clueless! [...] You listen to this, you escape. Just for a moment, language isn't important. Words, actions – choices

– don't matter" (Rogers 12). Martin is directly admitting that he does not follow his own rules about words; he can listen to music without finding definition behind the words he is listening to. He takes his own music for granted, not caring what the operas are actually about. In contrast, when he speaks about hip hop, he says, "Wax out of your ears and listen to what they are saying! These words! [...] Are you listening to the words?" (Rogers 21). The words in these new songs are offensive to Martin; he refuses to listen to any message beyond the swearing that is taking place. But therefore, he is also missing the meaning these people may have behind their words. Again, Martin is hypocritical; his words are nothing, his actions are non-existent, while he ignores the meaning behind what those around him listen to and find meaning in. This idea also resonates with the audience members by showing that if they are too focused on the meaninglessness in which they believe, they may miss the hidden meaning behind what others find important. Rogers is calling for us to look outside of our own ideas and our own predetermined racism to come up with new solutions.

Martin's critique of his secretary, Diane, furthers his abuse of language. It may be best explained in the words of Peggy McIntosh, who argues that "whites are taught to think of their lives as morally neutral, normative, and average, and ideal, so that when we work to benefit others, this is seen as work that will allow 'them' to be more like 'us'" (292-3). Martin declares that his way of talking is better than the way in which Diane speaks because she does not understand the meaning behind what she is saying. He says, "These words: this is who she is. How can she not understand that? Sometimes they matter, sometimes not? No! You're either lazy or you're not. You can't be both" (Rogers 17). Martin believes that Diane's character lies in how well she can communicate and her deficiencies in communication hinder who she is. However, who is Martin to criticize someone who does the same thing he does? Martin thinks of himself as superior to Diane, possibly because of the color of her skin, and also because he believes himself to be the "ideal", though he clearly shows the audience he is not. Martin is creating a sense of white privilege through his control of language; though he also does not have meaning behind his words, his are more important, and have more meaning because he is white. Rogers is purposefully using this example of Martin trying to make everyone become who he is to show the negative aspects of white privilege and how they may be hidden unless they are being watched for.

Another example of how Martin does not put meaning behind his own words is when he attends the PTA meeting at his children's school. The group of parents is following what Naomi Wolf describes as the conditions of 'Well-Meaning

White People'. Wolf states, "[This racism] means spending so much time trying to clear the scrim away – and hoping to convey that one is indeed trying to clear it away – that the Other in question is still dimmed and obscured" (Wolf 46). The parents at this meeting are so engrossed in trying to be socially correct and trying to appease the black race, i.e. 'clear the scrim away', that they can not acknowledge the other race for who they are. Martin recognizes the absurdity of the 'Santa of Color' and 'Day of Forgiveness', but tries to approach the issue of being politically correct by dismissing it. His inner monologue tells him to yell at the other parents, saying, "Are we listening to each other? Are there any brain cells working here? What are we talking about? No, no, no – What are we doing?" (Rogers 25) and also, "No? No? NO? THEN SHUT YOUR MOUTH" (Rogers 26). However, Martin does not actually say either of these things to the other parents. He admits that, "I toe the line. I keep my mouth shut [...] Oh, I'm part of the club now" (Rogers 26). He is as powerless as anyone else behind his words. Though he feels bogged down by the meaningless ideas that these other parents have presented, ideas only meant to assuage the guilt they feel and not to actually help others, he cannot fix it either. Martin also may not confront these ideas because he is less of a Well Meaning White Person and more of an inherent racist in his thoughts. Instead of trying to merge with the parents, he is inwardly fighting against them, suggesting that he would not like to deal with race in any way, but rather ignore it. This incident confronts the audience again with their own lives, their own situations that they may encounter in everyday life, and their own inability to speak up against what they know is wrong instead of inwardly harboring racist thoughts.

Martin is finally confronted with his own ignorance when he discovers the crime his son, Steven, has committed. A group of white boys attacked a young black couple, raping the girl. Martin describes what was done to her by saying, "There was a piece of paper wadded up inside her. Lined paper like from a book report. 'Kill all niggers. Kill all cunt niggers.' [...] Niggers, with one 'g.' Couldn't even spell that right" (Rogers 30-1). Martin's son has used actions and words to demonstrate how he feels about black people; he has expressed his racism openly in a way his father cannot. Steven's horrible violence is ineffective in furthering the cause against racism; rather, it promotes it. Martin must now take what his son has done to make sure his own hidden racism is better dealt with. Instead of denying his racism and his inability to communicate or act against it, Martin learns from Steven's actions how he must actively deal with his own hypocrisy. Further, Martin believes that he has tried to listen to his son and doesn't understand how this has failed. He feels helpless in his relationship with Steven, just like the helplessness he should feel in the outside

world, but has not encountered yet. When his son says, "I hate this life", Martin responds, "How do you communicate a response to that? Then – right then - what could I have said? What could I have done that would've made a difference?" (Rogers 26). Not only does this communicate the helplessness he feels with his son, but it also shows how lost he is in dealing with the race issue. The audience can feel comparable to what Martin expresses here, the certainty that there actually is nothing to say. Martin gives the audience one more look at themselves when he says, "What did I miss? I thought I was listening. I thought he wasn't talking because he had nothing to say" (Rogers 33). Everyone thinks they are listening, and believes they are saying things that have definition, that mean something, that will do something. But we do not realize how wrong we are until something affects us directly and shakes our belief system. This is the most important message that Rogers is trying to tell his audience through the character Martin.

Alan approaches racism in a different way than Martin. He is not as much of an observer; he tries to participate in the active crusade against racism. However, Alan constantly runs into brick walls that seem unavoidable and show the unwillingness of others to help him in his crusade. First, Alan tries to explain the meaning behind the things that he finds meaningful. He tells a story where the punch line is, "It all depends on what you're listening for" (Rogers 8). This is a major theme for Rogers and should resonate with the audience as they are watching the three characters unfold. It indicates that we are not always listening for the right thing and should put our lives in a better perspective so that we will hear what we should be listening for. In the case of *White People*, it indicates that we should re-establish where we are in fighting against racism and how we can make a bigger impact by listening to the anti-racist activists and ideas. Alan goes on to describe who he is as a character, for the audience to more fully relate to him; he says, "It's my passion, really. Historical Anthropology [...] why we act, why we do certain things to each other" (Rogers 8). Alan is showing the more analytical approach he has to viewing racism and how he can dissect the idea and meaning behind it more clearly than Martin could. In fact, the mere idea that Alan is a historical anthropologist means that he understands the history behind racism and tries to interpret how it affects people of different cultures. By having this background, Alan seems more willing to understand racism and take an active role in fighting against it.

A good analogy is created when Alan talks about the freshmen class he teaches. It can be compared to any one person trying to speak out against the masses and finding resistance and even complete ignorance. Alan states, "I mean, what do you do? How do you communicate any complexity? How do you

seek an answer in a group that size? I just water things down” (Rogers 19). Alan relays the struggles that any singular person might have in dealing with racism. The complexity of racism and its history is lost on such a large group, and by watering things down, Alan is forced to erase some of the true meaning behind his purpose. Alan goes on to say,

Half of them are sleeping, talking. The others waltz in late, as if what they missed was irrelevant. As if what I am trying to explain is some mothballed thing to be snickered at [...] I know we’re supposed to like them, to want to nurture, but I’m up there and notes are passed and gum is snapped and all I want to do is shout: ‘FUCK YOU! FUCK YOU!’ (Rogers 20)

Alan shows the frustration any member of the audience might feel when trying to express something they find important to an uncaring audience. This scene also forces the audience to listen to Alan, to Rogers’ play, to the full story he is trying to tell, because otherwise, they become just like the ignorant snobs in Alan’s class, students who walk away without learning anything.

However, there is one bright hope for Alan. Alan shows the audience this example and confronts them with the seeming impossibility of overcoming the shortcomings of fighting against the majority. He then gives the example of Felicia, the one bright student in his class who speaks up and tells him what she believes in. Alan says, “Doesn’t even bother to be called on! Just juts her hand up and yells out in this ear-shattering boom. But what she says, the questions she asks [...] she has no idea of the scope of what she’s holding in her brain” (Rogers 19). Felicia is seen as almost a rude student; however, because she has so many of her own ideas to share, of her own questions to ask, she is also the brightest in the class. She is comparable to someone who can speak out against racism, who can further the movement to eradicate it and can add her own knowledge in the process. Alan later mentions, “She’s speaking in this code that is like a foreign language to me! I’m watching her thinking: These words, these terms, how did they evolve? How did I miss this?” (Rogers 28). The African-American student Felicia is far ahead of how Alan thinks and is a reminder to the audience of how time progresses and how language and communication can become stronger. She is the hope that even though we are fighting against large amounts of racism and racist people, we may affect just one, and then that one will go on and evolve our mission and affect others. Alan is the common man, fighting against oppression, against racism, feeling lost in the void that is ignorance and misunderstanding. However, he also shows the audience that if they listen, that if they communicate with others, there can be progress, as difficult as it seems.

The climax of Alan’s story is the twilight attack on his wife and himself by a group of black men. By using this example, Rogers points out the struggle that will occur for the audience members as they go out and seek to find the truth and meaning behind anti-racism. This attack is a stereotypical moment in the play, but also entirely believable. In Wolf’s article, she states that, “Well-Meaning White People in conversation hear that someone of their background has been assaulted by a group of young men. The immediate next question is in code: ‘Was there a description of the attackers?’” (45). Wolf’s example illustrates the exact situation that Alan is placed in. He is angry about the attacks, but his anger does not remain contained to only the attackers; he extends it to the entire black race. He is angry towards his prize student, Felicia, even though she is not related in any way to the attacks. Alan struggles with the idea that he should not take this out on any black person, but that he is actually afraid of the entire race now. While Wolf argues that, “What I’ve never read [...] is an anti-racist white person talking honestly about what their own racism looks like, sounds like, feels like” (Wolf 44), Alan is actually taking this step forward and facing the racism that resides within him. Although this first may appear to be a large step backwards for Alan, we can see progress in his hopes of reconciling with Felicia and trying to understand in his mind where this rage is coming from. He is like any other member of the audience; he tries to move forward, tries to persevere. Most importantly, he can show the audience how setbacks can be overcome and the common man can do something important to impact the way we view these incidences. Even though Alan struggles to fight against the racism he knows is present within him, he is stepping forward, trying to communicate to the masses, trying to show the audience the hope of future progress through the example of Felicia.

At the end of the play, both Alan and Martin end parts of their dialogue with the word “begin”. Martin is talking about his son and states, “I just want him to talk to me. To raise his head... Begin” (Rogers 34). Martin appears to only be calling forth his son to start communicating, but he also is directly calling on the audience. The character on stage directly addresses the audience, giving them the command to talk, communicate, listen and begin in their search towards anti-racism. Alan states, “Then I can try. ‘Fight the good fight.’ Then... I can begin” (Rogers 35). Alan attempts a similar call to action, except he relates the audience to himself, the man who has already risen in a crowd and tried to communicate meaning and complexity to a mass of people. He is a man who has already succeeded in reaching out to one student and continues to make himself less of a racist. Now he asks the audience to look at what he has been through and join him to struggle forward to a brighter future.

Importantly, Rogers places both Alan and Martin in front of an audience, replicating whiteness to whiteness. In his review, Brantley says, “[Rogers] seems to be saying to his audience, ‘[Just look.] The evidence is all there – not only on the stage, but also in your own lives’” (Brantley). Brantley shows the impact Rogers’s characters have in reflecting on the audience. Rogers creates a mirror by only allowing his characters to recite monologues to a blank audience. This mirror is important: audience members can recognize the deficiencies in themselves before confronting other races and racism. In his book *Race and Communication*, Oscar H. Gandy writes, “An individual’s position on matters of public importance can be influenced by her sense of herself as well as her sense of others whom she believes are like her” (193). Gandy is arguing for the importance of understanding ourselves through people that are like us. In the case of *White People*, Rogers hopes to show his audience how they act and the deficiencies with their language and reaction by purposefully reenacting it and revealing the thoughts and misgivings which we keep held inside of us. He exposes our deficiencies so we can come to further understand them.

Rogers wants to create an impact on his audience by allowing them to see themselves in his work. As John T. Warren and Deanna Fassett state in their article, “Critical scholars in theatre have led the way, creating critical performances of whiteness that function to mirror, particularly to white audiences, the mechanisms and machinations of their oppressive actions” (412). Warren and Fassett point out the importance of using whiteness in a production in order to make the audience understand the connection between performance and actuality. Through the characters of Alan and Martin, Rogers reproduces whiteness on stage, creating a scenario that “must hold both our everyday talk and our everyday actions accountable for the ways we each reproduce whiteness as a socially powerful, culturally centered location” (Warren and Fassett 414). Rogers creates this imaginary world on stage merely to show the contradictions and sympathies behind the white audience’s own words through the contradictions and sympathies of his main characters.

Rogers’ prime purpose in *White People* is to show his audience the shortcomings they possess in their acceptance of different races and their pursuit of ending racism. He gives us two characters who represent the common white man and his approach to race: Martin and Alan. Martin shows the hypocrisies of Well-Meaning White People; he tries to prove the meaning that is contained behind words but yet fails to see the meaning in what he himself is saying. Alan must try to organize the masses,

as futile as it seems. His triumph in one student is hope for the audience that they can also spread information about anti-racism. Alan counters Martin in this way; he has meaning behind his words, unlike Martin, and is at the point where he is able to spread his meaning to others without getting stuck behind hypocrisy. Both of these characters represent whiteness and the struggle against accepting racism; they confront the audience with their monologues in order to create a reflection of what the audience is itself. Rogers’ technique of using whiteness to describe whiteness not only shows the importance of communication in combating racism, but also allows the audience to feel comfortable in confronting who they really are in order to change.

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Is it All in Your Mind? Gastrointestinal Problems, Anxiety and Depression

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Meghan graduated from Bridgewater State College in May 2008, earning a Bachelor's of Science in Psychology. This paper was written for a Directed Study in Psychology under the mentorship of Dr. Elizabeth Spievak, and was presented in poster form at the ATP 8th Annual Undergraduate Research Symposium. Special thanks are due to Elizabeth Spievak, Joanne Michaud, The Psychology Laboratory at Bridgewater State College, and all of the student researchers past and present who assisted with data collection and entry. Meghan is currently working at Massachusetts General Hospital, and plans to continue her career in psychological research.

Relationships between gastrointestinal (GI) problems, anxiety, and depression were investigated in two studies using non-clinical populations. Study 1 measures included the trait anxiety scale from the State-Trait Anxiety Inventory (STAI), the Center for Epidemiology Studies Depression scale (CES-D), and the Trauma Symptom Checklist (TSC-40). Study 2 measures included the STAI, and the Profile of Mood States (POMS), portions of which were used to assess anxious mood state and depressed mood state. Trait anxiety predicted stomach cramps; anxious mood state predicted nausea and general GI problems; and depression predicted stomach problems. Findings suggest that psychological factors may be involved in physical symptoms.

A growing body of literature suggests that anxiety and depression can affect physical health and well-being. The mind/body connection has become a popular topic in recent years, and many researchers have found that the mind and body influence each other more than previously thought. Recent studies have found positive correlations between a wide range of physical complaints, including gastrointestinal (GI) problems, and trait anxiety (Drews, 2007; Sharma, Ghosh & Spielberger, 1995), anxiety disorders (Harter, Conway & Merikangas, 2003; Kaplan, Masand & Gupta, 1996) and depression (Masand et al., 1995; Lee et al., 2000; Karling, Adolfsson & Norrback, 2007). Many replications have supported this relationship using clinical populations, yet few replications focus on the general population (Haug, Mykklentun, and Dahl, 2002). The purpose of this study was to investigate the relationship between gastrointestinal symptoms and trait anxiety, symptoms of anxiety and depression using a non-clinical population. Knowledge of this relationship could increase our understanding of the mind body connection.

Anxiety

The relationship between psychological factors such as anxiety disorders and trait anxiety, and physical problems such as GI disturbances may change the way we dichotomize physical and psychological health as separate entities. For example, Harter, Conway and Merikangas (2003) found a significant positive correlation between anxiety disorders and GI problems such as ulcer, colitis, and indigestion. After controlling for the effects of gender, substance abuse, and depression, they found that participants with a diagnosed anxiety disorder were at a 2.4 fold risk for self-reported GI problems than were participants without an anxiety disorder. Kaplan, Masand, and Gupta

(1996), found a similar relationship between panic disorder and irritable bowel syndrome (IBS). They found that patients who met the diagnostic criteria for panic disorder were more likely to meet the diagnostic criteria for IBS; nineteen patients who met the criteria for panic disorder also met the criteria for IBS, compared to only one control patient who met the criteria for IBS. Haug, Mykklentun, and Dahl (2002) found that in a general population sample, self-reported clinical levels of anxiety most strongly predicted symptoms of nausea and was also a significant risk factor in predicting heartburn, diarrhea, and constipation. In a study of children with recurrent abdominal pain (RAP), Drews (2007) found that those with RAP had significantly higher levels of trait anxiety and somatic symptoms compared to children without RAP. Sharma, Ghosh and Spielberger (1995) found that men diagnosed with gastric ulcer had higher levels of trait anxiety than men without gastric ulcer. Although a relationship between anxiety disorders and GI problems has been evinced, few researchers have sought to determine whether anxiety symptoms must reach clinical levels to predict GI problems.

Many of the same symptoms involved in anxiety disorders and associated with GI problems are suffered by people when they experience a temporary state of anxiety. State anxiety differs from an anxiety disorder in that state anxiety is a transient feeling in response to a situation, whereas anxiety disorders are chronic and by definition interfere significantly with daily functioning. In order to diagnose an anxiety disorder, anxiety symptoms must be recurrent (Obsessive Compulsive Disorder, Panic Disorder), last for at least 6 months (Generalized Anxiety Disorder, Phobias) and/or occur in response to a particular stimulus (Posttraumatic Stress Disorder, Acute Stress Disorder, Phobias); and the disorder must cause significant impairment in functioning (American Psychiatric Association, 2000). About 18% of the adult population meet the diagnostic criteria for anxiety disorders, and are diagnosed as such (National Institute of Mental Health). Many people in the population may experience transient symptoms of anxiety, or state anxiety, but do not meet diagnostic criteria for an anxiety disorder. By measuring anxious mood state, it may be possible to determine whether state anxiety symptoms predict GI symptoms in a wider range of people.

Depression

The relationship between depression and GI disturbances also indicates that both physical and psychological health contribute to an individual's overall sense of well-being. In a study of ambulatory care patients, Masand et al. (1995) found that patients who met the diagnostic criteria for major depression were more likely to meet the diagnostic criteria for IBS than non-depressed patients. They found only 2.5% of non-depressed

patients reported IBS symptoms, whereas about a quarter of the patients with major depression reported them. In a related study, Sharma et al. (2003) examined the prevalence of IBS among psychiatric patients in India. In their sample, patients being treated for major depression had a higher prevalence rate of diagnosed IBS (18%) than non-depressed controls (3.5%). In another study of functional GI disorders, Lee et al. (2000) found that those with diagnosed non-ulcer dyspepsia (NUD), a functional disorder characterized by upper GI symptoms in the absence of any medical evidence of GI disease, reported more symptoms of depression. Haug, Mykklentun, and Dahl (2002), found that in a general population sample, a self-reported clinical level of depression was a significant risk factor in predicting GI symptom categories of nausea, heartburn, diarrhea, and constipation.

As with anxiety, the research has focused primarily on clinical populations and symptoms of depressive disorder, but has not fully explored relationship between a state of depression and GI problems (Karling, Adolfsson & Norrback, 2007). At least one study indicates there may be a relationship worth investigating. Karling, Adolfsson and Norrback (2007) studied patients for whom recurrent depression was in remission and found that the positive correlation between depression and IBS symptoms was significant only for those patients currently experiencing depression symptoms. Patients who remained in remission tended to report IBS symptoms at similar rates as non-depressed controls. According to the surgeon general's report, in any given year about 6.5% of the U.S. population is affected by a major depressive episode, however, only 5.3% of the population is affected by unipolar major depressive disorder (U.S. Department of Health and Human Services, 1999), suggesting that in any given year, 1.2% of the population may experience a major depressive episode that does not escalate to major depressive disorder. Therefore about 3.6 million Americans may be struggling with major depression symptoms, but are not formally considered depressed and thus they are not included in studies of depression. These statistics, along with Karling, Adolfsson and Norrback's findings, indicate that being in a state of depression may be more influential in predicting GI problems than being depressed in general and that the field would benefit from closer examination of state depression.

Current Research

In an effort to replicate and extend prior research, archival data from two surveys of a non-clinical population that included questions about trait anxiety, anxious mood state, depression, depressed mood state and gastrointestinal problems, was examined using ANCOVA. After finding significance using an ANCOVA, individual univariate between groups tests were used on dichotomized data to determine directionality. Based

on prior research, it was hypothesized that in both samples those with higher anxiety and depressive symptom scores would report more frequent gastrointestinal problems. Given that the study was archival, the operational definitions of state and trait symptomology varied and are explained in more detail below.

STUDY 1

Method

Participants

Three hundred-forty undergraduate students (236 women, 101 men, 1 other, 2 undisclosed) participated as part of an Introductory Psychology course requirement at Bridgewater State College, Bridgewater, Massachusetts. Participants ranged in age from 16 to 56 ($M= 21$ years).

Materials

Measures on a pencil and paper survey included the trait anxiety scale from the State-Trait Anxiety Inventory (STAI; Spielberg, Gorsuch, & Lushene, 1970), the Center for Epidemiology Studies Depression scale (CES-D; Radloff, 1977), and the Trauma Symptom Checklist (TSC-40; Briere & Runtz, 1989), which was used to measure physical symptoms.

Procedure

Participants completed a pencil and paper survey which included 20 items measuring trait anxiety, 24 concerning depression symptoms, and 1 item regarding stomach problems, indicating on a 4 point Likert scale for each measure. Participant's scores for trait anxiety were computed as the mean of the 20 items on the trait anxiety scale, and a score for depression symptoms were computed as the mean of the 20 items on the CES-D scale plus 4 additional items regarding depression (had thoughts about death, though about killing myself, was down in the dumps, and was told I wasn't acting like myself). Higher scores indicated more frequent symptoms on both measures.

Results

An analysis of covariance (ANCOVA) was performed to simultaneously test the relationship between trait anxiety,

depression symptoms and general gastrointestinal (GI) problems. Depression symptom score, as reported on the CES-D scale, was a significant covariate in predicting general GI problems ($F(1, 333) = 11.042, p = .001, \eta^2 = .032$). To determine directionality, individual univariate between groups tests were used on dichotomized data. Higher scores indicated more frequent symptoms, and nonsignificant results were in the predicted direction (means for dichotomized groups and the significance of univariate tests appear in Table 1 for comparison). Trait anxiety was not a significant covariate in predicting general GI problems.

Discussion

The hypothesis was partially supported and prior work replicated in that participants with more frequent depression symptoms tended to report more frequent "stomach problems." That trait anxiety was not a significant covariate in predicting stomach problems was a surprising finding based on results from previous research. However, in Study 1, GI problems were defined in a very general way. Perhaps examining more specific GI symptoms would have yielded different results. It is also noteworthy that anxious mood state, and depressed mood state were not examined in Study 1. Given that the sample was not a clinical one, being in a state of anxiety or depression may be more significant than having symptoms of anxiety or depression in general. Perhaps anxious mood state and depressed mood state would be more significant predictors of GI problems than trait anxiety and depression. The data for Study 2 allowed for a more thorough investigation of these questions, as gastrointestinal problems were defined more specifically, and mood state variables were included as well.

STUDY 2

Method

Participants

One hundred-four undergraduate students (101 women, 3 men) at Bridgewater State College, Bridgewater, Massachusetts, volunteered to participate. Participants ranged in age from 17 to 25 ($M= 20$ years).

Table 1: Mean scores for dichotomized trait anxiety and depression symptoms

	Trait Anxiety		Depression	
	Low <i>M</i>	High <i>M</i>	Low <i>M</i>	High <i>M</i>
Stomach Problems	0.756	0.991	0.705*	1.041*

* $p = .001$

Materials

Measures on a pencil and paper survey included the trait anxiety scale (STAI; Spielberg, Gorsuch, & Lushene, 1970), and the Profile of Mood States (POMS; McNair, Lorr & Droppelman, 1971), portions of which were used to assess anxious mood state and depressed mood state. Participants were also asked to provide information about specific GI symptoms.

Procedure

Participants completed a pencil and paper survey. Measures included the trait anxiety scale, as well as 5 items regarding GI problems (stomach cramps, nausea or upset stomach, loss of appetite, constipation, diarrhea), 5 items from the POMS used to measure anxious mood state (tense, uneasy, nervous, anxious, weary), and 9 items from the POMS used to measure depressed mood state (worn out, sad, grouchy, unworthy, fatigued, lonely, exhausted, gloomy, sluggish), indicating on a 5 point Likert scale for each measure.

Participants' scores for trait anxiety were computed as in Study 1, scores for general GI problems were computed as the mean of the 5 items regarding GI problems, scores for anxious mood state were computed as the mean of the 5 items used to measure anxious mood state, and scores for depressed mood state were computed as the mean of the 9 items used to measure depressed mood state. Higher scores for trait anxiety and GI problems indicated more frequent symptoms, and higher scores for anxious mood state and depressed mood state indicated more severe symptoms.

Results

An ANCOVA was performed to simultaneously test the relationship between trait anxiety symptoms, anxious mood, depressed mood, general GI problems and several specific GI symptoms. Anxious mood state was a significant covariate in predicting both general GI problems ($F(1,128) = 7.089, p = .009, \eta^2 = .052$), and specific symptoms of "nausea or upset stomach" ($F(1, 128) = 5.683, p = .019, \eta^2 = .043$). To

determine directionality, individual univariate between groups tests were used on dichotomized data. Higher scores indicated more frequent symptoms, and nonsignificant results were in the predicted direction (means for dichotomized groups and the significance of univariate tests appear in Table 2 for comparison). Trait anxiety was a significant covariate in predicting the specific symptom of "stomach cramps" ($F(1, 128) = 6.966, p = .009, \eta^2 = .052$), with higher scores indicating more frequent symptoms (Table 2 contains means for dichotomized groups). Depressed mood state was not a significant covariate in predicting general GI problems or specific symptoms.

Discussion

As hypothesized, prior research was extended in that anxious mood state was a significant covariate in predicting both general GI problems, and the specific symptoms of "nausea or upset stomach." In addition, prior research was replicated by the finding that trait anxiety was a significant covariate in predicting the specific symptom of "stomach cramps." However, depressed mood state was not a significant covariate in predicting general GI problems or specific symptoms.

General Discussion

The findings supported the hypothesized link between psychological factors and gastrointestinal disorders. In Study 1, depression symptom score, as reported on the CES-D scale, was a significant covariate in predicting general GI problems. These findings were consistent with research linking GI complaints with depressive disorder (Masand et al., 1995; Sharma et al., 2003; Lee et al., 2000; Haug, Mykklentun, and Dahl, 2002). However, trait anxiety was not a significant covariate in predicting stomach problems, perhaps due to the general definitions of GI problems used in the Study 1 materials.

The extension to include more specific GI symptoms in Study 2 demonstrated that trait anxiety may be linked to particular GI symptoms (stomach cramps) rather than general GI problems,

Table 2: Mean scores for dichotomized trait anxiety, anxious mood state and depressed mood state symptoms

	Trait Anxiety		Anxious Mood State		Depressed Mood State	
	Low <i>M</i>	High <i>M</i>	Low <i>M</i>	High <i>M</i>	Low <i>M</i>	High <i>M</i>
General GI problems	0.545	0.756	0.445**	0.856**	0.611	0.691
Stomach Cramps	0.455**	0.930**	0.492	0.892	0.642	0.742
Nausea or Upset Stomach	0.885	0.989	0.581**	1.293**	0.793	1.080
Diarrhea	0.484	0.593	0.367*	0.709*	0.588	0.489

** $p < .050$

* $p = .052$

and that transient symptoms of anxiety and trait anxiety may be a factor in predicting different GI symptoms. Higher anxious mood state scores predicted more frequent general GI problems, and more frequent symptoms of nausea and diarrhea. These findings are consistent with previous research (Haug, Myklettun, & Dahl, 2002), especially in that anxious mood was most strongly associated with specific symptoms of nausea. However, unlike the study done by Haug, Myklettun, and Dahl (2002), the current study did not support the relationship between anxiety and constipation. The findings regarding trait anxiety support previous research done by Drews (2007), in which a correlation was found between trait anxiety and recurrent abdominal pain, but extends Drews to indicate that trait anxiety may be a factor in transient symptoms of stomach cramps or pain, and that the stomach pain need not be recurrent to find such a relationship. In addition, the extension to include state variables in Study 2 revealed that transient symptoms of anxiety may be linked to specific and general GI problems, but transient symptoms of depression may not be as predictive as chronic depressive symptomology. Although higher depression symptom scores predicted general stomach problems in Study 1, depressed mood state failed to predict general or specific GI problems in Study 2.

These studies speak to the generalizability of earlier works and extend the findings, most of which have been focused on clinical populations. Considering that a non-clinical sample of generally healthy individuals was used, and the ad-hoc measures were derived entirely from self-reports, the findings indicate that the relationship between psychological factors and GI symptoms may be quite strong. These studies indicate that normal, everyday people may be likely to experience transient GI problems during emotionally challenging times of their life and that there may be a reciprocal relationship between daily fluctuations in emotional and physical well-being, even for those who would be considered medically healthy.

The findings reported here do not imply a causal relationship and the study is limited in that the data were collected from small samples of mostly female college aged students. Though the generalizability of findings is not known, they suggest that more work is warranted and the information regarding the relationship between psychological and physical states may be of particular interest to college students. This knowledge may be especially useful during more anxious times such as finals.

The results do have implications in the treatment and prevention of physical disorders. Generally the focus of treatment and prevention is on physical disorders; however, knowing that psychological factors may contribute to physical disorders may promote psychological health as well. Perhaps

maintaining psychological health would help prevent physical disorders, and patients with physical disorders may benefit from psychological treatments. That trait anxiety was not useful in predicting general gastrointestinal problems, but was useful in predicting specific gastrointestinal symptoms indicates that future research should focus on the complexity of the human experience and the most specific information possible regarding symptoms should be obtained. Future research should also focus on factors that may mediate the relationship between anxiety, depression and GI problems such as explanatory style, coping strategy, locus of control, or chronic self focus.

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Oppression through Sexualization: The Use of Sexualization in “Going to Meet the Man” and “The Shoyu Kid”

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White supremacy is a fleshy ideology; it's very much about bodies.

-- Mason Stokes

In a world of differences and misunderstandings, disparities and distance, there is a seemingly endless myriad of modes by which human beings categorize, segregate, and immobilize each other. History is filled with repeated instances of groups asserting themselves through any necessary means in order to retain dominance and power. In a rather unnerving way, the human race can prove to be quite creative in its tenacity to oppress. Obviously, racism and cultural repression have proven to be weapons of choice time and again. Being of a perhaps more primal and misunderstood nature, sex has also been employed as a tool of oppression, alongside race and culture. Writers such as James Baldwin and Lonny Kaneko explore the idea of how whites use race, culture, and sex together as a means of suppressing the cultural identities of non-whites. . Baldwin's short story “Going to Meet the Man” brings to life a white man whose entire racist ideology is based upon a link between violence, sex, and his experiences with a Southern lynch mob. His own masculinity is defined by the connection between racism and sexual violence. Kaneko's short story “The Shoyu Kid” reaches into another instance in American history, by depicting a group of young Japanese boys whose ideas of masculinity and identity are splintered and clouded by a pedophilic internment camp guard. While the two writers draw upon quite different backgrounds and contexts, they both exemplify the way in which sex is used to devalue the cultural identities of non-whites. Through both the hypersexualization of the African American male and the emasculation of the Asian American male, Baldwin and Kaneko both explore how ethnic masculinity is attacked, white supremacy is imposed, and non-white cultural identity is eventually invalidated.

James Baldwin's short story “Going to Meet the Man” deals with the hypersexualization of the African American man, and ultimately how white masculinity and white supremacy are affirmed by the killing of a particular black male. The story opens with its white male narrator, Jesse, struggling to perform sexually with his wife after a day of law enforcement in the civil-rights-era Southern United States. In the first full paragraph of the piece, Baldwin writes of Jesse's sexual desires, alluding to Jesse's connection between African Americans and sex: “He could not ask her to do just a little thing for him, just to help him out, just for a little while, the way he could ask a nigger girl to do it” (255). Baldwin goes on to write “The image of the black

girl caused a distant excitement in him" (255), suggesting the sexualized nature Jesse applies to African Americans. As the scene continues on, there is an apparent sense of frustration with which Jesse is grappling. While he struggles with sudden impotency, he is also wrestling with his own sense of masculinity. Because he is not able to perform, Jesse's sense of manhood appears to be slipping out of his reach. However, this notion of "silent, angry, helpless [ness]" (Baldwin 255) is remedied through the recollection of and repetition of sexualized violence.

In an attempt to somehow justify his failing efforts at sex with his wife, Jesse reviews the beating of a young black man in a prison cell after a protest. While the tale is initially about the beating, Jesse sexualizes both the situation and his victim. Even in Jesse's first description of the young man, he notes "He was lying on the ground jerking and moaning" (Baldwin, 258). The writhing and moaning of the victim is reminiscent of some sort of sexual pleasure as Jesse hypersexualizes the black man, even as he is severely thrashed. Jesse alludes to a masculine potency possessed by his victim that acts as an origin for both fascination and rage. This undercurrent continues as Jesse proceeds to repeatedly stick the man with a cattle prod, drawing an analogy with the act of sexual intercourse. This image is further described, as Baldwin writes: "he kept prodding the boy, sweat pouring from beneath the helmet he had not yet taken off" (258). While Jesse is sexualizing his victim, he is also moving to reclaim his own sexual and racial dominance. In a sense, he, a white male, is raping the hypersexualized African American man, thereby establishing a defined and supreme role. Baldwin further equates sex with Jesse's assertion of power and masculinity over the African American victim as the narrative shifts back from first person to a narrator who reveals "His mouth felt dry and his throat was rough as sandpaper; as he talked, he began to hurt all over with that peculiar excitement which refused to be released" (258). In recalling the manner in which he beat and sexualized the African American man into submission, Jesse begins to feel a sense of arousal.

There seems to be a racialized and protective motive behind Jesse's need to abuse the prisoner so virulently. In her essay "White Men as Performers in the Lynching Ritual," Trudier Harris writes: "The white male's function, ostensibly, was to protect his home and especially the white woman... The white man's craving for power and mastery [are] indications of his ultimate superiority not only in assigning a place to his women, but especially in keeping black people, particularly black men, in the place he had assigned for them" (229-30). Jesse beats the African American prisoner with a fervor that is driven by a sense of establishing his role as the dominant male protector of white women and of his community. Harris further states

that a white man, like Jesse, "sees himself as savior, father, and keeper of the purity" (300). As Jesse beats and essentially rapes the prisoner, he is carrying out a self-proclaimed duty of providing a protection not merely for women, but for his own masculinity and white superiority.

The beating culminates with a verbal explosion from Jesse, berating the victim and claiming "You lucky we pump some white blood into you every once in a while--your women" (Baldwin 260). This claim further asserts Jesse's dominance, both in terms of whiteness and masculinity, over the black victim. In claiming to be forcing "white blood" into the African American community, he moves to render white masculinity more virile than that of his black victim. As Jesse's rage boils over, he "felt himself violently stiffen—with no warning at all" (Baldwin 260), subconsciously equating his own sense of appropriated stature with sexual arousal and supremacy. While Baldwin comments upon white males hypersexualizing and then beating down African American males to assert their own dominance in the first half of "Going to Meet the Man," the latter half reveals the way in which the white male community strips the African American man of his entire male and cultural identity.

In the wake of Jesse's heightening sexual excitement, Baldwin seamlessly shifts the narrative to that of Jesse's childhood experience with a mob lynching. Lynch mobs in and of themselves are often associated with a sexualized ritual of togetherness in the white male community. While the victim of a mob is often being tortured for a supposed act of sexual deviance, historian Grace Hale explains "by the end of the nineteenth century, however, [the African American man] could be stripped and killed, becoming a sexual victim himself" (Hale 231). As the white males of the lynch mob attack their victim, they also sexualize him as a means of further demonizing him. In his book *The Color of Sex*, Mason Stokes notes that "[lynching] was a crime directed specifically at black male bodies," and that the mob's motives are sexualized. As the lynch mob puts the victim on display, it was often common practice within the torture to mutilate and dismember the bodies in a particularly sexualized manner, to provide bizarre souvenirs of the brutalization. Such an act serves as a blossoming for Jesse's psyche in "Going to Meet the Man," as he witnesses the sexual fascination with and castration of the lynch mob victim.

As the father and son pair is thrust into beholding the lynching of the African American man, Jesse begins to describe the horrific acts taking place before the mob. He immediately begins to note the physicality of the victim, applying animalistic qualities to the suffering man. Jesse notes "he was...black as an African jungle Cat, and naked" (Baldwin 270), and further

describes the terror in the man's screams. However, it is as the apparent leader of the lynch mob reveals a knife that Jesse begins to take careful notice of the sexualized nature of the mob. As the leader, a friend of Jesse's father, takes out the blade, Jesse states he "wished he had been that man. It was a long, bright knife and the sun seemed to catch it, to play with it, to caress it—it was brighter than the fire" (Baldwin 271). The knife, in the hands of the white man, acts as a phallic symbol with which the lynch mob, primarily the males, will eventually overtake the hypersexualized victim. The sexual fascination is heavily exemplified as the knife-wielding leader approaches the victim and Jesse explains:

[He] took the nigger's privates in his hand, one hand, still smiling, as though he were weighing them. In the cradle of the one white hand, the nigger's private seemed as remote as meat being weighed in the scales; but seemed heavier, too, much heavier, and Jesse felt his scrotum tighten; and huge, huge, huge, much bigger than his father's, flaccid, hairless, the largest thing he had ever seen till then, and the blackest. The white hand stretched them, cradled them, caressed them. (271)

To examine this instance of sexual fascination, I turn to the work of Trudier Harris who explains that "the white men involved in the lynchings and burnings spent an inordinate amount of time examining the genitals of the black men whom they were about to kill...there was a suggestion of fondling, of envious caress" (302), affirming the sexual connotations of the mob. In Jesse's description, the hypersexualization and masculinization of the African American victim is blatantly stated, notably in the phrase "much bigger than his father's" (271). While the labeling has been completed, the subsequent actions of castration and burning move to assert the dominance and superiority of the white male's cultural and racial identity.

After the spectacle of fascination and sexualization, the leader violently removes the genitals of the victim, and the mob mutilates and scorches the body. In employing the phallic symbol of the knife in removing the African American man's physical manhood, the white attacker asserts his own masculinity. While masculinity is stripped from the black man, his identity is also attacked. In the aftermath of the mob's carnage, Jesse cannot even recognize exactly what he is seeing. In explaining the victim's body, Jesse notes "But one had to look carefully to realize this, for it was, now, merely a black charred object on the black charred ground. He lay spread-eagled with what had been a wound between what had been his legs" (Baldwin 272). Not only is Jesse having trouble identifying the body as a now desexualized male, he cannot even distinguish

it as human. He equates the charring of the body with that of the ground, and explains the care with which one must look in order to realize the remnants of an African American. The mob does more than assert dominance through sexualization. The mob strips away the black man's cultural identity, reduces him only to blackness, and erases his status as a human. The act of the white community collectively brutalizing the victim denotes a domination of the African American identity. Harris comments on lynching and castration: "the black man is stripped of his prowess, but the very act of stripping brings symbolic power to the white man" (303), further affirming the imposed supremacy Jesse witnesses. In the wake of the post-lynching celebration, whiteness and racial supremacy are made a joyous occasion as the hypersexualized victim lays a mere smoldering trace of black identity.

While Baldwin's story deals with one extreme end of a broad sexualized spectrum, Lonny Kaneko's short story "The Shoyu Kid" presents a contrast to the previously examined mode of sexualization. Kaneko shows how whiteness feminizes and emasculates the Japanese male as a means of establishing white dominance. The piece centers on a group of three Japanese American boys in a World War II internment camp attempting to torment a younger boy nicknamed the "Shoyu Kid". Throughout the course of the story, the group is immersed in a continual hunt for the boy and his desirable prized chocolate bars. However, as one of the boys witnesses the molestation of the Shoyu Kid by a white guard, the notions of Japanese masculinity and cultural identity are challenged, and eventually abandoned by the boys, resulting in their adoption of white cultural attitudes and norms.

Kaneko creates an atmosphere of dissipating Japanese American male identity early in the text through the apparent lack of Japanese male figures and the characters' own attempts to emulate white male icons. The three boys whom the narrative follows all denounce their Japanese names in an apparent attempt to adopt white culture. The story's instigator, Hiroshi, detests his birth name and prefers to be called "Jackson." The narrator notes "Jackson hated to be called Hiroshi and would make a face or thumb his nose as soon as [the women] turned their backs" (Kaneko 2), revealing his disapproval of Japanese culture. In his article "The Minority Self as Other," David Palumbo-Liu writes that in "The Shoyu Kid," "Japanese names are avoided as tokens of weakness" (92), thereby explaining the way in which white culture has infected the young Japanese boys' psyches. Palumbo-Liu further comments on another boy's shift from "Ichiro" to "Itchy" as a means of Americanizing his Japanese name (92). In a similar fashion, the narrator's description of his friends also brings forth a sense of overbearing white masculinity. The text is perforated by allusions to white

male images and marked by the absence of Japanese male figures. The narrator states that Jackson “then went into a cowboy pose, his thumbs hooked into his pockets” (Kaneko 3), exemplifying the boys’ efforts to simulate white American iconography. In a more profound instance, the narrator notes “Jackson smiled his John Wayne smile and took the Kid by the overall straps” (Kaneko 7). In comparison, the only boy who does not emulate images of white males, The Kid, is represented in a feminized manner. The narrator comments “I couldn’t see his eyes, but I knew they were watery. They always were. The Kid was always on the verge of crying” (1), alluding to the weaker child’s feminine nature. When matched against the John Wayne bravado of Jackson, The Kid’s feminized character is frowned upon and his Japanese male identity is questioned. Given the shortage of any Japanese male figures, the boys latch onto images of powerful white males in order to find their own sense of masculinity, and further distance themselves from embracing their Japanese heritage. Consequently, there is an implied emasculation of the Japanese male through the adoption of white masculinity. This is evident in the scene of the elderly Japanese grandfather in the gardens.

The singular instance of a Japanese male other than the boys in the text comes in the form of a humorous chase scene. As the boys watch an elderly Japanese man attempt to catch some sort of scurrying animal, there is a sense of mockery evident from the narrator’s description. The crowd surrounding the spectacle laughs at the man’s struggles, and his body movements are described as “[an] old man whose feet seemed to be moving in two directions at once while his body was heading in a third. His arms...seemed to be confused about moving in a fourth direction” (Kaneko 5-6). Being the only adult Japanese male in the story, the old man exudes a weakened representation of masculinity, lacking strength or virility. The awkward man represents a feeble ideal for the younger Japanese boys to aspire towards. In examining the failed male presence, Palumbo-Liu writes, “This comic figure presents itself doubly: it represents the elder generation of Japanese-American males, formerly figures of authority and power, now dissembled, fragmented, and ultimately impotent” (94). Palumbo-Liu goes on to explain that within the internment camps, men like the elderly Japanese character in “The Shoyu Kid” were emasculated and feminized by their surroundings. Given that Japanese culture is a patriarchal culture, the Japanese man’s ability to provide for a family and protect that family was essentially rendered useless by the forced camp living. The elderly man in the story has no real sense of power; he is reduced to a mere joke by those who once respected his position. Because the duties and role of being a man have been removed, the Japanese identity is lost (95). As the white American troops lock down the

Japanese- American men, they also lock out their masculinity and eventually any pride in their racial identity.

While the omni-presence of white male images and a displaced sense of Japanese-American masculinity is evident in “The Shoyu Kid,” the molestation and interrogation of the Kid further feminizes and, in turn, strips away the Japanese identity. While the actual act of the white guard molesting The Kid is not directly shown, the ensuing confrontation among the boys proves to be far more telling in terms of its overall consequence. However, to understand the implications of the boys’ harassment of The Kid, it is important to understand their concept of masculinity as it relates to heterosexuality. In coming across a naked young girl, Jackson attempts to point out the qualifications of being a heterosexual, thus establishing his own sense of masculinity:

- “Did you see Joyce?” Itchy was changing the subject.
“Little girls are sure funny to look at aren’t they?”
“Itchy, you act like you ain’t never seen a naked girl before.”
“Well, have you? I mean really seen one, Jackson? Seen what kind of prick they have?”
“They don’t have one.”
“That’s what I mean. Do you know what to do with it?”
“Everyone knows. You get this hard on, see, and...”
“Jackson, you got a hard on?” Itchy’s face was tight.
“Yeah, don’t you? You’re supposed to.”
“N-no.”
“What are you, Itchy, some kind of queer or something. Don’t you know you’re supposed to have a hard on when you see a naked girl?” (Kaneko 3-4)

In explaining to Itchy what, in essence, it means to be a man, Jackson moves to affirm his masculinity. Puzzlingly, the only indication of where such notions would come from point towards the seemingly omnipresent white male status. In his book *Racial Castration*, David Eng argues that Jackson’s failure to manifest his claims of manhood in a physical manner signifies his own misguided sense of heterosexuality and identity (127). Another interpretation lies with the fact that the instance also proves to be a bonding experience for all the boys except The Kid. The three boys who identify themselves with white notions of masculinity all move towards confirming their heterosexual identities together, thus bonding in their male identity. Essentially, Jackson, Itchy, and the narrator move to equate masculinity and heterosexuality with whiteness

and, furthermore, what they idealize. In their discovery of The Kid's secret, what is left of the Japanese-American male identity is scrutinized and abandoned.

As the group takes The Kid behind a barracks, Jackson unleashes a barrage of questions forcing his victim into a teary submission. It is only as the young boy is pushed to his breaking point that he reveals the truth behind his abuse. As Jackson begins to strip The Kid's pants away, the sobbing victim states "I didn't do anything. I just played with his chimpo like he asked" (Kaneko 8), referring to the white guard. Jackson is outraged at the admission, exclaiming "You what? You whore! Queer! Queer! Queer!" (Kaneko 8) and further yelling "You played with the sonofabitch soldier? Goddamn queer!" (Kaneko 8). As he berates The Kid, Jackson also grabs at the young boy's genitals in a fit of rage. Much like Baldwin's character asserting himself over his prison victim, Jackson molests The Kid in an overpowering and demeaning manner. In fact, Jackson takes to the abuse in such a way and with such authority that the narrator describes him as being like "the cavalry colonel threatening a turncoat Indian scout; he was a police interrogator breaking a burglar; he was an army intelligence officer ripping into a prisoner of war. His face was impassive. Perfect" (Kaneko 7). Every image conjured by the narrator in describing Jackson during the assault of The Kid mirrors a form of a white male figure. Each image is reminiscent of the boys' notions of white masculine dominance. In the face of the crying and abused child, the other Japanese American boys fall back onto their only sense of male identity.

As Jackson calls The Kid "queer" and "whore," he is equating what is Japanese with homosexuality and femininity. If, to the other three boys, whiteness equates with masculinity and power, then being Japanese-American now equates with homosexuality and weakness. In effect, the Japanese-American male identity is stripped. Much like the elderly man being emasculated and left without a sense of racial purpose, the emasculated Kid is left with no sense of racial or cultural purpose, and no identity. His betrayal of masculinity in offering himself up to the guard leaves him completely feminized and sterilized on both a sexual and racial level. David Eng theorizes that "together, whiteness and heterosexuality regulate who can or cannot have access to a loveable bodily ego and a coherent sense of self" (130), therefore revealing the nature of The Kid's dilemma. Being a now emasculated, feminine Japanese-American boy, The Kid has no sense of self or identity. Even the other three boys that harassed and sexualized The Kid have unknowingly lost their Japanese-American identities. Jackson's rage stems from his hatred of what he now sees as what it means to be a Japanese-American rather than a white American. Since he is the only one who does not work to emulate white male icons, the Kid becomes

a symbol of queer Japanese-America, which Jackson does not consider a legitimate identity. In light of this dichotomy of American whiteness versus Japanese-Americaness, David Eng writes:

In "The Shoyu Kid", the heterosexual stability of the patriotic white American male icon emerges only in contrast to the resolute linking of queerness with Japaneseness. In this manner, normative masculine self-representation constitutively depends upon the sexual "perversion" and pathologizing of the racialized masculine subject (136)

It is through the imposed white American ideal of masculinity that the characters of "The Shoyu Kid" lose their Japanese-American identities. It is not merely the singular victim of the molestation, but all four of the boys that suffer the consequences of the emasculation of the Japanese male.

In initially comparing "Going to Meet the Man" and "The Shoyu Kid," one may be hard pressed to find any apparent or blatant means by which to draw up parallels. The stories' narrators represent opposing sides of their respective conflicts. Historical context provides differing social situations. However, both texts exemplify the way in which non-white masculinity is attacked, whiteness is imposed, and non-white cultural identity is invalidated. The comparison lies in the means by which this is achieved. In Baldwin's work, the white male identity must first trump the hypersexualized black male identity in order to eventually assert whiteness. Conversely, Kaneko's piece illustrates how by imposing upon, subduing, and feminizing the Japanese-American identity, whiteness is also eventually asserted. The routes are different, but the result appears universal. The victims of both stories are not only stripped of their masculinity, but of the sense of any positive racial identity on the whole. Both writers take on different moments of history, different ethnic groups, and quite different racialized and sexualized situations, yet still arrive at the same unnerving end. While the stories place the racial identities of African American and Japanese American males on opposite ends of a sexualized spectrum, both suffer from erasure and are torn down by the white male identity. Whether it is the wildly exaggerated sexual nature presented by Baldwin, or the sterilized and muted sexuality written about by Kaneko, both are conquered by an all-powerful whiteness. What is it about the idea of race and the enigma of sexuality that provides an ongoing base for oppression? Perhaps it is a perverse curiosity that creates the outlet, or maybe it is just a deep-seated fear of the uncontrollable. Regardless of the scenario, writers such as James Baldwin and Lonny Kaneko show how two of the most fundamental bases of human beings are continually twisted into weapons to ensure non-white cultural identity's deletion.

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The Waiting Room

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I don't remember driving to the hospital on the day my father died, or parking the car, or walking across the parking lot. I only remember rushing through the electronic emergency room doors and entering an empty lobby. Not slowing down, I stormed through a set of double doors, wondering briefly where everyone was, and almost passed my father's sister Cindy and his girlfriend, Faith, as they gave information to a nurse.

"Sharon!" Cindy nearly gasped when she saw me. The tone of her voice chilled me. When the nurse was done gathering information, she lead us through another set of double doors to a small isolated waiting room within the emergency room, telling us to wait here while the doctor worked on my father. I remember standing in the doorway to that room, slightly behind and to the right of Cindy, looking across the ER toward the room where I assumed my father was. I didn't know he was in there; I was following my aunt's gaze. She and Faith had arrived with my father – they saw him put into the ambulance; they saw him wheeled into the room. I kept thinking, it's too quiet. Doctors and nurses should be running back and forth hurrying to save people. Machines should be beeping and breathing and someone should be yelling "CLEAR!" Instead, nurses talked softly behind the desk with all the computers and charts, and grave looking doctors walked toward us only to whisper past on their way to some other errand or emergency.

As I stood there, I shifted my attention back and forth between the room that my father was in and Cindy, trying to read what little I could see of her face as she stood in the doorway to our tiny waiting room, with her arms crossed over her chest, staring across the ER. She knew. I didn't want to sense that she knew, or know that she knew; as long as no one told us different, my father was still alive. I turned toward Faith, who was sitting in a chair against the far wall. I say far, but the room was only about ten feet square, so the wall wasn't that far at all. Faith's hair straggled past her face only to hang limply at her shoulders. She looked bewildered and tired. We all looked tired. Faith raised her eyes slowly to look at me, and her mouth moved as if to speak, but she said nothing. I watched as her eyes became vacant and knew she was no longer looking at me, but at something only she could see. I turned away and crossed my arms, resting them on my pregnant belly. I couldn't help her. I had no reassuring words to offer. I thought of Sarah, the baby inside me who

had four months yet before she arrived in this world, and tried to convince myself that my father couldn't die because he had to meet her.

I looked around the tiny room and felt it shrink even more when I realized there were no windows, only pictures, to interrupt the soft white plane of the walls. The décor itself was rather nondescript, and any specific details I may have noticed at the time are lost to me now, but I do remember that there was a small private bathroom to the right of where Faith sat, and a small couch, no wider than a loveseat, on the opposite wall, with square foam cushions that fell just short of comfortable. Filling two corners of the room, and touching the couch on either side, were two square, dark wood end tables, the tops of which were covered with beautiful foliage plants. I tilted my head back and stared up at the florescent lights, not knowing what to do with myself. I walked across the room – one step, two steps, three steps – and turned around and walked back to the couch – one, two, three. I tried pacing like this a couple of times before giving up and sitting on the couch next to the plants. Wow! They were nice looking plants. I reached out and lightly rubbed a philodendron leaf between my thumb and index finger, anticipating the waxy coolness of the thriving foliage, only to be disappointed by the cold indifference of pliable synthetic. Plastic! God, how my father would have hated that. I let the fraudulent leaf drop from my fingers. Disgusted, more with the fact that I thought the plants were real than with the fact that they were plastic, I went back to the doorway to stare across the ER with Cindy.

What the hell were they doing? I could hear voices coming from the room that housed my father, a man and a woman, a doctor and a nurse. Shouldn't there be more people in there? As I listened, the nurse let out a high pitched laugh, a resounding titter, followed by silence. Thirty seconds later they emerged from the room and walked toward us, a middle-aged doctor followed by the tittering nurse, their expressions somber. I turned toward our little waiting room as if to leave, wondered briefly where I was going, and turned back toward the ER. The doctor approached the doorway, arms outstretched, ushering us inside. Cindy moved to stand near Faith, and I stepped backward, staying along the wall, as the doctor and nurse crowded into the room. The nurse, who I later found out to also be a grief counselor, sat in a plastic, cafeteria style chair that I hadn't noticed before, and watched us intently as the doctor started talking: "We did everything we could... best of our abilities... 45 minutes... did not respond..."

I could feel myself shaking my head. I took another step back to get away from this doctor and what he was saying, only to bump into one of the coffee tables covered with fake plants. Why is this room so *fucking* small?

I didn't cry at first; I just kept shaking my head, trying to hold off the moment of comprehension; trying to keep back the realization that all our lives had just changed drastically, trying to suspend this moment so that I wouldn't have to enter the next moment where my father no longer lived.

I heard Cindy saying "No, no, no, no." I heard Faith wail. I didn't look at them. They had entered the moment where my father no longer lived and I didn't want them to drag me with them. I dropped my chin to my chest and stared at the black polyester spandex just starting to stretch over my growing belly. This was my favorite maternity suit. I had worn it throughout my first pregnancy with Danny two and a half years ago, and it seemed to be holding up well during my second. It was the type of suit I could put on in an emergency, without the garments looking like they had spent the night on the floor.

I closed my eyes and thought about the shop. I thought about the customers and all the printing jobs that wouldn't get printed. Not today, anyway. Not tomorrow. I squeezed my eyes tight as images of my father flashed through my mind, a myriad of stills and clips, almost inevitably tied to the shop, his life being so intertwined with his printing business that it was difficult to think of them separately. He was as much a fixture in the shop as the printing and bindery equipment that he always bought secondhand, as much as the 30-bin Bourg collator and the old 1960s Heidelberg Windmill Letterpress that he loved so much. Because the shop had so many different machines that he could run, fix, tweak, oil and master, I don't think he could have chosen a more appropriate business to get into. My Aunt Ethel said that my father was always "tinkering with stuff," and, even at a young age, he seemed to have a natural instinct for mechanics.

He spent twenty years building elevators before he opened the print shop, and it wasn't hard for him to make the transition from elevator mechanic to pressman. It always seemed to me that there was nothing he couldn't fix. I remember him working on the different machines, setting up and running them, or doing routine maintenance or fixing them. He liked machines and had a certain respect for them. Sometimes, if a press was giving him trouble, I would watch one end as it ran, poised to report any irregularities or to turn the machine off altogether, while he watched, listened and adjusted the other end. "A machine will always tell you what it wants," he said. "All you have to do is listen." Funny thing is, he said the same thing about plants: Plants will always tell you what they want, all you have to do is pay attention. My plants linger; his plants thrive.

He was right about listening, though. I wasn't a mechanic or a pressman, but I knew the sounds of the shop. Each machine, if it was running well, had its own rhythmic sound, a measured click, hiss, whir or thrum that changed tempo with respect to every job. It was a steady background noise to those of us who worked in the front room, more noticeable when it was absent. The sound of the press would be slow and rhythmic as my father set up to run a job, the sucker-feeds clicking on the empty sheet feeder, changing to a dull thunk once it was loaded with paper. Then the press would stop and start as my father adjusted the image to his liking. Card stock ran louder, coated stock ran slower.

Any interruption in the rhythm usually meant trouble. Sometimes the disruption would be loud, the sound of buckling vellum as a misfed sheet crashed into the blanket, with the other sheets racing behind it trying to do the same; sometimes it would be muted, the sibilant rasping sound of tearing paper as it was pulled back into the press on the chain delivery when an aberrant gripper failed to release the sheet onto the stacker; at other times, it would be abrupt silence... for a long time. That meant a wrap-around. A wrap-around is when a rogue sheet of paper hits the impression cylinder the wrong way and shoots up into the ink rollers where it attempts to disintegrate back into its previous pulpy form. A wrap-around meant having to wash the press down; it was almost like starting over. A wrap-around could even silence the singing that accompanied almost anything my father did. His singing was even more constant than the sounds of the equipment. My father sang when he was happy or sad, in a good mood or bad. Customers would come in and say that Bob sounded like he was in good mood as he sang with or without the CD player, belting out some Elvis or Lyle Lovett song, lifting his spirits with the Everly Brothers or commiserating with Woodie Guthrie in the *Dust Bowl Ballads*. "Actually," I might say to the customer, "he's pissed off because he just had a wrap-around." The customer would laugh, not quite grasping the true essence of a wrap-around, and wave to him through the window to the pressroom, to which he would raise his arm high in salutation and sing louder.

When he really needed a break, he would go to the makeshift office in the front room and sit in the small black desk chair – the one that he would occasionally lean back on to take a catnap, with his feet on the desk, his hairy arms crossed over his chest – and strum his acoustic guitar, singing one or two verses of a few different songs over and over because he never knew all the words to any one song. Many times he would make up his own words to suit his mood or situation, which others in the shop would invariably pick up and sing as they were going about their work. But he would sit there and play for a while, and then suddenly grab the guitar by the neck and

stand up saying, "Break's over! I gotta get back to work," or he would vocalize some borrowed quote that he had made his own through repetition, such as, "all work and no play make Bob a dull boy!"

He would then walk back through the door to the pressroom, a screw driver sticking out of the right back pocket of his Levis, or dangling below by the handle if the tip had poked its way through the double stitching, which it inevitably did. He would pause long enough to gulp from his coffee cup, the contents of which he would drink with the same gusto, whether it was fresh and steaming or stone cold, before disappearing behind the press. Within a minute the sound of his voice would be heard singing some gospel or country song, accompanied by the mechanical cadence of the press as he set up to run the next job.

Of all the equipment in the pressroom, the Heidelberg Windmill Letterpress was my father's favorite. When it was running, the Windmill sounded like it was breathing, sharp inhalations of breath through pursed lips when it pulled the paper onto the platen, softer exhalations as it released the paper; when cranked up, it sounded like a souped up respirator. My father liked the Windmill because it was a solidly built, precision machine that, once setup, seldom missed a sheet. It was a black behemoth of a press, weighing over two thousand pounds, and it could print, number, perforate, score, die cut and hot foil stamp. I believe it was my father's idea of a dream machine.

I thought of the time when we moved the shop from its downtown location to the east side of Brockton, and we needed to load the Windmill onto a truck. Instead of hiring a moving company, my father called on his family to help him move the equipment, his brothers and nephews and brothers-in-law, all of them construction workers and tradesmen in their own right, as well as his sisters, nieces and daughters, none of whom were strangers to hard work. The Heidelberg was the last piece of equipment to be moved, and the men gathered around it discussing their plan of action, the young men deferring to their elders in terms of strategy, the older men deferring to the younger in terms of execution. Moving the press across the shop and out the front door was the easy part, but the stress level rose as they discussed how to get the press from the concrete landing, onto the narrow loading ramp, up the slight incline, and into the back of the truck. I listened from inside the shop to the yells of caution and encouragement as the press slowly ascended the ramp, pulled by a winch from within the truck, pushed and guided on all sides from without. Before the Heidelberg was even halfway up, the ramp started to buckle. There was a frenzied scramble to locate some two-by-fours, and some tense moments as my father wedged them under the

ramp for support and my uncle Frankie banged them in with a sledgehammer. After the move it would take three of them to straighten out the ramp enough so that it would slide back into its pocket underneath the cargo box of the truck.

A few of the men lit cigarettes as they took a couple of minutes to regroup, the sound of their laughter loud and excited as they cracked jokes to relieve the tension. The women watched nervously from the doorway, or wandered idly inside the shop, remembering briefly that we were there to pack and move, but all of us too worried to concentrate on anything other than the long ton of iron threatening to crash to the sidewalk, and, we were convinced, maliciously crushing one of our loved ones beneath it.

I thought of the drunk man that walked by, a familiar character in downtown Brockton, stopping briefly to tell the guys that they were doing it all wrong, telling them that once the press started moving, they needed to keep it moving. "You got a winch!" he said, tipping slightly forward with the force of his exasperation. "Just crank it up, and when she starts movin', don't stop! Just run her up the ramp and don't stop!" My cousin Bobby, Cindy's twenty-three-year-old son, warned the man to leave, a barely concealed threat in his tone. The drunk just shrugged and walked on, throwing an "I'm tellin' ya," over his shoulder as he went. There was silence then, as the guys looked at each other.

"The drunk bastard is right," said Frankie, and everyone laughed.

After checking the winch, the two-by-fours, the ramp, and each other's position, they tried again. By now, a small crowd had gathered, and when the press started moving, people on the sidewalk accompanied its ascent with shouts of encouragement and chants of "Go! Go! Go! Go!" all the way to the top of the ramp and, finally, into the back of the box truck. A yell of success went through the crowd, a cry of relief went through the family. Cindy turned away and lit a cigarette. Ethel burst into tears. "Stupid ass should have hired movers," she said, speaking of my father. I could only nod in agreement, being on the verge of tears myself. I remember being proud of my family then, and their blue-collar status, proud that with all their skills combined, they could build or fix almost anything – at least that's what they believed, and that was good enough for me.

Thinking of that move made me realize even more the scope of our loss. For the family to come together to help my father when he needed them was not unusual, just as he had always been there to help them. I believe they would have tried to

move a mountain for him had he asked. But a part of me also knew that he was the impetus of the family, and the glue that held them together. He was the patriarch, and had been since the age of sixteen. I was worried that without my father's presence, the family would drift apart.

I lifted my head, once again glancing around the compact waiting room and, finally, meeting the intent gaze of the tittering nurse. I realized then that she was there to watch us, to make sure that one of us didn't freak out or faint, or perhaps, do nothing at all. I thought of the laugh she expelled before exiting my father's room – a short, high pitched giggle, really – but didn't begrudge her. It was a nervous laugh, a release of pressure, the laugh of a person about to tell a family that their loved one has died. I watched as the nurse looked first at Faith, then at Cindy, then back at me. She was waiting because, so far, I had done nothing at all, nothing but push the backs of my legs against that STUPID, fucking, coffee table with the fake *fucking* plants.

I turned away from the nurse and looked at the doctor. He was still talking. God! How long had it been since they entered the room? Forty- five seconds? Two minutes? I looked longingly at the closed door, wishing I could still see out into the emergency room. I wanted to see my father. I wanted to tell him I loved him and would miss him, and that I hoped he wasn't scared at the end, and that I would tell Danny and Sarah all about him, and that their lives would have been that much richer had they been able to grow up knowing him.

I started to cry.

It was barely 6:00 a.m. when, first my sister Donna arrived, then my Aunt Ethel, followed shortly thereafter by my mother and my sister Eileen. After asking which funeral home we wanted to use, and prompting us to make decisions that almost seemed obscene at the time, the doctor released us from the tiny waiting room and filed us across the ER to say goodbye to my father. I entered the hospital room, feeling the emptiness of it enter my heart even as I stared at my father and laid my hand gently on his chest. All my words dried up in my throat; he was not there.

The Dehumanization of Prisoners in Brendan Behan's *The Quare Fellow*

ZACHARIAH MILAUSKAS

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Brendan Behan's *The Quare Fellow* looks not only at how a prison population reacts to an execution, but also how people throughout history respond to inhumanity—whether it be injustice or dehumanization. Behan struggles with whether or not prisons are able to reform prisoners. In a darkly comic way, Behan questions the justice of prisons and executions, and yet the characters in the play do not seem to know how to fix the judicial system of 1940s Ireland. In this play, Behan is concerned with showing how the prison system is built and how it will never help anyone: prisons supposedly are meant to change humans, but the system has failed, and it seems that the way it currently is can never be changed. Even though Behan was imprisoned for six years under the British system for being involved with the Irish Republican Army's terrorist activities, he gives no clear answers to the audience. Instead, he emphasizes dark humor, the humanity and understanding of prisoners, and the inhumanity of some characters, such as the Hangman, creating a play that is remarkable in showing a system that has failed.

In *The Quare Fellow*, it is clear that the way in which a killer kills can determine whether he or she is better than another murderer. Prisoner A and Dunlavin speak about the Other Fellow's and Silver-top's crimes. Silver-top is seen as a superior person since he uses a "silver-topped cane" to murder his wife (Behan 258). The Other Fellow is worse because he uses a "butcher's knife" and cuts up his victim afterwards (258). It seems that Behan is pointing out that the Other Fellow's act is more "violent," thereby showing that the Other Fellow is inferior. Behan is exemplifying the idea that a rich man can kill, but it is not acceptable for a poor man to do so, and that the poor buy into this hypocrisy: a man with a silver-topped cane killing someone is better because he is obviously richer than a man who uses a butcher's knife. As Dunlavin says, "But a man with a silver-topped cane, that's a man that's a cut above meat-choppers whichever way you look at it" (258). Comically, Behan uses the phrase "cut above" when speaking of this "meat-chopper," as if the audience needs just a little dark humor to ease the mood—both of this situation specifically and the piece in general. Prisoner A and Dunlavin talk about the situation in such a carefree manner as to let the audience get into the story and understand the character's points of view while also seeing the inherent problems in the system.

In this case, it is plainly a problem to think that because a man is richer than another, it is more acceptable for him to kill than a poor man. Behan is showing without a doubt the failure of the justice system in a way that might not have been completely obvious at first glance. Silver-top, for example, has not been put to death while so many other convicts have. In fact, Silver-top is getting life imprisonment rather than execution, and Dunlavin says, "Killing your wife is a natural class of a thing that could happen to the best of us" (258). So, Behan goes to an extreme in this case—an extreme view that may very well have been the standard in Irish prisons: that killing one's wife is acceptable and the rich can murder indiscriminately, but poor men killing anyone other than their wives is not acceptable. The Other Fellow, the man who killed his brother with the butcher's knife, says that he "cannot imagine any worse crime than taking a life" (264), and Dunlavin cannot believe that "the likes of that [are put] beside [him]" (258), even though they are both murderers. How is it possible for everyone to go along with and not speak against these inconsistencies? Behan suggests later on that the system is too far gone to be fixed.

Behan occasionally brings humor into the play in very dark ways. Just like when Dunlavin and the other prisoner were talking about the Other Fellow's and Silver-top's victims, Behan makes the end of the play comical when some prisoners are fighting over the Quare Fellow's letters. After Warder Regan puts the Quare Fellow's letters in the grave, Prisoner A says, "Give us them bloody letters. They're worth money to one of the Sunday papers" (309). Prisoner D responds, "They're not exclusively your property any more than anyone else's," followed by another prisoner suggesting that they "divide" the letters (310). They call themselves businessmen, and Prisoner A says, "For what's a crook, only a businessman without a shop" (310). This is a rather darkly comic scene. The prisoners do not concern themselves with the dead man since, fortunately, they are still alive and could possibly profit off the death. In "The Writings of Brendan Behan," Colin MacInnes writes, "Snobberies, resentment and frustrations of the prisoners are conveyed with comic irony, reminding us that a jail population differs from that outside in no essential respect whatever" (MacInnes 519). Behan consistently reminds the audience that the prisoners are almost the same as everyone else, though they have to deal with all of their issues in different ways.

The inside of the jail is not that much different from the outside. People in the jail are attempting to keep their sanity in a situation where freedom and life are taken away. Just by hearing that a man is going to die, the prisoners and all the staff at the prison are infatuated with finding out all there is to know about the Quare Fellow's upcoming execution. While his sentence will most likely be death, there is the hope that

the Quare Fellow will be found innocent (Behan 279). The prisoners do not concern themselves with finding out the Quare Fellow's life story, his trial, or the details of his crime so much as expecting his execution. The Quare Fellow is a man who killed his brother: "He bled his brother into a crock, didn't he, that had been set aside for the pig-slaughtering and mangled the remains beyond all hope of identification" (279). Once this graphic scene is reported, the hope of life over death is quickly dismissed, and the prisoners all agree that the Quare Fellow will be executed; his situation is hopeless.

It seems strange that the prisoners focus on the Quare Fellow, a character who is never seen in the play nor has any dialogue. MacInnes notes, "As we meet the prisoners and the warders [,] we are made aware that the forthcoming execution of the 'quare fellow' is a shared obsession" (MacInnes 519). He is more of an idea than anything else: the symbol of the prisoners' humanity, a myriad consisting of hope for life, while also seeking the solace of death. For instance, a "lifer" attempts to hang himself using a sheet, but is cut down before he dies (Behan 275). The prisoners want to live their lives free and without worry, and so death becomes a common option to attain peace, as escape from the prison seems impossible.

The obsession with death is most obvious when the Hangman makes his appearance late in the play, right before the execution. The Hangman sings, which recalls the Voice of the Prisoner Below who sings throughout the play perhaps to keep his sanity (304). In a very cold way, the Hangman goes over what it will take to make a "fourteen-stone man[s]" neck break (305-6). At the same time, he is having a drink, as if to exemplify his nonchalance. In his "Review of *The Quare Fellow*," Colbert Kearney argues, "The 'quare fellow' is taboo: all attempts to hide him and to dehumanize him are attempts to disguise the fact that he is a human being who is about to be killed in a careful calculated manner" (Kearney 526). The Quare Fellow is not only a human like everyone else; he is more attuned to what is going on in the play even though the audience never meets him. The Hangman is disconnected: he is drinking and singing to keep his mind off the death he will be responsible for. He seems to disagree with the execution, but he is playing a role: fulfilling a duty with outcomes that must not be questioned.

Behan is suggesting that executions have become a faceless institutional practice. Yet, how humane is an execution where the hanged may "[live] seventeen minutes at the end of a rope" and executioners have a total disconnection from their killing, while the convicted killed with some purpose? (Behan 260) D. E. S. Maxwell writes in his "Review of *The Quare Fellow*":

For the prisoners the Quare Fellow is not a cause. He is a victim, a sacrifice, the ceremonies of his death detailed in their minds. Only through them has the audience access to the condemned cell and to the knowledge of its occupant, whom we never see, and who is deprived of individuality. He is all the Quare Fellows who have met this death. (Maxwell 528)

Without seeing him, the audience may imagine any man as the Quare Fellow, waiting in a cell for the forthcoming day of death. While his crime is briefly described, that is all the audience knows. Is it enough to convict him to die? No one knows the circumstances of the murder, and the very story of the Quare Fellow's crime may be quite different when compared to what actually happened. Behan creates a confused state in the play by leaving out many of the details. Yet, this allows for Behan's message to come out: the justice system is a failure, and lives are ruined as a result.

The apparent unfairness of the execution and the tension that builds is finally released when the Quare Fellow is dead. The prisoners and warders do not want the execution to happen, but since it is part of the system, they are excited when it does happen because they are no longer awaiting the inevitable. Before the execution, the tension grows more intense by the second, especially as Mickser narrates what is going on:

He's making a big effort for the last two furlong's. He's got the white pudding bag over his head, just a short distance to go. He's in. [*A clock begins to chime the hour. Each quarter sounds louder.*] His feet to the chalk line. He'll be pinioned, his feet together. The bag will be pulled down over his face. The screws come off the trap to steady him. Himself goes to the lever and... [*The hour strikes. The WARDERS cross themselves and put on their caps. From the PRISONERS comes a ferocious howling.*] (Behan 307)

By reporting the Quare Fellow's execution, Mickser is being very humane. He is letting the other prisoners get some relief by announcing the death that they knew was forthcoming and inevitable. And since the Quare Fellow was executed and they are still alive, they probably feel more alive than at any other time behind those prison walls. Outside of prisons, funerals bring the living together; inside prisons, executions have the same effect.

Everything relating to the prisoners and executions seems set in stone, and nothing can be changed. A literal instance of this idea comes when the Quare Fellow has been hanged and his body is to be interred. A chief warden speaks to a few prisoners who must chisel a code into the wall nearest the Quare Fellow's

fresh grave. The code is going to represent the Quare Fellow's remains for records and in case he is ever to be exhumed. The Chief Warden says, "That's it. It should be E.779 according to the book, but a '7' is easier for you to do than a '9'. Right, the stone in the wall that's nearest the spot. Go ahead now. [*Raising his voice.*] There's the usual two bottles of stout a man, but only if you work fast" (309). Even in records, the individuality of the Quare Fellow does not matter; his name is never stated. What is important is making life easier for the living—whether criminals or not. The Chief is making work easier for the prisoner who is going to chisel the code into the stone nearest the grave, which is humane. He does not concern himself with the accuracy of the Quare Fellow's code because the Quare Fellow is dead: the idea of the Quare Fellow is what will live on, not his name.

The Quare Fellow dies and it is final, but the most important thing about his death is to make people raise questions about executions and imprisonment. Kearney writes, "He is to be hanged and the theme of the play is the effect which his fate has on the people within the prison and [...] on the audience. [...] He does not appear on the stage but this does not prevent him from dominating it in the minds of others" (Kearney 525). Behan plainly brings to light the apparent barbarity of these institutions and shows that no one is getting better by being exposed to prison or execution. Kearney goes on to argue: "That they feel that there is something shameful, something obscene, in the idea of legal execution? And is this why the prisoners and staff refuse to mention the victim by any personal name?" (526). The Quare Fellow is faceless, much as the system has become: the prisoners are not supposed to be seen as people, but prisoners.

The outside world does not want to consider that murderers are people with emotions and issues that need to be addressed. Behan obviously does not see the institutions as helping in any way. Rather, they are perpetuating the problems that are evident across the prison culture. These male characters have probably been in and out of prison most of their lives for petty and even violent crimes, and it is plain that there has been no attempt at rehabilitation or employment. The only thing prison sentences do is to make prisoners want to stay out of prison, but they will continue to commit crimes because resources are being spent on prisons rather than reforming the convicted. Although these questions are raised, Behan cannot give any definitive answers, as the system seems so far gone as to be without hope. Maxwell takes note, "Even Warden Regan, who comes closest to explicit condemnation of the whole process, never fully interrogates its motives" (Maxwell 530). The institutions in place are like machines that keep going along their own paths and are unable to be stopped, and no one knows how to stop or repair them, so

they are accepted. The motives are unknown and are followed blindly like old traditions.

Brendan Behan's play *The Quare Fellow* is an interesting and riveting look at the prison system of Ireland during the last century. According to MacInnes, "Behan has made a drama that is funny, humane, and a profound affirmation of the life that everything in the prison is trying to destroy" (MacInnes 518). It portrays the problems and questions that arise from prisons and executions, but gives the audience no clear answers, which suggests that Behan might not have known how to change the direction that the institutional machine was moving in either. Behan most importantly makes it clear that the people in prisons are very much like the people outside of the prisons, and that even murderers are human.

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Pioneering the Personal Robotics Industry

RUSSELL NICKERSON

Russell is a Computer Science Major with minors in Asian Studies, Management, Mathematics and Physics. This paper is the first part of a two part report on the home robotics industry that Russell is conducting under the mentoring of Professor John Santore. Russell is anticipating to continue this report during summer 2009 by traveling to Japan and performing firsthand research. Russell also plans to present this report over the summer at various local robotics conferences, hoping to make researchers and investors aware of this upcoming industry.

T*he up and coming industry that I will be reporting about here is the personal and home robotics industry. I will show how the development cycle in the United States functions. I will then answer the question: What are the main limits that hold back this industry? The US approach to robotics will be contrasted with Japan's approach as Japan has another very well developed robotics program.*

First, the definition “home robotics” has to be established. Since robotics is an extremely broad field, one must specify what “home robotics” includes. For this paper, the definition of “home robotics” is a collection of hardware and software with general assistive use to humans that can safely be integrated into a social location such as a home or mall. While ultimately the pinnacle of home robotics would be a “Rosie” (a home robot that has multiple uses and can essentially take the place of a human servant as popularized by the Jetson’s cartoon) currently the trend is small robots with one fixed application (such as vacuuming). The reason that the current state of the home robotics industry should concern America is that it is unguided and has difficulty allocating resources to compete or join with other major robot players in the world, particularly Japan.

In recent years, a whimsical professor with a prototype came into the tech news circle of magazines, blogs and news stories. This man is Professor Sankai and his laboratory at University of Tsukuba. Sankai is quoted in a CNN article [1], “I am making these robots because I feel that, despite the fact there are many robots made here [Japan], very few of them are practical or useful. I thought I should make one that is practical and can be used usefully for human lives.” Sankai and his company Cyberdyne describe their mission on their site, “We strongly believe that technologies should be designed for the benefits of humankind. We will be focusing on strong R&D and will introduce very new products and services to the society.” [2] This progress towards robots that help individuals with problems rather than the creation of entertainment robots is a critical base for the growing robotics industry. By making “miracles” with robotics, people demand the new robot similar to the way they demand new experimental medical treatments today. The product that drives the current research and goals of Professor Sankai is the HAL which stands for Hybrid Assistive Limb. HAL is a robotic suit that helps amplify the strength of a human. Professor Sankai hopes the suit will be used

in fields like rehabilitation, construction and rescue efforts. The HAL also demonstrates the positive physical therapy uses and provides good press for robotics. This technology is also aimed at the consumer market; the planned cost of HAL is about the cost of a wheelchair.

An American company, Raytheon, has an exoskeleton that is on parallel with HAL. Raytheon has a long standing history of major defense projects. Their self description:

“Throughout its more than 80-year history, Raytheon Company has been a leader in developing defense technologies and in converting those technologies for use in commercial markets. From its early days as a maker of radio tubes, its adaptation of World War II radar technology to invent microwave cooking, and its development of the first guided missile, Raytheon has successfully built upon its pioneering tradition to become a global technology leader.” [3]

Raytheon’s ability is to convert defense projects into commercial use projects. This capability could greatly amplify the speed at which advanced household robotics enter the home. The exoskeleton has been demonstrated to the media just as successfully as HAL. However, I would argue that people interested in exoskeletons for physical therapy have more hope in the Japanese HAL. The simple reason is that Raytheon’s main goal is fulfilling military goals before converting the device to the commercial market, while the Japanese approach is inverted or simply does not include the military portion of research. [4]

Europe is jumping aboard this home robotic opportunity as well. The European Union started the “Sixth Framework Programme” [5] which funds and encourages research and work in such areas as helpful robotics. A video of one such project recently captured public interest: a live demonstration of a learning robot that could make a rudimentary breakfast by using learned movements. This demonstration was produced by the European Commissions Cogniron project using an open platform for robotics (HOAP, Humanoid for Open Architecture Platform) developed by a company in Japan. This shows Japanese researchers are actively teaming with European researchers to develop new robotic platforms.

One report titled “Robots could be nurses of the future” explains:

“The Japanese government is set to invest heavily in setting up a robotics industry, in a move that could speed up the development of futuristic devices such as robots that could nurse and entertain people, or carry out dangerous tasks.” The article then goes on, “It [Japan] believes that robotics is set to become an extremely important part of the manufacturing industry in the future, and hopes that the project -- titled “Robot Challenge in the 21st Century” -- will help to make Japan a world leader in the sector.” [6]

It is clear now that Japanese government has its sights set on developing a large robotics industry to help society and make money doing it. In the meantime it seems the focus of robotics in the United States is largely military and destructive. The United States government seems uninterested in the personal robotics market. Most American institutes are trying to independently keep up with the global robotics market.

A 1990 report titled “Approaches to Robotics in the United States and Japan Report of a Bilateral Exchange” [7] greatly helps one to better understand Japan-U.S. relations in the area of robots. It reveals interesting positions on the past decades’ handling of the robotics market. The report references a “third generation” of robots coming in the future which comprise intelligent, highly adaptable machines. Even in the early 1990’s the United States ignored the market, the report exposes. “Although the United States played a leadership role in the development of robotics technology, U.S. manufacturers by and large failed to capitalize on this advanced form of automation. Unable to interest domestic manufacturers in their robots, pioneering firms such as Unimation licensed their technology to Japanese companies.” As I read this document further, the pieces began to fall into place: “U.S. manufacturers have lagged, and continue to lag, behind their Japanese counterparts in the adoption of robotics, in part because of their investment criteria.”[7] The United States desired a large profitability return (15%) while the Japanese settled with much less profit (3%) and relied on that to build long term relationships with companies. The Japanese industry drove research and development for robotics in larger company applications and the government contributes greatly to these endeavors. The Japanese research is often overseen closely by their government so funds are not wasted. The report compares the American development of robotics by the National Science Foundation as “loose” compared to the Japanese research and development and describes the task sharing ideas as “disarrayed”. There are many cooks in the kitchen, the National Science Foundation, the National Institute of Standards and Technology, the U.S. Department of Defense, U.S. Department of Energy, U.S. Department of Health and Human Services and more. All of

these organizations operate independently and aren't evaluated by any larger committee. Shockingly, the report mentions an unmanned excavation project by Carnegie Mellon University (known for its excellent achievements in robotics) was not even funded! The NSF didn't have enough funds to support the project. This is a common gripe about the NSF and its supported agencies. This example shows there wasn't much interest in cultivating robotics in America by itself or with international partners. The report ends encouraging Japan and U.S. to work together and help each other grow to develop robotics to help society and industry. The report even suggests finding similar projects and combining them into one unified project with both countries working together.

Fast forward to the year 2005 and we find this a quote from the U.S. Federal Bureau of Industry and Security: "The United States leadership position in AI is eroding as the governments and companies in Japan, and as well as in Western European, working together, have gained ground. In select areas of AI, Japan and Western Europe now surpass the U.S." [8] What happened? Why is it fifteen years after such broad plans were made between the U.S. and Japan, nothing seems to be accomplished? Sure the cooperation between the U.S. and Japan in robotics still exists but occasional and unfocused. JETRO (Japan External Trade Organization) exist on the Japanese side to extend its hand for any international collaboration. The U.S. can easily be said to meet JETRO halfway with the efforts of the U.S. Department of Commerce. But currently there are no compelling, stand-out projects that link U.S. and Japanese minds in the area of robotics. There are, however, plenty of ways for individuals and small teams with varying resources to communicate. One such society is the IEEE (Institute of Electrical and Electronics Engineers) which brings together fellow roboticists (among others). Their site boasts

"With about 40 percent of its members living and working outside the United States, the CS (computer society/portion of the IEEE) fosters international communication, cooperation, and information exchange. It monitors and evaluates curriculum accreditation guidelines through its ties with the US Computing Sciences Accreditation Board and the Accreditation Board for Engineering and Technology." [9]

A regulated system followed by groups of international engineers has laid foundation for progress in the industry. The IEEE is non-profit and has more members than any professional organization of its kind. IEEE supports Robotics and Automation in an individual, separate society as well. I witnessed this first hand attending the Trinity Home Fire Fighting Robot Competition with the Bridgewater State College

Computer Science Club. This robotics competition has global entrants including China and Israel. The Connecticut Section IEEE gave out awards for achievements to the winners and also pushed entrants to keep getting better." [9]

The argument that competition works better than teamwork is something that the United States government needs to confront. Surely, competition is beneficial as evidenced by the standard example of the space race of the 1960s. The downside of competition is that someone will be on the losing side. For an industry that has been anticipated since the creation of science fiction, this could be a painful loss. It would be best to join a team of developers and scientists rather than wait for an eventual success story. While many groups exist through the Internet, there doesn't appear to be any exchange programs supported by the government to share ideas with countries or collaborate on a home robotics project. The underlying reason this teamwork isn't developing is the fact that American government sees robotics first as government assets and military secrets and much later (if at all) as helpful commercially available assistants.

American mainstream-media and half-serious niche media often take the stance that America is "afraid" of robotics. Movies depict robots as killing machines and many advanced military projects such as Big Dog by Boston Dynamics [10] have turned these speculations into reality. USA Today featured an article discussing the Japanese view of robotics. The media stance is apparent again: "Robots have long been portrayed as friendly helpers in Japanese popular culture, a far cry from the often rebellious and violent machines that often inhabit Western science fiction." [11] The warning signs that Japan is dangerously close to reaching industry superiority are all present once again in this article. It continues "The government estimates the industry could surge from about \$5.2 billion in 2006 to \$26 billion in 2010 and nearly \$70 billion by 2025." The article tells us that there is a "robotics revolution" and it has been occurring "quietly" unbeknownst to America. I directly quote from the same article, "Robots are the cornerstone of Japan's international competitiveness," [11]. Shunichi Uchiyama, the Trade Ministry's chief of manufacturing industry policy, said at a recent seminar. "We expect robotics technology to enter even more sectors going forward." The article then calms fears about the idea of Japan dominating the market with these statements: "For all its research, Japan has yet to come up with a commercially successful consumer robot." [11] In addition "One of the only commercially successful consumer robots so far is made by an American company, iRobot Corp." Though the Japanese haven't created a *successful* consumer robot, they have only been limited by cost. Not many people want to spend a large amount of money on a robot.

Roomba's are a little over one hundred U.S. dollars and they have been widely advertised and pushed by the media. [12] That is the simple secret to iRobot's success; their robots are cheap and well advertised. One other factor that contributed to iRobot's success is that America was *ready* for their robot. As society moves forward, it expects the futuristic developments of science fiction lore to become reality. Robot vacuum cleaners that actually work fairly well, appear person-friendly and are at a price an average middle income family can afford are part of this vision of the future. Most robots that were around prior to the Roomba fell into either the "complex industrial robot" or "simple toy" categories. The middle ground was non-existent. Ironically, many "complex" industrial robots were less complex than the Roomba. The middle ground is where we will find a successful personal home robotics industry. This classification is lost in the generic term of "robot."

Many Americans are afraid of large complicated machinery. Conventional wisdom says that this is part of our distrust of robots. Despite our distrust of such large mechanical devices most Americans drive cars. For peoples comfort and safety, the kind of robot that will start appearing among us on a daily basis will be small, friendly and won't displace vast amounts of the workforce. Home and personal robots are a supplement for everyday life and are simply automated extensions of what we use commonly (phone, email, cameras, appliances). iRobot is also the most commonly contracted robot company that the military uses. People fear the military robots going haywire in their neighborhoods, however, iRobot has also given the public a robotic vacuum cleaner. Even though there is a clear distinction between military and home robotics, people opposed to home robotics still will argue that there is no distinction because of military involvement with the robotics sector.

Bridgewater State College invited guest speaker Sherry Turkle to speak about the growing distance between humanity and machines. I disagree with many of her opinions, however, they inspire me to consider some questions. I represent a counterpoint to her beliefs. Turkle argues that the line between real living things and machines is being blurred and the result is very often negative. Her accompanying example was that her daughter did not care if turtles at a zoo were real or robots as long as they were interesting (this is a condensed summary of her position). This raises the question, can robots take the place of a living creature in our lives? The answer really depends a good deal on the actual situation. We are in an age where parallels can be drawn between man and machine. But we are still at least a decade away from real overlap between man and machine. By that time robotic limbs driven by a neural interface will likely be common place and autonomous robots with near human appearance will be more than show pieces from the

laboratory. Is it right to "fool" people? Is it right for people to "fool" themselves? I would argue that the 'problem' is its own solution. When biological structures such as endangered species or a person's arm are lost and cannot traditionally be replaced, isn't it alright to find the next best substitute?

Let us move now from sweeping considerations of the philosophical issues behind robot acceptance (or lack thereof). After exploring the overall state of the robotics industries in this country I turned my focus to the local Massachusetts robotics industry. Massachusetts is known as a technological leader in the United States. A closer look at the local robotics industry will give insight into the larger national industry.

As I began my in depth research with companies in Massachusetts, I discovered the Massachusetts Robotic Cluster. [13] This cluster is comprised of most of the major robotics companies and institutes in Massachusetts. The first company I interviewed was Vecna. [14] Approximately 90% of Vecna's employees are MIT graduates. MIT is one of the premiere robotic graduate programs in the country. Vecna has produced notable robots. The first is the BEAR robot, a military robot that helps lift wounded soldiers and items from the battlefield. The second Vecna product is robotic healthcare kiosks operated either by telepresence or by remote control. I interviewed a representative robotics engineer, Andrew R. Allen and he gave me some interesting insights into the robotics industry. [15] The company is successful due to fulfilling military contracts. Allen told me that this is what most robotics startups have to do in order to get enough funding for other projects. This trend has made most US robotics projects military orientated rather than suited for home use. There is little to no federal funding for home robotics research. Companies try to turn a commercial profit by working on side projects and introducing them into the market. Allen also told me that home robotics is not seen as a national consumer priority. Allen explained what the industry needs are more standard platforms and a safe, expandable robot that people can comfortably afford. Allen's comments raise the question: why isn't there more funding and focus on basic home robotics? Once basic home robots are developed, the industry and technology could help health care and other industries that find difficulty in gaining employees.

My correspondence with Smart Robots [16] leads to some similar answers. Joe Bosworth of Smart Robots gives the rundown of his company: "We are a small start-up firm which manufactures and sells educational mobile robot systems for use by schools, universities, research groups and individuals as development systems for various applications or for use in the classroom in teaching/learning computer programming, AI,

wireless networking, web interaction, electronics, mechanical systems, etc.” [17] Oddly enough, they have no clients in Massachusetts. Bosworth makes the point that they aim to be in the commercial market but do not expect to be in the “home” market. I consider the commercial market and the home market one and the same in terms of safety and use by the general public. Smart Robots actively seeks international partners and sees other countries as the best clientèle. When it comes to Japan however, I directly quote Bosworth:

It is my belief that when the home robot tsunami hits, it will hit from several places at the same time – most likely the U.S., Japan and Korea. As for the timing, it’s not a tool-up issue, it’s a leap of vision issue. All the technology pieces are there. The first products that break – seriously break – will be surprises – like the Wii – something very new and unexpected. In general, I believe that we in the robot industry today are too close to, and a bit blinded by, the technology and our enthusiasm for the technology and regularly underestimate what we can or need to accomplish, in order to truly connect with the opportunity that stands waiting. [17]

This is very revealing in that it shows the danger and potential high returns possible in the home robotics industry and the robotics industry in general. While huge opportunity awaits, there is no single driver at the wheel, but a group of individuals and companies taking turns navigating otherwise uncharted territory. This is due to the fact that there is no planned timetable in America for robotics achievements and little funding outside of the Defense department. One could even say robotics is merely the Defense department’s small side project, even though autonomous robot vehicles are one of the department’s highest profile “research” projects. In reality, not much research is actually performed by DARPA itself. DARPA instead allots money as contest prize which are given to the robotics team that wins its competition of “challenge”. Teams from four foreign countries even applied in the second year of the DARPA competition. That is outsourcing a national security project: something one might consider to be a political faux pas. While award competitions are good to spark an industry, it is far from supplying the lasting energy to keep industry progress moving forward.

The robot industry success story that is iRobot began with mainly funds from military contracts. After creating it’s military multi use robot, the Packbot, the company saw opportunity in the home robotics market and created the Roomba, the previously mentioned well known vacuum robot. The company is constantly making robots now for different home applications.

While this idea of drumming up money with military projects and then branching off into home based robotics did work for iRobot, it doesn’t seem to me to be the best method to build an industry. Military contracts are competitive and don’t just fall into an engineer’s lap. It was quite difficult to get a hold of a representative from iRobot to answer my questions. When iRobot received the speculative questions I posed, they declined to comment on any “forward looking statements” and denied any insight into their expectations for the robotics industry citing fear of giving insight into their business strategy. iRobot did confirm that they are in fact the current leaders of the mobile home robotics industry. [18] This correspondence demonstrates one of the underlying problems of the home robotics industry. Not commenting on the future leaves people with an uneasy feelings towards this up and coming industry. Harboring a guarded business plan also discourages teamwork of any kind, local, national or globally.

Understandably, iRobot’s main business goal isn’t to advance home robotics on a global level generically but rather to specialize and profit in select areas of home robotics. Lack of a unified effort in pushing forward general home robotics needs to be addressed on a global level. An effective course of action for creating a widely usable, functional home robot would be to team up the best researchers and developers in robotics. Unlike the repeated pattern seen in a wide range of niche robots on the market today, I believe that variety in home robots should be encouraged only after a broad, robust and adaptable base system is developed and standardized.

In this paper I’ve explored government funding for robotics, however, we have a tradition of private funding for many of the most notable of our innovations in this country. Where is all of the venture capital money for robotics? Doesn’t anyone believe this industry is worth building? Since the robotics industry is so broad and fits under many product categories, the industry has a hard time building a group of venture capitalists dedicated to robotics projects. An article in the Pittsburgh Business Times [19] goes into depth why venture capitalists haven’t given to robotics: “Some believe the word “robotics “ actually carries a stigma that hurts the company’s chances of funding.” The article also mentions that many businesses don’t believe they should be classified as robotics companies when they are working on only a piece of a robot: for example, a company working only on vision systems. Companies are actually avoiding the term robot in fear they will lose funding. Robots do carry a multitude of expensive parts and sensors. Code for a smart robot would also require expensive software programmers. One could infer that smaller venture capitalists are afraid to fall into a hole of ever expanding financing needs. This could also be an

indication why the only entity funding robotics companies is the government, the largest financial entity.

In a 2008 paper, known robotics enthusiast Joanne Pransky [20] looks at the issue of venture capitalist investment in robotics. In the paper, Pransky discusses the NVCA (National Venture Capital Association) and its listing system. The list shows companies that have venture capital and their self described industrial classification. The amount of companies listed under “robot” or “robotics” is scarce. The leading companies listed under robot descriptors are more closely identified with motor vehicles, medical health related or sometimes just the ubiquitous “other”. Even on the list itself, there is no unified definition for robot. Software companies could label their program a ‘robot’. There are even companies not classified as robotics companies that make medical robots. Venture Capitalists are searching for high rate of returns in five to ten years, and no matter what the classification, money exists to fund smart, profitable robotics companies. For now though, companies don’t want to scare venture capitalists away with the often complex conceptual ‘baggage’ associated with being a ‘robotics company’ so they simply modify their self described classification. Until the industry of social and home robotics is widely accepted, direct funding for robotics won’t be common for venture capitalists. Pioneers of the industry need to convey that robotics can be a highly profitable business. Unfortunately, this fact forces research and development to be rushed. Going into the home robot industry with an existing stable product that requires minimal initial funding to convert to home use is ideal.

After finding Pransky’s report I decided to contact her and ask her opinion on the home robotics industry. [21] Her opinions echoed that of Allen and Bosworth. The general public wants a “safe, nonthreatening, inexpensive, user-friendly” assistant. Pransky also mentions a valuable detail often overlooked: “... people that want a home robot may not be the same people that make the home purchasing decisions.” While an amazing home robot with multiple uses is not a reality, unfortunately there is not a huge demand for a robot of those credentials to become a reality. The experts in robotics I interviewed were in consensus that the American government and venture capitalists are not doing enough to fund home robotics. Not enough robotics teams that span international boundaries are being brought together either. If some entity doesn’t start to guide the robotics industry then the industry could become even more disjointed, disorganized that it is now. This will likely lead to wasted time and money on research and development that has already been conducted elsewhere. Japan has the motivation to push the robotics industry forward. “For Japan, the robotics revolution is an imperative. With more than a fifth

of the population 65 or older, the country is banking on robots to replenish the workforce and care for the elderly.” (Tabuchi) Whether America decides to compete, join or do nothing is up to the robotics industry, venture capitalists, the United States government and the consumer.

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The Spanish Tragedy and the Supernatural: Exploring the Coexistence of Patriotic and Subversive Interpretations in *The Spanish Tragedy*

MICHELLE MERCURE

Michelle Mercure is currently a senior majoring in English. She presented this paper at the 7th Annual Undergraduate Shakespeare Conference of New England at Worcester State College this past spring, the theme of which was “The Natural, The Unnatural, The Supernatural.” She received an ATP travel grant to help her to attend the conference. Her mentor, Dr. Michael McClintock, is also credited for making Michelle aware that such opportunities exist in the first place. After graduation Michelle hopes to continue on to graduate school and pursue a career in academia.

The title of Thomas Kyd’s play, *The Spanish Tragedy*, is as ambiguous as the play’s content. According to critic Ian McAdam, the play’s ambiguity allows for two conflicting interpretations. He writes that the play is . . . in its very complexity, marked by gaps and discontinuities which, while not rendering it artistically incoherent, have led to striking discrepancies in critical readings; while some see Kyd patriotically asserting England’s political ascendancy over Spain’s ‘evil empire,’ others see the playwright taking a dangerously subversive stance toward (English) society itself. (33)

Both of these interpretations render different but equally limited conclusions about both the play’s title and its content by marking it as either exclusively a Spanish tragedy or an English tragedy. By focusing on Kyd’s character of Revenge and the underworld as figures of the supernatural that are deliberately situated between these two interpretations, I will make the claim that the play is both a Spanish tragedy and an English tragedy. What Kyd does by using the supernatural as a device in a play that is simultaneously patriotic and subversive is make the audience’s “naturally” held assumptions about Spain and about English society seem potentially unnatural.

The first questions to consider are Kyd’s purpose in using Revenge as a supernatural character in the play, who Revenge is, where he comes from, and what he represents in the play. In order to answer these questions, one must begin by focusing on Revenge’s first appearance in the play. Revenge operates as a part of a framing device along with the ghost of Andrea; they both appear together at the very start of the play. The Ghost of Andrea, a Spanish warrior who has been killed in a battle between the warring nations of Spain and Portugal, is the first character to speak in the play:

For in the late conflict with Portingale
My valour drew me into danger’s mouth,
Till life to death made passage through my wounds.
When I was slain, my soul descended straight
To pass the flowing stream of Acheron:
But churlish Charon, only boatman there,
Said that my rites of burial not perform’d,
I might not sit amongst his passengers. (1.1.15-22)

Charon, in Greek mythology, is the ferryman of the dead. The souls of the deceased are brought to him by Hermes, and Charon ferries them across the river Acheron; he only accepts the dead which are buried or burned with the proper rites (Charon). Andrea, his “rites of burial not perform’d,” is not permitted to ride with Charon and is sent, instead, to a series of judges. There is indecision over what is to be done with him in the underworld and so he ends up in Pluto’s court, the court of the underworld, where Andrea’s fate is given by Proserpine. The text states,

Whereat fair Proserpine began to smile,
And begg’d that only she might give my doom.
Pluto was pleas’d and seal’d it with a kiss.
Forthwith, Revenge, she rounded thee in th’ear,
And bade thee lead me through the gates of horn,
Where dreams have passage in the silent night.
No sooner had she spoke but we were here,
I wot not how, in twinkling of an eye. (1.1.78-85)

Revenge replies,

Then know, Andrea, that thou art arriv’d
Where thou shalt see the author of thy death,
Don Balthazar the prince of Portingale,
Depriv’d of life by Bel-imperia:
Here sit we down to see the mystery,
And serve for chorus in this tragedy. (1.1.86-90)

And he does just that: he sits down with Andrea and watches the mystery unfold along with the audience. Both Revenge and Andrea interrupt the play at the end of each act. These easily overlooked interruptions (which will be discussed in further detail shortly) would have had a profound effect on the audience viewing the play.

Before investigating these interruptions, however, we should consider the significance of Revenge indicating that he and Andrea will act as a chorus for the play that the audience is about to view. The term “chorus,” deriving from the Greek word *choros*, played an important role in classical Greek drama (Chorus). One of the main functions of the chorus in Greek drama was to mediate between the fictional world of the drama and the real world of the spectators (Chorus). Revenge taking on this choric role at the very beginning of the play makes the audience fully aware of that separation between the audience (the audience including the characters of the framing device, Revenge and Andrea, as well as themselves) and the actors (the characters in the interior play, the mystery Revenge is about to show).

Another aspect of Revenge’s declaration that might be examined is his use of the term “mystery.” Revenge says, “Here sit we down to see the mystery,” but he has already informed Andrea that Andrea’s murderer was Balthazar. So what exactly is the mystery? In his essay “The Influence of Spencer’s *Faerie Queene* on Kyd’s *Spanish Tragedy*” Frank Ardolino explains that the term “mystery” indicates that *The Spanish Tragedy* is a literary work marked with hidden meanings meant for its theatre audience to discover. He elaborates,

Kyd uses the basic distinction between ignorant and learned audiences as an ongoing pattern of dramatic irony by which he demonstrates to the theatre audience that it enjoys a detached perspective which enables it to understand the mystery. As Barry Adams has shown, Kyd presents various onstage audiences which are unaware of the meanings of the playlets they watch, but we in the theatre audience are shown how our awareness goes beyond theirs. For us, attending and interpreting the play is a process of initiation into its hidden meanings. (1)

For Ardolino, the “mystery” that Revenge alludes to might be addressing the theatre audience who, unlike himself, being removed from the play, have the capability to understand the hidden meanings (mysteries) within it.

The main hidden meaning (mystery) concerning the play is connected with its meaning as both a Spanish and an English tragedy; it is mysterious in the sense that it cannot be reduced to a single meaning. Returning to a consideration of Revenge and Andrea’s end of act interruptions will further prove this claim. The framing device of Revenge and Andrea not only establishes a separation between audience and actor at the very beginning of the play; by stating that they will “serve for chorus in this tragedy,” they also continue to remind the audience of this separation by interrupting the play at the end of each act. After Revenge’s line “Here sit we down to see the mystery,” the interior play, the one that the audience is being shown by Revenge, who along with Andrea, sits down and watches it with us, begins. Act I begins with the defeat of Portugal by Spain. What is found out in Act I is that Balthazar, who murdered Andrea in battle, has been captured by Horatio and Lorenzo and taken to the King of Spain, who proceeds to reward them. Hieronimo, Horatio’s father and the Knight Marshal of Spain, does not believe Lorenzo, the king’s nephew, deserves reward for Balthazar’s capture; he believes his son should receive all of the reward. He states,

But that I know your grace for just and wise,
And might seem partial in this difference,
Enforc’d by nature and by law of arms

My tongue should plead for young Horatio's right.
He hunted well that was a lion's death,
Not he that in a garment wore his skin:
So hares may pull dead lions by the beard. (1.2.166-72)

The King replies, "Content thee Marshal, thou shalt have no wrong, / And for thy sake thy son shall want no right. / Will both abide the censure of my doom?" (1.2.173-75). This is the beginning of Hieronimo's search for justice for his son, a search that continues to drive the plot of the interior play after Lorenzo and Balthazar murder Horatio in Act II.

Act I ends in a celebratory feast over the defeat of Portugal and the hopes that there will be peace between the two nations. Balthazar is a guest at this feast, which upsets Andrea. Andrea interrupts,

Come we for this from depth of underground,
To see him feast that gave me my death's wound?
These pleasant sights are sorrow to my soul,
Nothing but league, and love, and banqueting! (1.5.1-4)

Revenge replies,

Be still Andrea, ere we go from hence,
I'll turn their friendship into fell despite,
Their love to mortal hate, their day to night,
Their hope into despair, their peace to war,
Their joys to pain, their bliss to misery. (1.5.5-9)

Interruptions by Revenge and Andrea such as this force the audience to break away from the natural illusion of the interior play each time the choric characters interrupt it. And when that illusion is broken, the audience, instead of focusing on the plot of the interior play surrounding Hieronimo and his search for justice, then begins to focus on the exterior plot with Revenge showing Andrea the "mystery" of his death. So the audience viewing the play would on the one hand identify themselves as the audience viewing the interior play with the Hieronimo plot, whereas on the other hand, when Revenge and Andrea interrupt that play, they would be forced to identify themselves as a part of the same audience as Revenge and Andrea, for they are allowed to have the same knowledge as Revenge and Andrea. But the audience would also recognize that Revenge and Andrea are a part of the play as well, which would have them identifying themselves also as an audience who is completely separate from the frame of the play. What these interruptions do then is confuse the audience's sense of reality and leave them in a state of indeterminacy.

But the interruptions also do something else: they show the audience that Revenge exerts some control over what is happening in the interior play with the Hieronimo plot. Revenge is shown reassuring Andrea by claiming that he will do such things as "turn their friendship into fell despite," and "Their love to mortal hate, their day to night." If Revenge is controlling the plot of the interior play where Hieronimo is searching for justice for his son's murder, would this not distort the audience's view of where that justice is coming from? If Revenge is in control of what is going on in the play then is he the one who is in control of divvying out the justice that Hieronimo is searching for? Another good example of this problematic justice occurs in the interruption at the end of Act III. Andrea pleads,

Awake, Revenge, if love, as love hath had,
Have yet the power or prevalence in hell!
Hieronimo with Lorenzo is join'd in league
And intercepts our passage to revenge:
Awake, Revenge, or we are woe-begone!

Revenge replies,

Thus worldlings ground, what they have dream'd, upon.
Content thyself, Andrea; though I sleep,
Yet is my mood soliciting their souls:
Sufficeth thee that poor Hieronimo
Cannot forget his son Horatio.
Nor dies Revenge although he sleep awhile,
For in unquiet, quietness is feign'd,
And slumb'ring is a common worldly wile.
Behold, Andrea, for an instance how
Revenge hath slept, and then imagine thou
What 'tis to be subject to destiny. (3.15.13-28)

Here we have a sleeping Revenge being awakened by Andrea who wants him to help Hieronimo achieve revenge within the interior play. Up until this point Hieronimo has attempted to achieve justice on earth through the courts and in heaven, but to no avail, as he himself states with this speech:

Yet still tormented is my tortur'd soul
With broken sighs and restless passions,
That winged mount, and, hovering in the air,
Beat at the windows of the brightest heavens,
Soliciting for justice and revenge:
But they are plac'd in those empyreal heights
Where, countermur'd with walls of diamond,
I find the place impregnable, and they
Resist my woes, and give my words no way (3.7.10-18).

At this point in the play he is turning to revenge as a way of achieving justice for his son's death. But he feels that justice and revenge are silent and unresponsive. By having Revenge and Andrea interrupt at the end of the act, the audience is again left in the position of seeing justice and revenge as both absent and present. Revenge has the supernatural power here to control the outcome of Hieronimo's fate. The commentary between Revenge and Andrea provides an understanding that Revenge is not only showing the "mystery" to Andrea, but that he has a hand in it as well. Revenge says, "Thus worldlings ground, what they have dream'd, upon. / Content thyself, Andrea; though I sleep, / Yet is my mood soliciting their souls." It is as if even though he is sleeping his mood is somehow affecting the characters in the play. If he has even that amount of control over the characters in the play what does that say about his character? How much control does he have over Hieronimo's attempt to achieve justice? And what does it mean if Revenge is the one controlling justice in the play? Is there no justice in the world of the play, only revenge? And if the audience's sense of reality has already been confused would they not identify with this sense that there is no justice to be found?

Would the English audience apply this fundamental sense of injustice to themselves, or would they conclude that this is merely a reflection on Spain, taking a patriotic view of the play and viewing England as superior to Spain? In terms of the setting of the play, it could be perceived in these patriotic terms. But if one looks at the "hidden meanings" of the play as suggested by Revenge's use of the term "mystery," then it could also be viewed as Ian McAdam suggests, as taking a "subversive stance toward (English) society itself" (33) through its focus on contemporary social tensions.

In fact, if one looks at the very end of the play, after Hieronimo's revenge, it is not Hieronimo who gets the last word in the play (he actually bites his own tongue out, refusing to speak

after the King tries to force him to tell why he did all of this). Instead, it is a conversation between Revenge and Andrea that ends the play, in which Andrea asks Revenge if he (Andrea) can assign all the play characters to various eternal rewards and punishments. While Andrea allots their fates, it is Revenge who is in control here. He has all of the power, and the audience being thus removed from the interior play would be aware of this. Although it is still a part of the play, the confused sense of reality felt by the audience would have them identifying with the idea that in this play there is no justice, only revenge, and this would in turn have them questioning the world that they live in, making it both an English and a Spanish tragedy. Ending the play in the realm of the supernatural underscores the play's "mystery" as a work that is simultaneously patriotic and subversive and which consequently makes the (English) audience's "naturally" held assumptions about Spain and about their own society seem potentially unnatural.

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Our World Flipped Upside Down

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Julie is a junior majoring in Accounting. She wrote this paper in the fall of 2008 for her Intermediate Accounting III honors class. She would like to thank Dr. Patricia Bancroft for all the support and guidance she has given her.

During the past decade, there have been increasing discussions between the Financial Accounting Standard Board (FASB) and the International Accounting Standard Board (IASB) regarding the harmonization of United States Generally Accepted Accounting Principles (US GAAP) and International Financial Reporting Standards (IFRS). What used to be talk is now becoming a reality. On October 29, 2002 FASB and the International Accounting Standards Board (IASB) released the Memorandum of Understanding, which announced the significant steps that are being taken to converge the US and the International Accounting Standards. There are hopes for some parts of the convergence to be finalized by 2011, but in some areas it is still to be determined. This pending change in the United States (US) raises many important questions and concerns for companies currently using US GAAP for financial reporting. What are the differences between US GAAP and the IFRS? How will this change affect US firms? Many accounting professionals are not familiar with the differences between US GAAP and IFRS, and firms are starting to struggle with the technical and system changes needed to adopt IFRS. In addition, what are the implications to current accounting students?

The International Accounting Standards Board is a non-profit organization, whose objective is to develop a “single set of high quality, understandable, and enforceable global accounting standards” (Blanchette, 2007). Currently, over 100 countries have chosen IASB as their governing accounting board or are participating in becoming part of the IASB. Professionals and students alike may not be aware that the IASB is not as foreign to the US as many may think. The US has been heavily involved with the creation of the IASB and the International Accounting Standards Committee. The US has helped with the development of the harmonization between the IASB and FASB, and the development of the International Auditing and Assurance Standards Boards (Barth, 2008). Currently, foreign companies listed on the US market may use IFRS or US GAAP. However, US companies must use US GAAP for financial reporting in the US and IFRS in other countries. This is one example of the additional costs for US companies relating to this problem.

This paper will discuss the main differences between the US GAAP and IFRS. It will include whether the harmonization is a beneficial change for the US firms, the affects of this conversion on the accounting curricula in higher education and impact on foreign analysts. Lastly, it will compare the

US convergence to the Canadian adoption. Overall, this paper will give the reader a better understanding of what will be a historic event in the financial world.

US GAAP vs. IFRS

The harmonization of US GAAP to IFRS is a historical step in the accounting profession. “The result of truly global financial reporting would be one language of business, which will enhance comparability of accounting information.” (Barth, 2008). If all businesses are reporting with the same information, it will give better information to investors and will improve their ability to compare with others. The IASB and the FASB both have a conceptual framework, but differ in theory. US GAAP is rules based and IFRS is principles based which creates differences in the financial statements. The differences in their standards are due to the different technical requirements each board requires. For example, the US GAAP takes the historical cost into account when figuring out an asset’s value. However IFRS has eliminated the historical cost and have values come from the present value (Beuren, Hein, & Klann, 2008). Other differences are seen in accounting for intangible assets and inventory. For example, when accounting for intangible assets IFRS allows re-evaluation of these assets, while US GAAP does not. And with regard to valuing inventory, US GAAP allows the Average Cost method, the First in First out method (FIFO), and the Last in First Out method (LIFO) which was eliminated in revision IAS 2 in 2003. (Beuren, Hein, & Klann, 2008).

One of the more significant issues indirectly affects the financial statements; it’s a conceptual difference. FASB focuses more on rules and has stricter regulations for reporting certain situations. IASB on the other hand, allows more interpretation for how a rule can be depicted. This will be one of the greatest challenges for US firms to attempt to understand.

Arguments for Harmonization

Many accounting professionals have supported harmonization of US GAAP and IFRS. “Harmonization helps reduce information asymmetry, lowers the cost of capital, and increases capital flow across borders” (Bae, Tan, Welker, 2008). Information asymmetry comes from the large number of individual accounting standards in US GAAP. US GAAP has stricter rules for reporting information in comparison to IASB, so many believe it is harder for analysts to analyze information and make a proper forecast on a company which uses IFRS. Harmonization will allow familiarization of IFRS so investors have time to adjust to the changes. For harmonization to actually work it must be enforced by the states that are using it or else standards become lax and forecasts become inaccurate (Bae, Tan Welker, 2008).

There are two ways to harmonize; adoption and convergence. The difference between adoption and convergence is that countries that adopt make few modifications before setting a date to completely change. For an example, Canada made January 1, 2011 their date that all firms would adopt the IFRS. Other countries that took the adoption route are Russia, Australia, and the European Union (Barth, 2008).

The US has chosen the convergence approach. Countries that decide to converge are part of a more drawn out process that makes continual comprises until the standards become the same. The US is the leading prospect using this approach. Ever since the Norwalk Agreement, which stated the IASB and FASB would work together to arrive at the same answers in the same language to different technical questions that arise, the US has been continually working to narrow the gap with the IASB. Other countries that would use convergence are China and Japan (Barth, 2008).

Arguments against Harmonization

In order to develop one set of standards for the world, one must consider the major factors involved in developing accounting standards and their origination. Many of our standards come from each country’s history and pre-existing frameworks that have evolved into the standards we have today around the world. These factors call into question: can all countries live by the same standards? The answer would be no. Certain countries need their standards for political, cultural or ethnic reasons. Another issue is cost. Changing the accounting standards for a firm will be a very costly procedure because of the training that’ll need to be done to comply with the new standards, the required changes in systems and technology (Bae, Tan, Welker, 2008).

As mentioned before all countries are not run the same. The political pressures that can arise can cause major issues within an accounting board. For example, the IASB and FASB were going to issue a standard that made “recognition of expenses related to share base payments” mandatory, but FASB wanted to hold off on releasing it because of political pressures (Barth, 2008). Another factor is that countries have different priorities. Some accounting boards may think on part of a financial statement is more important than another and will make more changes to that part as opposed to another board that thinks a different area is more important.

The last major difference goes back to what was mentioned before. The different styles of standards create the most problem. FASB is a much more detailed and rule oriented board, while IASB is a judgment based board. This is the greatest argument against harmonization because the US regulations have made

it easy to follow financial statements and is a black and white system of reporting financial information. The IASB is judgment based, which means that there are different ways that you can arrive at the same answer. This difference scares a lot of accountants because it is a whole new look at figuring out information. Also, this allows the argument if you are trying to have everything under one board to make accounting information one language, then if you allow different ways of interpreting concepts then that allows different languages to be used to express results. This will create divergence not convergence to reporting financial statements (Barth, 2008).

US Steps Taken to Convert

Currently the US is taking six key steps to help make the convergence with IASB a smoother process. The first steps are joint projects between FASB and IASB. These projects involve joint boards working simultaneously to complete projects in a timely manner. The two major projects being worked on right now involve revenue recognition and business combinations (FASB, 2008). The second step is a short term project involving the IASB and FASB working close together. This project's objective is to see if it is manageable to take the differences between US GAAP and IFRS and see if it is possible to make a "high-quality solution" in a short amount of time. This project will help determined the difficulties that the US will be faced with their attempts of conversion to IASB (FASB, 2008).

The third step the US has taken to help accelerate the process is hiring an IASB member to work in the FASB offices. The IASB member, James J. Leisenring, was a former FASB board member. Now he is acting as a liaison between IASB and FASB. He is a living model of what the daily life will be like in the IASB (FASB, 2008). The fourth step being taken is monitoring IASB projects. FASB is reviewing projects and determining which ones are of interest to them and overseeing the IASB process. By monitoring this process, it is allowing FASB to get a behind the scenes look at what processes the IASB takes when dealing with projects. This will serve as a model for FASB to follow in the future (FASB, 2008). The fifth element of the convergence is a research project on the convergence to IASB. FASB is looking at all of the difference between US GAAP and IRFS. By doing this FASB is ranking the difference in order of importance and finding out solutions to each of the problems. Some of the common problems that have been discussed earlier in this paper include recognition, presentation, measurement, and disclosure of different accounting transactions (FASB, 2008). The research project will provide a better understand of the difficulties which are involved in a massive transformation. The final step of the transformation is, "Explicit consideration of convergence potential in all Board agenda decisions" (FASB,

2008). This means that projects FASB is considering regarding new standards would need to comply with IASB. In addition, they continue to focus on agendas that would increase their convergence worldwide and that comply with the standard setters that have been put in place. These are the major steps that will help US firms have an easier transition into the IASB frontier.

US Academics

Whether individuals are for or against the convergence between FASB and IASB, it is inevitable that it will happen. This brings about the question of academics in the United States. Will everything accounting students learn between now and the convergence date become obsolete? How should professors prepare for this phenomenon? It all goes back to the basics. The most important element is the conceptual framework. Concepts change less often than standards, and with this knowledge students will be better prepared for the inevitable. Some colleges and universities already offer classes on global financial reporting, but now need to implement it throughout their curriculum. Faculty need to incorporate these differences in their course and assessment process to ensure students understand the differences. Since IASB is more principle based than rule based, faculty could implement each concept. These changes are especially necessary for accounting students currently in college because they are the future professionals who will be expected to have knowledge of the global issues in the next few years.

Even though the change is from US GAAP to IFRS, students should also be aware of economic concepts and issues. The study of economics gives students a different view of financial information. It allows them to understand how the financial markets work and how to value money in different terms. The curriculum at Bridgewater State College requires students to take microeconomics and macroeconomics. Both classes explain markets and how they can differ between different countries. Researchers also believe this is important. "Students need to understand that financial reporting is not about bookkeeping-it is about providing information to outside providers of capital" (Barth 2008).

Key Concepts That May Need Review

Research has shown that many accounting students have been exposed to the key accounting concepts and terms, but many of them do not actually understand them fully. One example is the matching principle. Many believe that the matching principle is just revenues and expenses that are matched up with assets or liabilities. This is untrue and it is stated as "matching concept in the conceptual framework does not allow the recognition of items in the statement of financial position that

do not meet the definition of assets or liabilities” (Barth, 2008). For something to be considered an asset or a liability it must be a future economic benefit or a future economic sacrifice. By just saying that the matching principle is for expenses and revenues, many people will “match” them up with items that are not assets or liabilities (Barth, 2008).

Another concept involves terminology. When learning about relevance and reliability, some students will use the term *precision*, which is not what reliability stands for at all. When a financial statement is precise it could mean that it is what the company wants the numbers to look like. It does not include correction of errors. That is why the term that should always be used when talking about reliability is *faithful representation*. By using this term, the student is showing that to the best of their knowledge there are no biases or errors in their report. Also, it shows that it corresponds with the current economic state (Barth, 2008).

The last concept for review is the use of conservatism. The whole use of the accounting world is to have an unbiased account of financial transactions. The word conservatism in itself is stating there is a bias in the transactions because there is a reserve that is taking place. That is why accountants should take prudence, not conserving, when making estimates. The framework says, “the exercise of prudence is the inclusion of a degree of caution in the exercise of the judgments needed in making the estimates required under conditions of uncertainty, so that assets or income are not overstated and liabilities or expenses are not understated”(Barth, 2008). By taking prudence, companies will be able to stay neutral because items will not be over or understated. Also, financial statements will be more reliable because they won't be obscured by misrepresented numbers (Barth, 2008).

Valuation Theory

One of the greatest changes that students will see is in the valuation theory. With FASB, when an asset is valued, it always involves the historical cost. When using the IFRS, they eliminate historical cost and only use the present value of an asset. One reason they use fair value is because the value is more relevant to the current economy. This value is more current which makes it more reliable especially when predicting future cash flows (Barth, 2008). Along with being reliable, fair value is also better for faithful representation because it uses the current value, which will make assets and liabilities more accurate. Lastly, since fair value is from the current period, it will make comparability between financial statements more accurate because they will all be done from a certain time period. These are the more major issues that students need to be aware of when learning the rules of the IFRS.

Foreign Analysts

Some of the greatest challenges that pose foreign analysts are how they collect their data. Many analysts analyze countries that are similar to their country because of the familiarity between their regulations and their financial statements. When Bae, Tan, Welker (2008) started to do research for their paper, they found out that accuracy in forecasting increased with firms using IASB. Another part of their research questioned the accuracy in comparable data when the countries being compared are of different stature. “Analysts with superior ability and resources consistently outperform other analysts in common law countries, where market forces provide incentives for performance, than in civil law countries, where market-based incentives are less effective” (Bae, Tan, Welker, 2008). These findings show that even with all countries on the same playing field, some will still outperform others when being compared. Even though incentive based analysts perform better, this can also put them at risk of being unethical. Sometimes their forecasts can be misguided because their incentive can cause them to either manipulate or withhold information from shareholders. These issues still arise whether it is ruled under GAAP or IASB.

Canada's Changes

During this transition to IFRS, if FASB experiences any issues, they can analyze Canada's transition. Similar to US GAAP, Canadian GAAP has already started to converge to the IASB. At the moment, only public companies are participating in this change. Other organizations will not have to implement the full affects of the IFRS (Blanchette, 2007). The key differences can be seen through the details in the Canadian GAAP system. The main differences between the IASB and Canadian GAAP is visible in impairments, financial asset de-recognition, and investment properties (Martin, Mezon, Forristal, Labelle, Radcliffe, GAA, 2008). As of right now, the finalized convergence date for Canadian GAAP to IASB is in 2011. At the moment, they have been working on different projects that have full implementation of IFRS, this way they can start their convergence process. The transformation began with trying to separate the differences between their GAAP and the IASB. This procedure has helped lubricate their transition. By 2011 though, any differences will have to be extinguished because the adoption of IFRS will finally be established (Martin, Mezon, Forristal, Labelle, Radcliffe, GAA, 2008).

IFRS 1

The IFRS 1 is a rule created to help countries that are converging into the IFRS to have special standards set in place to make their transition more comfortable. The major requirement for this rule is that the country must use the IASB for one year before it can use the IFRS1. By doing this, the company

will be providing financial statements that can be comparable with future statements. Before this standard was put in place, the Securities and Exchange Commission (SEC) required that companies needed to have two years of comparative figures to be accepted. But as seen before by Australia and the European Union, they were able to get an exemption because they were becoming part of the IASB (Martin, Mezon, Forristal, Labelle, Radcliffe, GAA, 2008).

Potential Problems

Similar to the United States, Canada is trying to forecast any potential problems that may be caused by the transition to IFRS. One of the forecasted problems involves the affect a drastic change in an IFRS Standard would have on a recently converted Canadian firm. Canada does not want to adopt the International Accounting Standards and then within a year have the standards change. It would be asking Canadian firms to commit to one new change and then immediately commit to another new change. Another issue involves standards that do not have a corresponding IASB standard. Once they become part of the IASB, they will need to put in a request to have the IASB make a standard that will include similarities to Canada's old standard. They would need to take a similar approach for any non-profit organization, which tend to have more unique standards (Martin, Mezon, Forristal, Labelle, Radcliffe, GAA, 2008).

Steps to Canadian Conversion

Canadian GAAP is taking a similar approach to gradually accepting the inevitable transformation. They are involved in projects with the IASB that will help smooth their conversion. With this conversion, Canada has increased its need for qualified accountants. To be considered qualified, one must be able to understand the standards and be able to explain them to nonfinancial leaders, someone that can put the technical terms into plain English and help advise these companies through this transition period. The US SEC is making the transition easier for Canada by eliminating their need to convert financial Statements to U.S. GAAP. Now, Canada can focus solely on the IFRS conversion. (Blanchette, 2007.)

Canadian GAAP vs. IFRS

Some of the major physical difference effecting Canadian GAAP is the overall presentation of their financial statement. Similar to US GAAP, Canadian GAAP arranges their balance sheet by liquidity. IFRS allows this method to be used, but the majority of countries record their financial statements in the reverse order. This means their financial statements would have non-liquid assets first and its equity before its liabilities (Blanchette, 2007). Also, when reporting cash flows, the IFRS has a more lenient view on recording certain transactions. It

allows interest received and dividends received to be recorded in either financing or operating activities. It allows different ways to arrive at the same information (Blanchette, 2007).

Similar to US GAAP, Canadian GAAP has a change in its method of valuating assets. Canadian GAAP uses historic cost to arrive at the current value of an asset, but the IFRS allows fair value. It also allows reevaluation on intangible assets, which is not allowed in Canadian GAAP. Canada has already made more of an effort in complying with this rule by using fair value to evaluate many of its assets. One of Canada's predicaments with this rule involves cost transactions from held-for-trading securities. Under Canadian GAAP, they can choose whether or not to expense or capitalize these items, while under IFRS they must include the original cost of the security (Blanchette, 2007). Another major difference can be seen in the revenue section of the income statement. Both US GAAP and Canadian GAAP, currently allow the completed contract method, which allows a company to delay reporting revenue until the contract is completed. Under IFRS, the completed contract method isn't allowed at all. This regulation is going to be a major issue with many construction companies that use this method, and will create a new comparability issue for these companies to attempt to forecast through (Blanchette, 2007). There are many similarities between Canadian GAAP and US GAAP and the changes these two countries are going to have to make to complete their transformations.

Conclusion

In conclusion, this is a very exciting time to be part of the financial world. The US is moving from an independent approach to a new global view. There are many different aspects that are affected by this major change. First, there are the physical differences between their reporting standards and regulations. Then, we see the conceptual differences between the United States Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB). FASB is more rule oriented, which paves a road for strict guidelines and robotic techniques for recording transactions. On the other hand, the IASB allows firms to use different concepts that fit their company to arrive at the same answer. US accounting firms should not fear this new phenomenon, but should embrace their ability to see accounting on a whole new playing field. Companies step outside their comfort zones and see the full value of these concepts and the opportunity to use all the accounting tools that they have available to them. This paper highlighted some of the steps that both US GAAP and Canadian GAAP were taking to become part of the IASB. These countries are easily comparable because of their similar accounting systems. The timing for each of their conversions is essential for each country to learn from each other's adjustments

to the new standards and learn from the difficulties or setbacks the other country has faced.

Also, students should be learning from the difficulties in converging IASB and FASB. They should understand the importance of fundamentals and understanding the basic concepts. The students of today are going to be the masters of this historical transformation. Professors need to take this into account. They need to help build strong conceptual backgrounds and start blending IFRS into their current curriculum. Also, students need to stay alert to the constantly changing regulations and standards, as the US moves towards IASB. The economics behind these changes are more important than ever before. Students need to make a stronger commitment to their economic studies to be able to excel in this change. Lastly, the reader should have a better understanding of foreign analysts, the importance of uniform information, and the factors that can cause differing information in forecasting. Overall, the reader will maintain an understanding of the United States' current situation involving the convergence to International Accounting Standards.

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The Fidelity of the Fruit: A Psychology of Adam's Fall in Milton's *Paradise Lost*.

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From his slack hand the Garland wreath'd for Eve
Down dropp'd, and all the faded Roses shed:
Speechless he stood and pale. (9.892-94)

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The passage above provides an apt image, with all its symbolic overtones, of Adam's reaction to Eve's mortal transgression—that is, her eating from the Forbidden Tree. The circular nature of the garland signifies perfection and permanence; the roses convey the delicacy, vitality, and bloom of life. The garland not only represents the perfection of a paradisaical world, but the union between Adam and Eve. But Eve's careless and wanton act shatters such a union. This leaves Adam with a choice: to eat the fruit thereby upholding his bond with and love for Eve (an act in defiance of God), or to walk away and shoulder the pangs of a broken heart and the prospect of a solitary future. He chooses the former. Many critics have argued—and will no doubt continue to argue—that slavish and blind passion prompted Adam to eat from the Tree. But this is not the case. Adam acts out of love. He sacrifices himself out of love, a sacrifice that parallels that of the Son (*i.e.* Jesus) in Book III of the epic.

The charge against Adam is almost unanimous: he acts out of uxoriousness and idolatry. Such a charge invokes the medieval notion of lady worship shown in the romances of Chrétien. Take Erec and Enide as an example. After winning Enide's hand in marriage, Erec grows complacent and neglects his duties as a knight. He relegates himself to his room and satisfies his desire for his lady. He worships her above all things, even God. In light of this medieval tradition, it is understandable—if not expected—that critics would rebuke Adam for falling into similar excessive fondness for Eve. C. S. Lewis bluntly states: "Adam fell by uxoriousness" (454). Another critic, Northrop Frye, in his essay "Children of God and Nature," claims that "Milton places the supremacy of Eve over God at the central point of the fall itself" (63). While Lewis claims that Adam's fault lies in his uxoriousness, Frye adds to this a charge of idolatry.

The argument that Adam fell because of uxoriousness or idolatry, however, depends on a few assumptions: first, that Adam was motivated by lust and passion (in accordance with the medieval convention); and, second, that, in eating from the Forbidden Tree, Adam sought to supplant the image of God with that of Eve. Both assumptions prove tenuous. It is particularly important to consider the nature and dynamic of Adam and Eve's relationship: it's primarily contemplative, not appetitive. Here we turn to Book VIII.

Even though Adam is given dominion over the earth and all its inhabiting animals, he is struck by a certain disparity. He notices that each animal has its own corresponding partner. Sensing his solitary state, Adam questions God's divine framework:

Among unequals what society
Can sort, what harmony or true delight?
Which must be mutual, in proportion due
Giv'n and received; but in disparity (8.383-86)

Adam seeks a partner that compliments his own nature. Animals cannot assume such a role because they lack that which is essential to human beings: a rational faculty. Adam seeks a partner who can actualize his fullest potential as a rational being. Here Milton situates Adam and Eve's relationship on an intellectual basis, where both can share in each other's thoughts and empirical discoveries. Milton stresses that Adam and Eve share a contemplative bond, not a hedonistic one.

This emphasis on a contemplative union is consistent with Milton's *Doctrine and Discipline of Divorce*. Throughout the work, Milton attacks various biblical interpretations that condemn divorce as a sin against God. Milton takes a radical position on the issue, arguing that divorce is necessary to maintain the integrity of marriage itself. He was keenly aware that many marriages, once a symbol of happiness and spiritual unification, are likely to turn into self-induced and inescapable tyrannies. In the process of building his argument, Milton explains the purpose and goals of a good marriage:

God in the first ordaining of marriage taught us to what end he did it, in words expressly implying that apt and cheerful conversation of man with woman, to comfort and refresh him against the evil of solitary life, not mentioning the purpose of generation till afterwards, as being but a secondary end in dignity, though not in necessity. (703)

Given this marital sketch, the parallels of Adam and Eve's relationship are quite obvious. Adam seeks the creation of Eve to remedy his state of solitude and to provide that "cheerful conversation of man with woman." Milton goes so far as to minimize the importance of sexuality and physical desire as that which is necessary for procreation, but on a baser level than the intellect. Even though Adam and Eve do partake in sexual desire (which is considered pure and innocent in a prelapsarian world), Milton claims that their relationship is primarily based on the intellect.

Indeed, Adam and Eve's relationship often assumes a Neo-Platonic element. Milton often makes reference to the graces

emanated from Eve. On such graces, Adam describes: "Grace was in all her eyes, Heav'n in her Eye / In every gesture dignity and love. / I overjoyed could not forbear aloud" (8.488-90). Here Milton infuses Eve with similar kind of love found in Plato's Symposium. According to this tradition, true love is found through the contemplation of the Form of Beauty, which is conveyed by a lover. True love, accordingly, is the transcendence of the physical via the contemplation of the Form of Beauty. When Adam gazes at Eve, he is struck by her transcendent beauty, a beauty that allows him to glimpse the divine. Purvis E. Boyette, tracing these Neo-Platonic graces in Milton's work, points out that "the Graces [of Eve] were for the Neoplatonists the inclusive symbol of love" ("Milton's Eve and the Neoplatonic Graces" 342). This allows for a couple of inferences to be made: first, that Milton wishes to posture Adam and Eve's marriage as being contemplative and divine in essence; and second, that their love is a vehicle of the divine essence (i.e. an emanation of the divine).

Therefore, in light of these considerations, the critic who argues that Adam acted under uxoriousness or idolatry (or both) must shoulder the burden of proof. Frye buttresses his argument by pointing to one particular passage spoken by Adam: "All higher knowledge in [Eve's] presence falls / Degraded, Wisdom in discourse with her / Loses discount'nanc't, and like folly shows" (8.551-53). This passage captures Adam's first brush with passion. He tells of the debasing power of lust. Afterwards, Raphael rebuffs Adam's folly and tells him to direct his gaze towards the heavens away from the physical realm. While this passage may hint at the fact that Adam's relationship with Eve is not impervious to passionate impulses, it certainly does not warrant the conclusion that Adam *acted* out of passion and weakness when eating from the Forbidden Tree. Such a claim is a gross *non-sequitur*. Even so, the passage still forces a closer reading of the text.

When Adam stumbles upon Eve in the garden, he finds her standing before the Forbidden Tree, a partially eaten fruit in her hand and a squirm of guilt in her eyes. Adam drops the garland. He realizes that life can no longer continue as it did. He questions: "How art thou lost, how on a sudden lost, / Defac't, deflow'r'd, and now to Death devote?" (9.900-01) Adam seems to not only question divine justice, in light of Eve's inexplicable act, but also realizes that he too is lost: "And mee with thee hath ruined" (9.906). The critics—such as Lewis and Frye—maintain that Adam is overcome by his blind and passion for Eve. But such a position is not supported by the text itself. When Adam resolves to incur the same plight as Eve, he makes no appeal to pity or passion: "How can I live without thee, how forgo / Thy sweet Converse and Love so dearly join'd, / To live again in these wild Woods forlorn?" (9.908-10)

These lines underscore the unemotional resolve of Adam. Passion or lust does not cloud his judgment. Instead, Adam *rationaly* appeals to that which constitutes a good marriage. He first laments an intellectual loss—"Thy sweet Converse and Love so dearly join'd"—and a chasm between the spiritual and physical union between the two. Adam then mourns the possibility of solitude, the state in which he was first created. Many readers are apt to label such a response as uxoriousness. But this is to mistake Adam's action with its real motive: love. We notice that Adam often refers to a physical and spiritual bond between himself and Eve: "The Bond of Nature draw me to my own, / My own in thee, for what thou art is mine" and "I feel the Link of Nature draw me" (9.956-57, 914). Here Adam grounds his motive in his natural and spiritual bond with Eve. Eve is of Adam's own flesh and of the same mind. In turning away from Eve, Adam must turn away from himself. Physical lust or passion has little to do with Adam's decision to eat from the Forbidden Tree.

There is a weakness, however, in any argument that wishes to assign love as Adam's motive in the fall. This involves the nature of love in a theological framework: namely, how can love produce sin. In other words, how can something pure and good result in something vile and base? Saint Augustine argues that the essence of love is found in God. Sin is the privation of God. In his *Confessions*, Augustine writes: "So the soul commits fornication when she turns away from you and tries to find outside you things which, unless she returns to you, cannot be found in their true and pure state" (2.6). Augustine maintains that love cannot produce that which contradicts God. When Adam bites from the fruit, an act of love and mercy, it is an act that removes him from God. In an Augustinian framework, Adam could not have acted out of love since such an act would not have resulted in the privation of goodness; a true act of love would have turned Adam *towards* God. Therefore, when we assign love as Adam's motive, we are confronted with some difficult questions: Can an act of love produce a consequence contrary to God (since love is God)? Does the nature of an action bear on the motive of the action?

There is a way to parry this objection; it requires that we acknowledge Milton's dichotomy of love. Milton divides love into two realms: the spiritual and the physical. Many readers may question this division, claiming that such physical love cannot exist in a prelapsarian world. But such a claim overlooks the ontological disunity created by Eve's fall. When Adam stumbles on Eve in the garden, she has already fallen. She no longer shoots forth her rays of grace. She has been corrupted and debased; she has descended into the physical realm. But Adam remains unfallen. Adam still maintains his native element; and although Eve lacks her spiritual essence—

her divinity—she still maintains that physical "Link of Nature" with Adam (9.914). Adam and Eve still maintain their oneness of flesh. The salvation of their union, of their marriage, depends on Adam's willingness to incur sin. Thus Adam's voluntary fall is the greatest proclamation of love (albeit one based on the physical).

Let us consider the next charge before us: idolatry. Any argument to the effect that Adam acted under idolatry (i.e. that he worshipped Eve instead of God) stands on a brittle foundation. After the fall, God chastises Adam: "Was shee they God, that her thou didst obey" (10.145). Milton seems to have caught himself in a briar patch. Idolatry implies the supplanting of God. Eve commits this heresy. After biting from the fruit, she then prostrates herself before the Forbidden Tree and worships it. Here she pledges allegiance to an inferior substitute; she dismisses the power of God. As Lewis caustically remarks: she "worships a vegetable" (454). Adam does no such thing. In fact, his complicity in the fall is quite interesting because he understands the dire consequences. He realizes that, in eating from the Forbidden Tree, he will subject himself to whatever punishment God deems fit. Such rationalization is an affirmation of the supremacy of God. He does not seek to replace God, as both Eve and Satan do, but rather he simply disobeys Him.

Milton portrays Adam's fall as a noble sacrifice of love. Elliott A. White, in his essay "Adam's Motive," explains that Milton intended to present Adam as a noble hero who acted out of love and whose only error was "letting his feelings overmaster him to the point of making him do that sin which God had expressly forbidden" (230). In this context of love, there is a certain necessity in Adam's fall. When Adam resolves to join Eve in her transgression, Eve states: "This happy trial of Thy Love, which else / So eminently never had been known" (9.975-76). These lines are particularly important. Here Milton suggests that a necessary condition of love is a sacrifice or trial. Love must be tested and found legitimate through voluntary sacrifice. Thus, Adam's sacrifice consummates his love for Eve. While Adam is often viewed as the transgressor of God, we can also view him in another light: a heroic martyr.

Indeed, Adam's sacrifice mirrors the Son's in Book III. After foretelling the fall of Adam and Eve, God explains that humanity can be redeemed but only at the cost of another's sacrifice. A debt must be paid. Addressing the heavenly angels, God seeks a willing candidate: "Say heav'nly Powers, where shall we find such love, / Which of ye will be mortal to redeem / Mans mortal crime, and just th' unjust save, / Dwells in all Heaven so dear?" (3.212-16) While the rest of the angels stand mute, the Son volunteers:

Behold mee then, mee for him, life for life
I offer, on mee, let thine anger fall;
Account mee man; I for his sake will leave
Thy bosom, and his glory next to thee
Freely put off, and for him lastly die
Well pleas'd on me let Death wretch all his rage.
(3.236-41)

The Son incurs the sin of man, thereby providing a model of redemption and a means of salvation. The nature of such a sacrifice is particularly important. The Son's voluntary acceptance of such a sacrifice speaks to a motive of love and mercy for humanity. As God in the above passage indicates, such an act requires an enormous reserve of love. Moreover, this act of love entails an ontological descent—"I for his sake will leave / Thy bosom"—where the Son will assume corporeal existence.

In light of this, Adam's fall acquires a more heroic posture due to its parallels with the Son's sacrifice. For instance, we notice that both the Son and Adam proclaim their love through sacrifice. Each accepts that their act will result in an ontological descent: humanity for the Son, mortality for Adam. Their actions are voluntary. Unlike Eve who was beguiled by Satan (which does not make her any less culpable) Adam approaches his fall aware of what will befall him if he chooses to eat from the tree. In spite of such clarity of vision, Adam chooses to sacrifice his state of purity for the prospect of companionship and love. One passage in particular, spoken by Eve to Adam, captures the image of Adam as a heroic martyr, that is, as a Jesus figure:

Remarkably so late of thy so true,
So faithful Love, unequal'd; but I feel
Far otherwise th' event, not Death, but Life
Augmented, op'n'd Eyes, new Hopes, new Joys,
Taste so Divine, that what of sweet before
Hath toucht my sense (9.982-87)

Here Eve explains that Adam's resolution to eat the fruit provides her a certain solace amidst her fallen state. She no longer thinks on death, but on the prospect of a future. Adam becomes symbolic in many ways. Not unlike the Son, Adam represents that lost paradise in which Eve—and humanity in general—once flourished. Adam is a vestige of paradise and happiness that Eve now seeks. Whereas the Son stands as the sole redeemer of humanity, Adam stands as the sole redeemer of Eve. His sacrifice replaces despair with hope and sadness with joy. In essence, Adam's fall ensures a happier future for Eve.

Indeed, Adam's fall is a cause for celebration in the context of Christian history. Christian history is linear in nature, where the fall and crucifixion are but singular moments—crucial moments nevertheless—with a grander scheme as its end: namely, the second coming of Jesus and the founding of the City of God. There is a proleptic nature to Christian events. The fall of Adam, while often seen as a glaring failure in humanity, allows for the unfolding of time according to Christian Doctrine. In "On the Mourning of Christ's Nativity," Milton celebrates the procession of time and the coming of future. The birth of Christ reinforces the concept of order and purpose in a divinely created world. This is suggested by the many references to the music of the spheres (bk. 8). The sublunary world and celestial spheres come into alignment and spin in harmony, providing a divine melody of hope and peace. The same anticipation and progression of history is found in Adam's fall. It marks an initiation of the many events to come—the administering of grace, the coming of Christ, the Crucifixion, and the ascension to the City of God. Adam's fall is both a pause for despair and a cause for hope.

Milton's *Paradise Lost* shows Adam as someone who sacrifices himself in the name of love. He is a heroic martyr. He does not, as many critics would like us to believe, fall by uxoriousness. As the text clearly indicates, Adam and Eve share a union that is founded on contemplation and companionship. Both are physical and spiritual composites of each other. In his sacrifice, Adam not only affirms the supremacy of God, but the legitimacy of a physical love that is just as real and enthralling as spiritual love. Adam does not fall by idolatry either: such a claim depends on evidence that supports the contention that Adam dismisses or supplants God—evidence that is not found within the epic. Adam reacted to Eve's folly as any husband would (or should): with love and compassion and mercy. His error does not lie as much in his motive as it does in his disobedience. His love may have misguided him, but it remains a point of debate whether his love is any less pure because of it.

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1st and 2nd Year Work

THE UNDERGRADUATE REVIEW
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The Safety of a Nation Versus The Rights of Suspected Terrorists

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On January twenty-second, 2009, newly elected President Barack Obama issued an executive order requiring the detention center holding alleged terrorists at Guantanamo Bay to be closed within one year. This proposal may potentially close a chapter on one of America's most controversial efforts to combat terrorism. Throughout the Bush Administration's "War on Terror" numerous laws were passed that gave the President and the Department of Defense power to determine who was an enemy combatant and detain indefinitely those they decided fit that profile. The issue of holding people the military deems a threat without giving them a traditional trial continues to be fraught with controversy. Like many facets of the criminal justice system, the debate over the legality of detaining suspected terrorists is divided between the concern for public safety and public freedom. By giving the executive branch of our government virtually unlimited power in this area, did we open the door for more of our rights to be taken away? Was this unequal distribution of power necessary to protect our nation from rampant terrorism and the hazard it poses for our nation?

Detaining suspects indefinitely is illegal according to the Constitution as well as international human rights laws, and the government should not have the power to do it. The standards by which suspected terrorists are judged are different based on the citizenship of the detainee. If the suspect is of American citizenship, this is illegal under the Non-Detention Act. This act states that, "No citizen shall be imprisoned or otherwise detained by the United States except pursuant to an act of Congress" (Limitation on Detention; Control of Prisons, 2007, para. 1). This view is supported by the Supreme Court's 2004 decision in *Hamdi v. Rumsfeld*, when the Supreme Court ruled that Hamdi, an American citizen, should at least be allowed to contest the grounds on which he was detained. Justice Sandra Day O'Connor "wrote that although Congress authorized Hamdi's detention, Fifth Amendment due process guarantees give a citizen held in the United States as an enemy combatant the right to contest that detention before a neutral decisionmaker" (The Oyez Project: *Hamdi v. Rumsfeld*, 2004, para. 4).

If the detained suspect is of international citizenship, they are still protected under international human rights laws. The United Nations International Covenant on Civil and Political Rights states in Article 12, Number 1, that "everyone lawfully within the territory of a State shall, within that territory, have the right to liberty of movement and freedom to choose his residence"

(The United Nations International Covenant on Civil and Political Rights, Article 12, Number 1). Also, in Number Two of Article Twelve, it states that “everyone shall be free to leave any country, including his own” (The United Nations International Covenant on Civil and Political Rights, Article 12, Number 2). These principles, which the United States is supposed to abide by, call into question whether it is acceptable to detain someone who is legally entering our country, regardless of their citizenship.

Some argue that because of the war on terrorism extreme measures are needed. This view violates international human rights laws laid out in the Geneva Conventions. Along with over one hundred other nations, the United States agreed with and signed onto this international treaty in 1949, and ratified their decision in 1955 (Geneva Conventions 1949 – United States of America reservation text). The Geneva Conventions were written as a uniform guide as to how to treat prisoners of war, the sick, wounded, civilians, or any other non-violent people that the signatories may encounter while at war with an opposing nation.

Specifically, the Fourth Geneva Convention addressed how prisoners of war are to be treated. Denying them the right to a fair trial is considered a “grave breach” of the law, and a war crime. According to Chapter III, Article 103, “Judicial investigations relating to a prisoner of war shall be conducted as rapidly as circumstances permit and so that his trial shall take place as soon as possible. A prisoner of war shall not be confined while awaiting trial unless a member of the armed forces of the detaining power would be so confined if he were accused of a similar offence, or if it is essential to do so in the interests of national security. In no circumstances shall this confinement exceed three months” (International Humanitarian Law – Third 1949 Geneva Convention).

The detainees at Guantanamo Bay have been in captivity for much longer than three months, which is the limit according to the Geneva Conventions. When a Taliban soldier is taken into captivity in Afghanistan and deemed an “enemy combatant” s/he is shipped off to Guantanamo Bay to be imprisoned and questioned. The Bush Administration did not consider that person a prisoner of war, even though, by definition, that soldier clearly is one. Holding these people in prison and interrogating them defies all the rights that a POW is entitled to, according to the Geneva Conventions. The United States solved this problem by denying these “enemy combatants” POW status.

Former Secretary of Defense Donald Rumsfeld called the captives “committed terrorists” and affirmed that label as the

reason they were not treated as P.O.W.s (Toobin 2004). This unlawful and subjective decision-making was accomplished in the name of protecting the nation against terrorism. However, the facts show that the previous presidential administration violated long standing international treaties, to which it is a signatory, without suffering any consequences.

The Department of Defense does eventually re-assess each prisoner’s status and decides who is actually a threat and who is not. This process takes place once a year. The “Combatant Status Review Tribunals” (CRST’s) were held for about 570 detainees at Guantanamo Bay. The military determined that all but 38 were “no longer enemy combatants” (International Herald Tribune, 2007, para. 6). The percentage of people taken into custody who are a legitimate threat is very small, roughly seven percent, if calculated according to the figures provided. This is the primary form of due process that the detainees have received.

The grounds for which the government acted are based on authority from two sources: the Anti-Terrorism Act of 2001 and the Military Commissions Act. The Anti-Terrorism Act states that “The Attorney General is vested with the discretion...to detain individuals who are found to pose a threat to national security until they are actually removed or until the Attorney General determines the person no longer poses a threat” (Free Republic, 2001). This declaration of ultimate authority leaves no room for questioning of the charges against the detainee. The right to a fair trial is non-existent. Again, this violates the Geneva Conventions. In Chapter III, Article 99, it states that “No prisoner of war may be convicted without having had an opportunity to present his defense and the assistance of a qualified advocate or counsel” (International Humanitarian Law – Third 1949 Geneva Convention). By giving the Attorney General supreme power over the detainee’s future, all possible legal action that should be taking place on the detainee’s behalf is obliterated.

In 2006, Congress passed The Military Commissions Act. This bill eliminated the right of habeas corpus for detainees and allowed the President to decide what interrogation techniques constitute torture (and are thus illegal) and whether or not the detainee will continue to be imprisoned. All of these factors collaborate together to show how truly unconstitutional and invalid it is to detain humans against their will at Guantanamo Bay.

Many of these positions were supported by the argument that it is the President’s job as Commander-in-Chief of the military to protect the United States from the dangers of terrorism. One person’s rights are of little concern when faced with the

responsibility to safeguard the nation. Former President Bush could argue that international law supported his view of the detainees. The United Nations International Covenant on Civil and Political Rights, to which the U.S. is a signatory, states that “the above-mentioned rights (to freely enter and leave a country) shall not be subject to any restrictions except those which are provided by law, are necessary to protect national security, public order (ordre public), public health or morals or the rights and freedoms of others” (United Nations International Covenant on Civil and Political Rights, Article 12, Number 3). Since it is the president’s job to ensure “national security”, perhaps it is required that these suspected harmful terrorists remain jailed.

The Geneva Conventions and the protections that they provide for prisoners of war may be void because of the status of the countries or organizations the detainees come from. Most of the suspected terrorists at Guantanamo Bay are Muslims and are alleged to have been involved with al Qaeda. This religiously-driven association was not established as a traditional army and they do not abide by the traditional rules of war. For instance, the al Qaeda cannot be expected to abide by the Geneva Conventions, or enter into any sort of agreement that defines how prisoners of war should be treated. Only legal countries that enter into the United Nations International Covenant can be held responsible to international human rights laws. Why should the United States honor the Geneva Conventions when the al Qaeda does not? The Department of Defense might as well use as many working tactics as possible to find information that might save the lives of millions, even if that means breaking a few rules.

I am of the opinion that the United States should not hold detainees indefinitely with no promise of a fair trial or release. The security of the nation is most assuredly an important factor, but by imprisoning these suspects, the United States has become a hypocrite. By taking away the right of habeas corpus from the detainees through the Military Commissions Act, the safety of American citizen’s own rights are endangered. If the President and Congress can strip those rights from people they deem suspicious, what other rights can they remove from us?

The Bush Administration repeatedly argued that this issue was of no concern to the court system and that it should be left to the military to deal with the Guantanamo Bay detainees. I disagree with that point, simply because our whole nation is founded on the principle of checks and balances. If the military is left to make its own decisions, what is the point of having Congress or the Supreme Court?

In addition to the Hamdi case, the Supreme Court has repeatedly ruled that detainees (a.k.a. enemy combatants)

have constitutional due process protections to allow for the challenging of their detention. First, in the 2006 ruling in *Hamdan v. Rumsfeld*, the Supreme Court ruled that the United States needed to abide by the “laws of war” (which includes the Geneva Conventions) in trying and sentencing Salim Ahmed Hamdan, former chauffeur to Osama bin Laden. Even though Hamdan had filed a petition for habeas corpus to contest his detainment, a military commission began legal processes against him, thereby signifying him an “enemy combatant”. Because no “act of Congress” or the Executive powers of the President had officially declared Hamdan a prisoner of war, the Supreme Court ruled that the military commission must comply with the Geneva Conventions and give Hamdan a fair trial. The process in which the military commission tried Hamdan required that some parts of the trial be classified and therefore Hamdan had not received the full rights of a fair trial that was due to him according to the Geneva Conventions (The Oyez Project: *Hamdan v. Rumsfeld*, 2006).

Secondly, in the case of *Boumediene v. Bush*, the constitutionality of the Military Commissions Act was debated, as well as the question of whether detainees at Guantanamo Bay deserve Fifth Amendment rights. Lakhdar Boumediene was detained at Guantanamo Bay as an “enemy combatant” in 2002 because U.S. intelligence officers believed him to be involved in a plot to attack the U.S. embassy in Bosnia. He filed a petition of habeas corpus. He was denied a traditional trial based on the Military Commissions Act, which denies all “enemy combatants” habeas corpus. The case was appealed on the grounds that the Military Commissions Act violated the Constitution’s Suspension Clause: “The Privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it” (The Oyez Project: *Boumediene v. Bush*, 2008).

In their 2008 ruling, the Supreme Court stated that the Military Commissions Act was indeed a violation of the Suspension Clause. The detainees at Guantanamo Bay were granted Fifth Amendment rights through this ruling, which states that “(No person shall)...be deprived of life, liberty, or property without due process of law...” Even though this ruling specifically deemed the Military Commissions Act unconstitutional, the Bush administration continued to operate under its policy (The Oyez Project: *Boumediene v. Bush*, 2008).

In conclusion, I believe that people suspected of being harmful to our nation should be lawfully investigated, but they should not be imprisoned until the Department of Defense can construct an accurate and valid case against them in a speedy, fair, and public trial. By abiding by our own basic, constitutional laws, our nation should be able to protect its

citizens. I am outraged by the seemingly offhandedness with which Congress and Former President Bush ignored basic freedoms that should belong to all people. In one year, if the executive order to close down Guantanamo Bay is obeyed, the unjust detaining of suspected terrorists will have ended. Though new concerns have arisen along with this decision by President Obama, such as what to do with the detainees, ultimately the day is coming when the United States will no longer be holding people against their will, against the Constitution, and against multiple international human rights laws and treaties. The new director of national intelligence, Admiral Dennis C. Blair, says, "The guiding principles for closing the center should be protecting our national security, respecting the Geneva Conventions and the rule of law, and respecting the existing institutions of justice in this country" (The New York Times 2009). Benjamin Franklin once said, "Those who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety". I would rather die in a country that stood by the belief that all people deserve fundamental rights than live in a tyrannical society that ignores the pleas of the innocent in the name of justice.

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Bridgewater “Comments” on 80 Years of Men’s and Women’s Sports

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This research is the result of the hard work and effort of 18 students in Dr. Maura Rosenthal’s first year seminar, Women in Sport Media. The work was also accepted for presentation at the 2008 Mid Year Symposium held on the BSC campus in December. The students would like to express the great pride they have knowing that as they complete their very first year at BSC, they have taken on the challenges that come with research and the risks that come with presenting and publishing it.

*S*ports media is important because it shapes the perceptions, aspirations and dreams of the viewers (Angelini, 2008). It shows the viewers the skill and athletic achievement of both male and female athletes. The media allows viewers to witness the athletic prowess of their favorite athletes on TV and in print. Within sports media, the viewers are able to learn about the many different sports that are offered around the world. The viewers are able to get a sense about who the athletes are, their talents, their sport and their achievement. It is apparent that sports media has a huge impact on the people around the world who watch games, buy magazines, and endorse their favorite team by collecting team and player memorabilia.

Women athletes have been greatly underrepresented in articles, magazines, pictures, and in film (Angelini, 2008; Huffman, Tuggle, & Rosengard, 2004). Women have always had to fight for the equality that Title IX promised them, and even today they are not at an equal level with men. Most of the pictures representing female athletes are more stereotypical than they are action shots, these pictures show women out of uniform and in sexy poses. In 1994, 275,305 athletes participated in NCAA sports and only 92,472 of them were women (33.6% women). The NCAA News gave women 34% of their coverage and that is not fair at all (Malec, 1994). Title IX promised female athletes the right to compete at an equal and fair level; unfortunately female athletes are still striving to compete at the same level as their male counterparts.

From the literature about women’s sports we can tell that the coverage about women is undisputedly a lot lower than the coverage of men. Those who began to analyze women’s sports realized the unfairness to women in media coverage. For example, the fact that figure skating is the most televised women’s sport mainly because it is not dominated by males. Other studies have shown that television announcer’s language clearly showed gender bias. For example, while covering basketball tournaments, researchers discovered that when female player’s outstanding shots were made announcers said it was not because of skill but because of luck. A different researcher established that female athletes were rarely viewed as adult competitors. Bonnie Blair, a medal winning Olympian, is known as “America’s little sister” instead of a

serious competitor. The result of all of these findings proved that female athletes were not taken nearly as seriously as male athletes (Bishop, 2008). This also shows how women are still at a disadvantage for equality, and that they are still not taken as seriously as the men.

Researchers have studied how college newspapers and television stations cover men's and women's sports on college campuses (Huffman, Tuggle, & Rosengard, 2004). Their research focused on both printed media as well as a number of campus television broadcasts from a variety of universities. They found that in campus newspapers men were covered in 72.7% of the articles and 81.5% of the time in the campus's news broadcast, even though 41% of the college athletes were women. The main purpose of this study was to look at how Bridgewater State College's (BSC) student-run newspaper, *The Comment*, covered men's and women's sports since its inception in 1927.

Research Questions

1. What is the difference in the number, length, and description of male and female students in sports or recreation articles published in *The Comment* (the Bridgewater student newspaper) from 1928 - 2007?
2. In BSC's newspaper *The Comment*, what was the sex of the reporters and how did they portray the female athletes in their articles?
3. In *The Comment*, how many articles were written about women from 1928-1967 compared to 1968-2007?

Hypotheses

1. We expect to find that the men's sports or recreation teams will have better coverage in terms of number of articles and length of the articles as opposed to the women's sports from 1928 to 2007 in the Bridgewater State newspaper, *The Comment*.
2. We expect that the majority of the reports of BSC men's sports will have male reporters and that the BSC women's sports will have women reporters and that the females will in no light be portrayed as athletic as the men in any of the articles.
3. We expect that there will be fewer articles about women written in *The Comment* from 1928-1967 compared to those written from 1968-2007.

Methods

Bridgewater State College students based their research on the article "How Campus Media Cover Sports: The Gender-Equity Issue, One Generation Later" (Huffman, Tuggle, & Rosengard, 2004). After brainstorming and compiling a lengthy list of possible research questions, the class examined the list. Based on the feasibility of answering the questions by searching through

old newspaper articles found in the Bridgewater State College Archives, the class narrowed down to the final three research questions. With the three final research questions in mind a small group of students went and briefly searched through the archives to see if concluding answers to the research questions was possible with the information that was found there.

After concluding it was possible to obtain answers, students researched articles online at Bridgewater's newspaper, *The Comment*. The website's back issues from 2003 until 2007 were available online to each student. The class was split up so that a few students were assigned to each of the years. Each student then individually researched the sports sections of issues from their assigned year. This research involved choosing three issues from the year; one issue from the fall season, a second issue from the spring season and a third issue from sometime in between those seasons. This was the same way that Huffman, Tuggle & Rosengard acquired their data. Of these three issues each of the articles from the sports sections (not including professional sports) were used as data to enter into a table produced by Dr. Maura Rosenthal in Microsoft Excel. The table consisted of the day, date, year, sport covered, story type, sex of athletes, sex of reporter, number of words and the headline of the article.

Then 18 undergraduate students in groups of one, two or three, entered the Bridgewater State College archives to attain additional data. With Mabel Bates' help (the archives director) each group was assigned to a box of collected Bridgewater State College newspapers, *The Comment*. Each box had folders organized by volume, issue number and year. For each issue the group was to read it and find all sport related (male and/or female) articles. The student groups then re-read each article and again noted the amount of words, date of article, its story-type, the sex of the author, the sex of the persons written about in the article along with a brief description of the article and its title. After the completion of the individual Excel spreadsheets, all the articles were compiled into one big and final spreadsheet

Articles About Men and Women 1928-2008

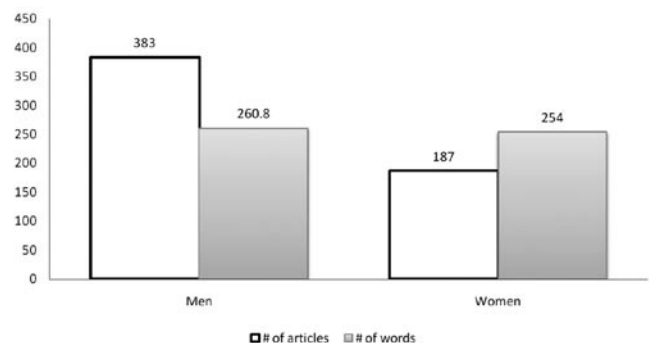


Figure 1

by Dr. Maura Rosenthal. The collective researching efforts resulted in 619 pieces of data to be further analyzed.

Results

Figure 1 shows 383 articles about men and 187 about women. The average word count for the articles about men was 260.8 and the average word count for the articles about women was 254. There were 38 articles about either both men and women or they could not be classified. Figure 2 summarizes the gender of the reporters who wrote the articles. Most of the articles did

and this could indicate that more and more women athletes started to participate in sports, or that they simply just got more coverage as the years went on.

Discussion

The results from the Bridgewater State College paper, *The Comment*, refer to how the reporters for the campus newspaper covered men's and women's sports differently. The results display the difference in articles about men and women, reporters by gender, and the difference in numbers of articles about women from two time periods. There were twice as many articles about men as there were about women which affirms hypothesis one, that men's sports get more coverage. The results about the number of reporters based on gender prove hypothesis two to be true. The number of male reporters was about four times the number of women reporters but, there were more unknown authors than males. Lastly, in regards to women's articles from two different time periods, there were more articles from the more recent time period which proves hypothesis three.

Title IX

Title IX has changed women's sports in many different ways. Title IX states, "No person in the U.S. shall, on the basis of sex be excluded from participation in, or denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal aid" (Curtis & Grant, 2006). Simply put, the passing of the Title IX legislation gave women equal rights in any educational programs that men already had at schools that receive federal funds. A woman can no longer be denied participation in activities just because of the simple fact that she is a woman. Although it is not required that women participate in identical sports as their counterparts, schools are required to give women equal opportunities. Regarding female sports teams, girls are guaranteed things such as equal equipment and supplies, fair scheduling of games and practices, travel accommodations, opportunities to receive academic tutoring, exceptional locker rooms, practice, game, medical, housing, and dining facilities, publicity, support services, and recruitment opportunities of student-athletes (Curtis & Grant, 2006). Schools today are required to make sure they comply with these rules, and if it is found that a school has violated these guidelines, the institution could potentially lose all federal funds (Lopiano, 2005).

AIAW

The AIAW, also known as the Association for Intercollegiate Athletics for Women, existed before the NCAA took over control of college sports. The AIAW was established in 1971 to organize women's college sport championships, and continued to oversee women's college sports until 1982. The association had a television contract with NBC, but as soon as a profit was

Sex of Reporters

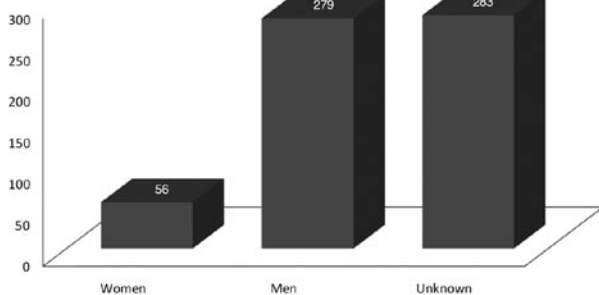


Figure 2

Articles About Women Between 1928-1967 and Between 1968-2007

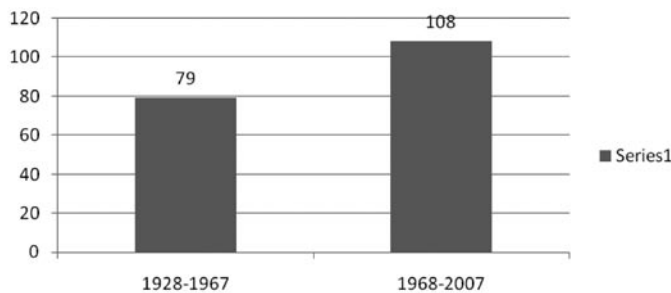


Figure 3

not have a specified author who wrote each article and there was a significantly larger number of male reporters than female reporters. There were 56 women sports reporters identified, 279 male reporters identified and 283 articles where the gender of the reporter could not be identified.

Figure 3 shows the difference in the number of articles about women athletes between the dates of 1928-1967 and 1968-2007. There were 79 articles about women from 1928-1967 and 108 articles about women from 1968-2007. This graph displays the increase of articles during the second time frame

being made off of the female sporting events, the NCAA stepped in and took over. The AIAW could not afford to compete with the NCAA, an organization that suddenly became interested in female sport and could pay for expenses such as transportation, something the AIAW simply could not manage to pay for. As Donna Lopiano implied, when the AIAW started to become too powerful, they were overtaken by an organization that had been firmly established for quite some time longer, since the early nineteenth hundreds (Hawes, 1999). Today, the NCAA has firm control over both men's and women's sports at the college level, and the AIAW no longer exists.

Women's Sports at BSC 1920-1940

Women's sports at Bridgewater State College had slowly increased from the 1920s to the 1940s. At the beginning of the 1920's a women's recreation group called the W.A.A., also known as Women's Athletic Association, was put together and organized all women's recreational sports. There were no official women's sports that were recognized by the NCAA in the 1920s. Although coverage of women's sports was scarce in the earlier decades reporting had increased as the 1940s approached with more organized sports, and recreation occurring for women.

Women's Sports at BSC 1940-1960

With the data that was collected about women's recreation and sports from the time period of the 1940s to 1960s, it shows that the women at Bridgewater were very involved in sports but not involved in writing about sports for *The Comment*. Almost every reporter from this time was a male or unknown. However, women did have many sports they could participate in such as: tennis, softball, dance, hiking, archery, hockey, basketball, field hockey, volleyball, badminton, track, cheerleading and intramural games. Most of the data comes from the years of 1945, 47, 49 and a few from 1950. The majority of the articles are game recaps or news about the WAA. Although there is data, the men have the most articles.

Women's Sports at BSC 1960-1980

From 1963 through 1972, women still did not get the attention they deserved from the Bridgewater State College newspaper. Most of the articles still pertained to the male sports teams, and except for the occasional article about a female sports team, the articles were basically all written by male reporters. Still, some of the articles that were written about women were written by men. Out of all the articles that were written within this time, most of the ones that were about women were also about men at the same time. There were not many articles strictly dedicated to just females at the college. At one point of the research in

1964, there was one period where there were six articles in a row dedicated to women, but, then again, only two of them had over one hundred words. On the contrary, almost all of the articles dedicated entirely to men consisted of at least one hundred fifty words, with one article containing nine hundred seventy five words.

During this time, the reporters wrote about different types of sports. Sports such as bowling, roller skating, and badminton appeared in the newspaper in the early sixty's, but by the end of the seventy's, basketball had seemed to have taken over. This just shows how activities and interests can change so drastically in such a short period of time.

Conclusion and Limitations

As much as the class tried to make the research as accurate as possible there were limitations. The four main limitations in the project were the miscounting of each word in the articles, missing decades, missing issues in the early years, and in a majority of the articles the author was not stated. Another main limitation was that in the years 2003-2007 the research was extremely structured. Each researcher was given a specific year, then three issues were chosen; one from the fall, one from the spring, and one in the middle of the two seasons.

The research done in the archives however was not as structured causing the majority of the limitations. The researchers took boxes of issues from each decade, neglecting to follow the original format of choosing one issue from the fall, one from the spring, and one from the middle of the two. Even though there were not many limitations, the ones found could be quite destructive to the research. When it comes to the authors, the majority of the time men were the authors. From the 619 issues, 283 of the articles were written by unknown authors, where as men wrote 279 of the articles and women wrote only 56 of the articles. From 1928 to 1967 there were only 79 articles on women, but from 1968 to 2007 there were 108 articles. From 1928-2008 there was almost double the amount of articles written on men then there were on women. This basically sums up that men were covered more than women in this study. Based on the number of articles that women appear in compared to the number of articles involving men, the results shows the differences stated in the research questions. These differences showed that men were publicized more than women in the early years. However as time goes on women are gaining more popularity in the newspapers and other press.

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Shea Scholar

THE UNDERGRADUATE REVIEW
VOL. V

The Shea Scholar paper is the work of the student who was awarded this prestigious BSC grant.

Streets of Despair and Blocks of Hope in John Okada's *No-No Boy*

AMY GRACIA

Amy A. Gracia is a senior majoring in Special Education and English. Her literary research was made possible through the support of the Shea Scholar Program and the guidance of her mentor, Dr. Anne Kaufman. Amy was also a presenter at the 2009 Sigma Tau Delta International Conference. After graduation from Bridgewater State College in May, she is planning to teach, write, and pursue a graduate degree.

No-No Boy by John Okada is the first novel published by an Asian American author. Okada uses a fictional character, Ichiro, to explore the emotional struggles of the young Japanese American men and women who were interned and then imprisoned by answering “no” to the two loyalty questions of whether they would fight against and renounce Japan during WWII, (hence the name “no-no boy”). It is a story of the guilt and anguish of a no-no boy as he struggles to find his identity upon returning home from prison. Similar to the Victorian’s novelist’s use of light to frame their characters’ reflections, Okada organizes the protagonist’s psychological journey to wholeness by using specific movement paths or routes that lead into his inner reflections. He defines Ichiro’s bicultural tensions through layers of contrasts that include a motif of directional schemes as an innovative literary function. Okada sets Ichiro, his protagonist, on various physical paths that introduce and develop his individual contemplations. He also utilizes specific regional topographical imagery to honestly reflect the turmoil and duality of Ichiro’s Japanese American identity struggle. Okada’s literary approach emphasizes the dichotomy of the Japanese American conflict as an intricate and winding journey with many avenues of unique social and psychological issues.

Style in painting is the same as in writing, a power over materials, whether words or colors, by which conceptions or sentiments are conveyed. --Sir Joshua Reynolds

The novel *No-No Boy* by John Okada casts a kaleidoscope of light on the difficult identity issues of a young Japanese- American living in Seattle during the aftermath of World War II. Ichiro Yamada, the protagonist, leaves an internment prison only to return home to a different form of prison, one without physical bars, but more difficult from which to break. This stronghold is within his mind. Okada orchestrates the protagonist’s journey toward wholeness by using specific movement paths or routes that lead into his inner reflections. Okada’s technique also includes utilizing specific topographical imagery to reflect the turmoil of Ichiro’s identity struggle and define the Japanese American experience post World War II. In this unique manner, the author emphasizes the avenues of mixed cultural conflict in Ichiro’s sojourn toward an uncertain future of inclusion in American society.

Okada’s framework of setting and direction directly play into the sociologic framework of his protagonist, a technique similar to some British writers. For

example, In *Middlemarch*, George Eliot uses frames of light, doorways, and windows as a functional tool to organize and reveal her characters' thought processes. (Gately, Leavens, and Woodcox 2) Similarly, Okada structures his novel by using directional motifs to frame and highlight his protagonist's emotions.

Throughout his novel, direction becomes a signal for his protagonist's meditative process. For example, in the first chapter, Ichiro gets off the bus "at Second and Main" and walks down the street thinking about the dilemma he now faces:

...he felt like an intruder in a world to which he had no claim. It was just enough that he should feel this way, for, of his own free will, he had stood before the judge and said that he would not go in the army. At the time, there was no other choice for him. (Okada 1)

Ichiro's inability to come to terms with his actions turns into a deep self-loathing. Rather than dying for his country, he opted for a sentence of living. How can he hold his head up now, when he chose of his own free will, to follow his Japanese mother's wishes rather than speak forth as a man?

Eto, an American veteran of Japanese descent, spews a hate-filled rebuke at Ichiro, "No-no boy, huh? ...Rotten bastard. Shit on you" (Okada 3). Ichiro hurries away onto Jackson Street and mulls over how he feels being back in familiar surroundings. He muses, "Everything looked older, dirtier, and shabbier" (Okada 5). It didn't take long for Ichiro to encounter the venomous hatred and bigotry of American society.

Okada frames Ichiro's next encounter while he continues toward home. He "walked past the pool parlor... and his pace quickened automatically," but he is taunted by Negroes "Jap-boy, To-ki-yo; Jap-boy" (Okada 5). Furious, Ichiro contemplates the incident and his own prejudices:

Friggin niggers, he uttered savagely to himself and, from the same place deep down inside where tolerance for the Negroes and the Jews and the Mexicans and the Chinese and the too short and too fat and too ugly abided because he was Japanese and knew what it was like.... (Okada 5, 6)

The futility of trying to fit back into either Japanese or American life begins to stack up in his mind. Disgusted by his mother's pride in him for spending two years in prison, he "strode into the bedroom" (Okada 11) and attempts to put words to the emptiness he feels:

...It was the way he felt, stripped of dignity, respect, purpose, honor, all the things which added up to schooling and marriage and family and work and happiness. (Okada 11, 12)

Upon returning home, Ichiro struggles with his mother's powerful influence. Typical of some Japanese immigrants who came from ultranationalist Japanese backgrounds (Earhart 72), she held Japan and the Emperor in the place of God, superior to her husband and children. She demanded the same loyalty from her firstborn son. As an American, Ichiro is confused and enraged by her insistent stance yet when she wants him to go with her, he "stumbled in blind fury after the woman who was only a rock of hate and fanatic stubbornness and was, therefore, neither woman nor mother" (Okada 21). Okada illustrates their symbolic positions, still using directional action in his text. At her insistence:

They walked through the night and the city, a mother and son thrown together for a while longer because the family group is a stubborn one and does not easily disintegrate. The woman walked ahead and the son followed and no word passed between them. (Okada 21)

When his mother traps him in an uncomfortable situation with her Japanese friends, Okada melds direction with emotion as he shows Ichiro's conflicted feelings. He "...wanted to get up and dash out into the night." (Okada 23) After their visit, he "hurried down the stairs" and "paced relentlessly" (Okada 23). The language shows Ichiro's frenzy to separate himself from that part of his Japanese past. Even though he is angry with her tight control over his life, he continues to feel trapped and confused by his loyalty.

In another instance where Ichiro is shamed and angry with his mother, he reacts, screaming through his tears, "She's crazy. Mean and crazy. Goddamned Jap!" (Okada 30) Then, "...he hurried out of the house which could never be his own" (Okada 31). He sees his mother walking in the distance "from the illumination of the streetlights and did not attempt to catch her" (Okada 31). When he sees her clearly, illuminated, but doesn't try to catch up with her, Okada shows Ichiro distancing himself from her through movement and spatial themes.

Later, when Ichiro worries that the stigma of prison has cost him his birthright, he thinks in directional metaphors. "Was it possible that he, striding freely down the street of an American city, the city of his birth and schooling and the cradle of his hopes and dreams, had waved it all aside beyond recall. ...is there no hope of redemption?" (Okada 51)

Okada ties direction to the collective identity struggle when Ichiro and his friend Kenji, a veteran, head past Jackson Street onto King Street. “They walked down the ugly streets with the ugly buildings among the ugly people which was part of America and, at the same time, would never be wholly America” (Okada 71).

Ichiro continues to grapple with the loneliness of being a “no-no boy” and recognizes that he has failed the country he loves and lost his place in the community through his actions. Subjected first to the deliberate isolation of the relocation centers (Marquis 15), and then the further segregation of prison, Ichiro is resentful and at the same time fears he will never be accepted. Okada shows the reader the complexity of the “no-no boy” through the ups and downs of Ichiro’s thought patterns. For example, Ichiro thinks about his situation and becomes incensed at the injustice of being an American citizen, yet denied his rights. “As he walked up one hill and down another, not caring where and only knowing that he did not want to go home...” He ruminates on his legal plight paralleling the American setting with the German setting:

What had happened to him and the others who faced the judge and said: You can’t make me go in the army because I’m not an American or you wouldn’t have plucked me and mine from a life that was good and real and meaningful and fenced me in the desert like they do the Jews in Germany and it is a puzzle why you haven’t started to liquidate us though you might as well since everything else has been destroyed (Okada 31).

Okada’s protagonist uniquely communicates the deep hurt of the Nisei, the first generation Japanese Americans who adopted a new culture, became immersed in the American dream, and were then violently thrust into no-man’s land of identity. The author shows the complexity of emotion by employing a roller coaster of words and phrases related to the setting:

I walk confidently through the night over a small span of concrete which is part of the sidewalks which are part of the city which is part of the state and the country and the nation that is America. It is for this that I meant to fight, only the meaning got lost when I needed it most badly. Then he was on Jackson Street and walking down the hill. (Okada 34, 35)

Later, Ichiro has an epiphany that school might be an option for him. At first, he races toward the thought with abandon, but later is caught in a downward spiral of emotion as he changes his mind. Okada again uses direction to underscore

the incident as part of his journey. He wants to place the blocks of his life back together and return to a happier time.

Ichiro starts off “at Fourteenth Street where Jackson leveled off for a block before it resumed its gradual descent toward the bay” (Okada 52). He “hurled himself” on the bus and it “sped down Jackson Street and made a turn at Fourth” (Okada 52). He “visualized the blocks ahead, picturing in his mind the buildings he remembered,” pleased he could remember their names (Okada 52, 53).

As he recalled the past, he realized it was the same familiar route he used to take as a university student in the engineering program - when he was still a part of America. Ichiro “walked naturally toward the campus and up the wide curving streets” (Okada 53). Then he proceeds up the stairs to a “remote corner of the building which was reached finally by climbing a steep flight of stairs no more than twenty inches wide. By their very narrowness, the stairs seemed to avoid discovery by the mass of students” (Okada 54, 55). Ichiro finally realizes he no longer feels worthy of an American education. He feels trapped and going nowhere. “Outside... and alone again, he went down the narrow stairs...” Okada allows the reader to feel the funnel of tightness and compression that comes over Ichiro as he “hurried outside.”

Okada uses another interesting flow of movement to frame and symbolize Ichiro’s decision to sever his Japanese mother’s influence over him and reclaim his American identity. After he walks out on his mother’s funeral, Ichiro joins up with his friend Emi. They left together “... and felt relaxed and free and happy” (Okada 208). They head south on the main highway out of town to find a place to go and dance.

Ichiro uncharacteristically chooses to abandon the responsibility of participating in his dead mother’s ceremony and find a direction to be free and dance. His character has moved into a maturity defined by his own thoughts, feelings, and decisions rather than adhering to his Japanese mother’s ban on dancing. Okada presents the dance as the ultimate directional freedom and hopefulness.

Okada’s encompassing power over his materials is the kind of style of which Sir Joshua Reynolds speaks. Using the structure of his novel as a tool, the author paints an emotional picture of the Japanese American quandary by constructing the thought patterns from a map of the setting. In a unique manner, Okada employs particular directional motifs to outline Ichiro’s inner struggle as he confronts the deep racism and prejudice within his community and within his own soul.

It's because we're American and because we're Japanese and sometimes the two don't mix. It's all right to be German and American or Italian and American or Russian and American but, as things turned out, it wasn't all right to be Japanese and American. You had to be one or the other. (Okada 91)

By the end of the novel, Ichiro has made great strides and his heart truly has “mercifully stacked the blocks of hope into the pattern of an America which would someday hold an unquestioned place for him” (Okada 52). The painful journey of the modern Japanese American, which began with national rejection and incarceration, is as complicated as Ichiro's story. To find his identity and regain his civil rights, Ichiro had to stay in Seattle and fight for his rights. “If he was to find his way back to that point of wholeness and belonging, he must do so in the place where he had begun to lose it.” (Okada 155) Okada charted a course for his protagonist meshing his literary technique and emotional pilgrimage. As Ichiro nears the end of his trek, he begins to accept himself, respect his heritage, and ultimately, find his true identity.

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