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UNDERGRADUATE RESEARCH

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Social capital in the experience of homeless mothers

D. Adam Nicholson

Homelessness in the United States affects many different people. In 2012, of the estimated 633,782 people experiencing homelessness in the United States (National Alliance to End Homelessness), an estimated 37.8% were homeless families. Of this group, an increasing number are women and children. These numbers may underestimate reality, as at any given moment it is nearly impossible to accurately identify how many people are homeless. Generally, counts of homeless populations are based on usage of public services and the amount of people in shelters. Additionally, homelessness can often be hard to identify in those who are in and out of housing situations. Those affected by homelessness often experience it sporadically as they remain unable to secure a stable situation. These situations can fall along the spectrum from living on the street to periodically living with family members. Nevertheless, this instability in housing at varying degrees can be described as experiencing homelessness.

This study took place in a small Midwestern town I will refer to as Liberal. Liberal has a population of 88,000 and recent data estimates the homeless population in Liberal at around 226 people. Of this total, 157 are adults and 169 are minors. Additionally, 42 are classified as being “chronically homeless,” meaning they incur frequent or long-term bouts of homelessness, often due to mental/physical disability. This study seeks to understand how those facing homelessness came to be in this situation by exploring questions pertaining to social capital. My two primary research questions guiding this study are: Does the homeless population lack significant social capital? If so, did social networks exist at one point and deteriorate over time? Or, are the networks

Q&A

How did you become involved in doing research?
I was introduced to research through the McNair Scholars Program. This is my second independent research project, as well as my sociology honor’s thesis. I decided to pursue this topic after taking a social inequalities class with Dr. Hill.

How is the research process different from what you expected?
It’s much more rigorous than what is referred to as “research” early in college. The bar is set much higher and you’re usually trying to add a very small piece to the puzzle, rather than tackling large issues. The revision process is also demanding and the final work rarely looks much like the first draft.

What is your favorite part of doing research?
I love the in-depth learning experience and going beyond the surface of a problem to see what the root might be. Research forces you to lay out the evidence and let it speak for itself. You don’t try to pull the pieces to get your own ideas across, you interpret the data and try to convey what it’s saying objectively.

About Adam Nicholson

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insufficient or lacking in some way that allows homelessness to occur? The interviews were analyzed to determine common themes and patterns, including the role of social capital and the future outlook of those interviewed.

I will begin by defining several concepts, including homelessness and social capital, including a brief summary of social capital theory. I will then discuss reoccurring themes which emerged throughout the interviews, including the causes for homelessness and how social capital fits into the picture, and the effects on families in terms of social capital, as well as their outlook for the future. Finally, I will discuss some of the challenges involved in attempting to alleviate homelessness, including the impact of community living environments, as well as the role of stigma, on developing social capital.

This research is significant for several reasons. First, there is little in the existing literature in recent time which examines the role of social capital in the homeless experience. Second, the findings could have significant impact on how homelessness is addressed for the majority of those affected. Up to this point, much attention has been given to dealing with the chronically homeless, yet they represent a small percentage of those experiencing homelessness. This study will help to build a better understanding of how policy and community action should address homelessness.

Defining homelessness
Colloquially speaking, a home can be defined as “one’s place of residence” or as “the social unit formed by a family living together” (Merriam-Webster 2013). In policy, the approach can vary. The U.S. Department of Housing and Urban Development (HUD) recently released its updated definition of homelessness, which includes four broad areas: 1) People who are living in a place not meant for human habitation, in emergency shelter, in transitional housing, or are exiting an institution where they temporarily resided. 2) People who are losing their primary nighttime residence, which may include a motel or hotel or a doubled up situation, within 14 days and lack resources or support networks to remain in housing. 3) Families with children or unaccompanied youth who are unstably housed and likely to continue in that state. 4) People who are fleeing or attempting to flee domestic violence, have no other residence, and lack the resources or support networks to obtain other permanent housing (National Alliance to End Homelessness).

For the purpose of this study, I examine homelessness with the colloquial concept of a “home” in mind, while focusing on elements of HUD’s four categories of homelessness. This study specifically focuses on the social capital aspects alluded to in the second definition when HUD includes those who “lack resources or support networks.” All participants for this study are defined as homeless as a result of their living in a temporary community housing program.

Homeless mothers
While the sociological literature involving social capital and homeless mothers is limited, research from other academic fields which discuss support systems or social networks is useful. In what they call “the first systematic comparison of homeless and housed families,” Bassuk and Rosenberg found several differences between low-income housed and homeless women (Bassuk and Rosenberg 1988:786). Among their findings, they noted that “the support networks of the homeless women were fragmented and included proportionately more men, while the housed mothers had frequent contact with their mothers, other female relatives, and extended family living nearby” (786). As both the housed and homeless women were found to have similar levels of education and employment history, this study introduced the importance of social support. Shinn, Knickman, and Weitzman reinforced this idea, stating that social support networks played an important role and that low social support increased vulnerability to becoming homeless (Shinn, Knickman, Weitzman 1991). Additionally, trust in these networks is important, as those in vulnerable positions are hesitant to utilize or leverage some relationships (Goodman 1991).

In 2000, Lin found that “social groups (gender, race) have different access to social capital because of their advantaged or disadvantaged structural positions and associated social networks” (793), concluding that “the research literature, by and large, confirms the disadvantages of females and minority group members in social capital” (793), while also adding that more direct research was needed in terms of social capital (Lin 2000). Toohey, Shinn, and Weitzman reiterated that past studies (Bassuk & Rosenberg, 1988; Wood et al., 1990) have repeatedly suggested that women who are homeless may have fewer sources of social support than other poor women also adding that even when network sizes were similar, they may vary in “type or quality of support given” (Toohey, Shinn, Weitman 2004:13). In addition to size, a meta-analysis of twelve studies of homeless women revealed several additional relevant aspects of social support, including composition of the social support network, contact with members of the social support network, and perceived support from members of the social support network (Meadows-Oliver 2005:43).

In addition to this stream of research, related studies show the importance of social capital in social mobility for mothers and
the importance of parent to child connections in the long-term success of the children. For minority groups, such as African-American and Latin-American low-income mothers, social capital plays a vital role in social mobility by creating opportunities through network resources (Dominguez and Watkins 2003). In terms of the children’s success, Anderson found that the role of parents in investing social capital into the development of their children was significant and that this connection must be given the opportunity to develop, something which proves challenging in instances of homelessness (Anderson 2004:21).

Social capital
Social capital is a concept without one singular definition. The modern conceptualization of social capital has its roots in the work of Pierre Bourdieu, and was built upon by others like James Coleman and Robert Putnam (Carroll and Stanfield 2003; Lang and Hornburg 1998). Each author has various interpretations of social capital yet they share common ground in the incorporation of social structures and the ability to initiate certain actions through others within the structure.

Bourdieu is responsible for bringing the concept and term social capital into present-day discussions. In his landmark piece, Forms of Capital, Bourdieu begins:

“The social world is accumulated history, and if it is not to be reduced to a discontinuous series of instantaneous mechanical equilibria between agents who are treated as interchangeable particles, one must reintroduce into it the notion of capital and with it, accumulation and all its effects. Capital is accumulated labor (in its materialized form or its ‘incorporated,’ ‘embodied form) which, when appropriated on a private, i.e., exclusive, basis by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labor.” (Bourdieu 1986: 46)

Bourdieu later described three separate forms of capital which he used to expand on the above statement: most relevant was social capital, which he defined as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital” (51). This definition sets up social capital as being centrally about connections and social networks: who you know matters.

As one of the founding theorists in this subject, Bourdieu’s approach was more theoretical than those who followed such as Coleman and Putnam, who included empirical data. In his paper entitled Social Capital in the Creation of Human Capital, Coleman presents social capital as a conceptual tool at the intersection of economic and sociological theory (Coleman 1988:96). According to Coleman, “social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure” (98). Coleman goes on to establish that social capital, like other forms of capital, makes possible ends, which without the means of social capital, would not be possible (98).

Through empirical evidence, Coleman illustrates the importance of social capital to families. As one example, Coleman offered the case of Asian immigrant families who purchased additional textbooks, so that the mother could study and help the children do well in school (110). While the human capital of these families may have been low, the social capital exercised between the mother and child was quite high and the results evident. Similarly, research has shown that younger siblings and children from larger families get less attention, which produces weaker educational outcomes (112).

Political scientist Robert Putnam made powerful assertions about the role of social capital in his ground-breaking article “Bowling Alone: America’s Declining Social Capital” (1995). According to Putnam, even though the United States had historically been a bastion for civic engagement, social capital had been steeply declining in the US, as evidenced by low civic participation and voting turn out. Putnam defines social capital as the “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (Putnam 1995: 2).

Like Coleman, Putnam also addresses families in relation to social capital, calling them the “most fundamental form of social capital” (7). Putnam’s hypothesis of social “decapitalization”—a decline in social capital—is exemplified in the decaying social bonds of the American family. Perhaps as a result of these decaying family ties, our ties to greater community are also declining. When Americans were surveyed in 1960, 58 percent of respondents said they believed most people could be trusted, as compared to only 37 percent giving this same response in 1993 (8).

According to Putnam, mobility, demographic transformations, and technological effects on leisure may be to blame for this decline (9). The effect of mobility is summarized by his “re-potting” hypothesis: “Mobility, like frequent re-potting
of plants, tends to disrupt root systems, and it takes time for an uprooted individual to put down new roots” (9). As Americans become increasingly mobile, possibly due to increased ease of mobility, search for work, or a variety of other causes, it becomes increasingly difficult to build strong social networks. Demographic changes such as fewer marriages, more divorces, and fewer children, may also be a contributing factor, as married, middle-class parents are statistically more civically engaged (9). Finally, Americans’ leisure activities have shifted in favor of more private or independent pastimes (9). Whereas Americans used to spend more time out in the community with friends, families, and neighbors, they are now increasingly likely to watch television or spend time on the internet, activities with considerably less real social interaction.

Social capital has many implications in relation to homelessness. For some, high levels of social capital prevent homelessness, while others with low levels may become homeless without the connections to prevent this from happening. For those who do become homeless, social capital may help them find stable employment and housing, among other opportunities. A significant life event, such as experiencing homelessness, can also significantly limit a person’s ability to develop social capital.

METHODS

Procedure

The study was conducted using qualitative interviews with five women experiencing homelessness in Liberal. Interviews were conducted in a private environment at a local community living program which will not be named in order to protect the anonymity of the study’s participants. The interviews were audio-recorded and later transcribed, with the exception of those two participants who did not wish to have their conversations recorded for confidentiality reasons. In these instances, in-depth field notes were taken and analyzed after completion of the interview. Special attention was given to the role networks play in the status of the participants. Interviews included basic demographic information, including education and work history, and then questions related to family and community relationships and support (See Appendix A).

Participants were recruited in person and through directors and organizers using convenience sampling methods as well as fliers with contact info in order to set up interviews. Directors of the facilities and program coordinators were provided with interview guides, consent forms and Human Subjects approval letters prior to the interviews to ensure the safety, confidentiality, and wellbeing of their clients. Coordinators of these institutions provided assistance recruiting participants for the study, as well as serving as a means of communication with the clients, who were often difficult to contact.

Participants

Participants included five women whose ages ranged from 22 to 45 years old (See Appendix B). Racial composition included two white females, one black, one Hispanic and one Native American. Four of the women were unemployed, but seeking employment, while one was taking college courses full time. All women were mothers, having from one to three children ranging from six months old to sixteen years old.

While this sample is small, it was the entire population in this particular program. Participants included those who are currently homeless due to reasons other than mental illness or drug and alcohol addictions, including economic hardship and family instability.

RESULTS

As was hypothesized, the role of social capital had significant implications on the participants in the study. Several themes developed throughout the course of the study and held true almost universally. While it is certainly not exhaustive, and cannot fully explain why one may experience homelessness, three themes were reoccurring and contributed greatly to the situations our participants found themselves in, including: economic hardship, lack of or deteriorating family ties, and legal trouble.

Economic hardship

As expected, economic hardship played a role in many of the situations of those interviewed. It could be said that homelessness is an economic state in itself, and therefore all experiencing homelessness would experience economic hardship. That may be true, but it is interesting to note the different experiences and how they vary from what one may expect. There were, for example, no cases of those one would consider to be established, middle-class, falling into hardship or foreclosing on a home and finding themselves in a homeless situation. Rather, those who are experiencing homelessness typically came from a history of economic hardship. Mary, a 45-year-old woman, originally from Texas, told me about her family and their background: “Well, my father’s side my grandparents were in concentration camps in WWII so my father’s family came over here [and they] were naturalized. They were extremely poor. Came over here, had nothing...Then my dad joined the Air Force and met my mom, and my mom’s side of the family: poor. So it’s like two poor families came together.”

Some of the women came from families where the bulk of their income was made illegally through sales of narcotics or other illegal activities. In these cases, there was often a lack of work experience,
which disadvantaged them when they became homeless and sought employment. This was the case for Anna, a 22-year-old white mother of two, who had her first child at age sixteen and relied on others for support. “Really, I’ve like never had a job. I worked for two weeks at KFC. Then at a Wendy’s...like twice, so I can get Christmas for my kids, but I had boyfriends with jobs, so I didn’t really work.” In this case the absence of social capital being built through work experience and social ties to healthy economic activities resulted in a dependency on these relationships, with serious consequences for Anna when her family got into legal trouble. “My boyfriend had a good job whenever my mom first went to prison. He was making $20 something an hour doing construction, building the interstate, but it wasn’t 3 months after my mom went to prison, that he got arrested for armed robbery. So, after that I started staying with a sister-in-law and a friend and really just started making money on the streets however I could; selling weed really.”

In many cases, we see that employment is not necessarily the solution to homelessness. Mary, a 45 year-old white mother with a teenage daughter, had been steadily employed doing clerical work at a major facilities operation company for over 5 years. When Mary’s office moved, she was asked to commute to the new location, nearly fifty miles away. “I couldn’t afford to work,” she recounts. The financial implications of the extended commute were serious, but more complex issues led to her eventual termination:

“I didn’t want to be fired because I had just got in this program, thought I was going to be here short term and then get into my own place, but I got fired, not having been here two weeks and this program played a big part in me losing my job, because there are responsibilities you have to do here to stay here. You stay in a different church every week and you have to leave the church by 6:30, well I’m working in [the city] and have to be at work by 7:30. I leave the church, get here, I’m gone. Gone all day, then I come back, takes me an hour to get back to the church, so I was just literally on the road like the whole time. And it was just so much stress. I didn’t know how I was going to make it to and from work, the structure of my day had changed, everything, the whole thing had changed...It was like this as the last straw for my employer because I had been through so much family wise, and they just weren’t going to wait for me to get my shit together.”

When asked if her employer was supportive of her trying to remedy her difficult situation, she expressed quite the opposite:

“No, not at all. And as soon as they found out how bad it was I really feel they got rid of me. It was like, ‘Oh we can’t have a homeless person working here.’ Yep...it’s like, it takes down the level of class of their business. I’m like ‘well, if you had paid me commensurate to what I should be paid or compensated, I probably wouldn’t be homeless right now.’ And I think that job played a big part, because they moved me from Kansas to Missouri. And they forced me to go to a different location and lose my job. Ya know, I was making really good money, like $15 an hour plus benefits, so ya know, I held on as long as I could. I did not see that termination coming.”

Still, even given the potential complexities, employment is essential in gaining independence and moving out of a homeless situation. The women interviewed for this study are all actively seeking employment, with some being currently involved in work programs, such as vocational rehab. Homelessness complicates the search process though, with issues such as stigma, discussed later, having a negative impact, but more practically in simply being available for interviews and providing a home address. The problem is compounded for those with children, as Callie, a 23-year-old mother of a six-month-old daughter, spoke about: “Interviewing is hard with a kid. I don’t have a car, so I can only go whenever the bus is running and I got to find a babysitter at the last minute. Nobody wants a baby in the interview. SRS will pay for a babysitter, but only if I got a job.”

Lack of or deterioration of family ties

Family plays an incredible role in our social lives, leading Putnam to label the family as the “most fundamental form of social capital” (Putnam 1995). A strong family leads to better outcomes and more opportunity, while weak ties or no ties can limit them. For some, weak or even negative family ties led them to seek out better opportunities. Mary spoke of her decision to move to a new area: “I’m originally from Texas and I moved up here about 30 years ago, I guess...just looking for something new. [I’m] from a mid-sized area, with small town values, I was just looking for something bigger. Wasn’t really fond of Dallas, it had a lot of drugs, stuff like that, so I thought the Midwest would be better.” This response is characteristic of many in families with low social capital. Many decide to uproot and seek out opportunities elsewhere, because their families provide little to no support; as one summed up, “I have a mom and sister...but they’re worse off than I am.” This re-potting, as Putnam calls it, is damaging to the growth of social capital and social networks. It puts those who choose to make these moves at high risk of homelessness.
Anna described her situation after describing living with her sister for a drug and alcohol abuse or legal trouble. Her husband is going to help my brother's wife, and her family went to prison: "My family was never really big into the scene and stuff like that, I was a little bit... but I was known for that because of my parents. And here I’m getting my GED, looking for a job, my sister works up here, my brother’s wife, sister-in-law, but he’s dead, I still consider her my sister-in-law, she’s going to help me get a job... and her husband is going to help my boyfriend get a job. All the kind of stuff we didn’t have [there].” In this case, we see the negative effects when social capital is not necessarily absent, but rather present but in a negative manner. We also see a move from a situation with little social capital to one with positive sources of social capital, specifically those leading to employment possibilities.

Many times, when these moves were made to utilize family connections, they were not successful because of various forms of family tension. Difficulty rooted in unstable upbringings, such as families with drug and alcohol abuse or legal problems, got in the way of utilizing social capital within the family. Several respondents from unstable backgrounds moved in with family to maximize meager incomes, but found themselves just as bad off when things didn’t work out. Anna described living with her sister for a period of time:

“Yeah, she lived with me for a year... it was a mess too. We love each other, we’re sisters and all, but we’re not really compatible personalities. We just argue about everything and don’t really get along much. I think she resents me a lot. She’s ten years older than me and I think she was instantly jealous of me, even as a baby. I’m pretty sure. We have different dads, but my dad has been her dad since she was about seven and her dad was never really around, so she really always wanted, and felt like she had to have, that approval from my dad. Then I came along and was daddy’s girl [and] she was the red-headed step child, literally! [laughs] That’s horrible... but yeah, it’s like that.”

Legal trouble

For some, the decline into a homeless situation is swift, as negative family situations leave them with nothing. This is especially true when legal trouble is involved. When a breadwinner goes to prison, the situation can quickly become severe for the rest of the family. Anna recounted her experience of becoming homeless:

“I was living with my parents. When I got pregnant my boyfriend did move in with me. Not the same dad as [my daughter]. Then, he went to prison, so basically from the time [my son] was... really by the time I had [my son], [his dad] was already locked up. He got out for a little while, then got locked up again, got out for a little while. My parents actually went to prison, my dad went when [my son] was like 6 months and my mom like a year later or 6 months later. They got indicted by the FBI for selling narcotics and my dad... he’s doing 13 years. My mom did 5, she just got out. So, I was on my own from that time, about 17. I was 18 by the time my mom went, so I was just kinda... out there.”

Another woman, Elizabeth, a 27-year-old Native-American mother, spoke of her situation growing up in a sketchy situation and the cyclical nature of the environment. Raised by a single-mother, Elizabeth’s father was not involved, except in the payment of child support. That stopped when her father became disabled and was unable to work any longer. Her mother had attempted to raise her; however, the bulk of the child support money received went to her mother’s drug addiction, and it soon became obvious to all parties involved that this was not an ideal scenario. Elizabeth was put into foster
Attitudes about the future

There are many different approaches to try to alleviate homelessness, most of which focus on providing shelter. Some aim to do more, by providing employment services, such as resume building and teaching interviewing techniques. While each person’s situation calls for a different approach to eliminating homelessness in their life, those approaches which take into consideration the role of social capital have the potential to be the most successful and efficient.

All the women interviewed commented on their feelings about the programs that they have been a part of, and several themes, both positive and negative, appeared. Specifically, the positives included an increased feeling of optimism regarding their situations, as well as the ability to pass on short-term opportunities in favor of options which would lead them to long-term success. The negative themes include an inability to cultivate one’s family in community living, difficulty increasing social capital, and stigma related to their experiences with homelessness.

**Increased optimism**

It was surprising to note the optimism of those in the study experiencing homelessness. When asked how optimistic they are about the future, participants consistently stated that they were very optimistic about the future. For some, this optimism was brought on by past experience, such as Mary, who had recently laid off: “Oh, I’m very optimistic because I’m employable.” For others, it was the knowledge that this was one of the first times they have experienced some sort of stability in their life. “I’m feeling excited about the future,” Anna said about her situation, “I feel really good. I feel like, everything’s good right now.” Marie, a 30-year-old Hispanic mother of three, mentioned a reliable source of food, shelter, and safety was enough to elicit optimism. Additionally, this optimism spilled over into the second generation for some, such as Mary, who spoke of her daughter’s plans for the future: “She wants to be a cosmetologist. She wants to go learn that, make money, then go back to school and learn something else. So she’s looking at extended schooling. I’ve always just nailed home education. You cannot do anything without an education, unless you want to be something shady. And that won’t last long…this is not going to stop us from taking her to the next level. It’s just a little speed bump. It’s huge for me a big ol’ pothole in my life, but for her, it’s just a little speed bump, because you know we’re going to get [there].

Many had similar goals for the future including higher education plans, such as Elizabeth, who is currently enrolled in college classes, and quality employment, including clerical and call center employment or jobs such as an x-ray technician or a dental hygienist.

**Long-term planning**

One reason for the widespread optimism by those interviewed is the ability to pass on short-term solutions, in favor of those which will set them up for long-term success. While some chose to accept part-time employment for the immediate benefit, others expressed frustration with trying to find employment while being employed. For this reason, some choose to pass on part-time employment altogether, opting instead to find a full-time job that could sufficiently support the lifestyles that they envisioned, in particular, independent housing. As Mary put it:

“I’m using this program to set me up for success. Because like I said, can’t live off of a part-time job. I can tell you, if I were out of this program, I would’ve taken a part-time job, because you know, I’ve got to have money. So this program has allowed me to take a step back and say, ‘is this really right for me?’ and it wasn’t. But if I wasn’t in the program, I would’ve had to take it. And I think a lot of people are forced into, you know, their category of life by circumstances like that.”

This is an insightful observation pertaining to the role of social capital in these situations. Additional capital allows one to pass on the opportunities which provide no long-term stability, and instead hold out for those that set one up for long-term success.

Additionally, several cited the ability to set and work toward goals care and floated around for most of her life. She is now struggling as a single mother herself, trying to raise a child whose father is in prison for selling narcotics. Unlike the mothers mentioned in Coleman’s research who would buy an extra textbook to help their children study, giving their children extreme advantages in the realm of social capital, situations like these lead to extreme deficits in social capital, as we see multiple generations affected. What is important to note is that the legal situations discussed in this section are not the wrongdoing of those experiencing homelessness, but rather the actions of others, showing the power of social capital in a negative way. Additionally, women often seek out help from men who are traditionally granted more power in society. While this dynamic seems to be in the best interest of the women with less capital, as they envision it way. Additionally, women often who would buy an extra textbook her life. She is now struggling as a traditionally granted more power in the realm of social capital, situations their children extreme advantages in to help their children study, giving increasing social capital, and stigma related to their experiences with homelessness.
as a reason for optimism. Anna was especially pleased to be setting goals for her life: “Sitting down and setting 30 day goals and 60 day goals. I think it shows you the steps that you need to take to get there. Actually every week we do action steps to get you closer to your goals. I like it. It helps you stay on task. Honestly, before I came here I never set any goals for myself. It’s cool. I like being able to do that. It’s nice.”

For many who find themselves in situations where food and shelter are uncertain, life becomes a day-to-day struggle; the focus of life shifts its focus to survival, rather than success. While this is a reasonable and common reaction, it is also a contributing factor to the cyclical nature of poverty and homelessness. In situations where additional social capital is accessible, those experiencing homelessness are able to engage in thought and planning for the future and, as we have seen, become much more optimistic about the future they now envision.

**CHALLENGES**

**Lack of family life**

Still, while those interviewed expressed many reasons for optimism, they also expressed frustration with various elements of their life. As addressed earlier, the role of family and the potential effects on one’s life, whether positive or negative, are substantial. However, in programs which incorporate various forms of community living, including shelters and other alternative housing programs, it can be very difficult to cultivate social capital in the family. Given the consequences of having low levels of social capital, this has the potential to pose a serious problem in eliminating continued homelessness and poverty. While conditions in various programs are no doubt more favorable than living on the streets, they still limit the development of social capital within the family. Raising a child in this environment can be especially challenging. Mary described the difficulty of cultivating a family life and building a relationship with her sixteen-year-old daughter as she transitions into being a young woman:

“All families sleep in the same room, so there is no privacy. It’s very tough; very tough. I don’t think community wise, people realize how important that time is in the evening, that reconnecting at the end of the day. Being with your kid and seeing what you can do to make it better. Well, we have “group” and we have to go to groups, and it just cuts into family time. It just makes it harder to connect. Ya know and kids need your attention, especially in this environment.”

Similarly, Callie expressed their thoughts on the difficulty of raising a child in this environment:

“Yeah, it’s um definitely how you parent is called into focus here: your values, how you treat your child, how you think your child should be raised, people are always scrutinizing you constantly. You’re more restrained here, so maybe you don’t parent the way that you want to.”

Marie described the environment as “fish-bowl parenting,” alluding to the way in which she felt like her every move was being monitored by those around her, also mentioning that she felt “judged” in the way she raised her children. The overall lack of privacy in this environment proved to be frustrating for most of the women interviewed.

**Inability to accrue more capital**

Along with an inability to grow and strengthen family ties, it may become difficult to build capital outside the program. Several of the women compared their experience at the program to being institutionalized. Because of the rigid structure of some of the programs, participants find it difficult to make connections outside the program. Mary found the schedule to be especially frustrating:

“You’re locked into this program in that you have to stay here for the first 30 days and pretty much the whole time. You can’t stay here a day and then go stay with a friend, you have to stay here the whole time. So, um it locks you into definitely a different type of structure to your day. Say you have to be in the church by 10 o’clock. You have to eat dinner at 6. It’s like being institutionalized, only you get the freedom to walk outside. That’s exactly how it is.”

When asked about her social life, Callie mentioned the difficulty of making friends given the environment and her lack of transportation. This is also true for the children in these programs. As Mary put it:

“Yeah, they don’t like for kids to be gone either. They kind of like to force kids into the program. I kind of think a kid should have more outs, but, you know grandma, grandpa, an uncle’s house, they ought to be allowed if they want to go, they should be allowed to go. There’s a thirty day window where you can’t go anywhere. The first thirty days here are the hardest. I think it’d be better for the kids if they could go somewhere else. You know, but the things is ‘Oh well, this is for the kids, so the kids need to be here.’ It’s kind of a catch-22, because it’s like if it’s harming them mentally, why can’t they just go somewhere else for the day? Why can’t they get the comfort of a family member, go to grandma’s house, instead of being in this generic room that’s made to look like it’s your bedroom, but it’s not. And the rooms would be like this, (motions around the office), but they’d push the table to the side and put a couple cots out. You know, we have a place to sleep, but it’s not homey. This is a great program, but it’s not homey.”
This difficulty in being able to create networks affects the performance of students who find themselves alone where most students have the support of friends or tutors. Mary, when asked if her daughter was able to make friends at school or get help with homework, answered, “Well she’s not going to seek out help from the community or from friends when she can’t bring them home, they can’t hang out at home.” This is perhaps one of the most difficult obstacles to overcome in building social capital. While employment opportunities are limited and program structures limit the ability to build outside relationships, there is perhaps nothing more damaging to the creation of social capital than stigma.

Stigma

While the obstacles discussed thus far limit the ability to build more social capital, social stigma is perhaps the only one which works directly counter to this process. We have seen social capital defined in terms of the ability to facilitate relationships and bring about certain actions (Bourdieu 1986; Coleman 1988; Putnam 1995). Social stigmas, on the other hand, prohibit these relationships and decrease one’s ability to accomplish certain goals. The theme of stigma was very prevalent in the interviews as participants shared both personal experiences and those of their family. The difficulty was not limited to finding jobs and housing, but also carried over into personal situations which make building more social capital difficult.

Mary recounted her story of struggling to get housing and employment after becoming homeless:

“Once you become homeless you cannot get a home. It’s like you’re black marked in society, because they’re not going to give you the opportunity. It’s like, you can find a job if you have one, but if you’re unemployed: forget it. It’s that mentality. ‘I’ll give you a job because I see you’re employable.’ But you don’t have a job, so obviously you’re unemployable. So how do you get out of homelessness when society keeps you there? They don’t allow you to. There’s no leeway. Things are so expensive now too. What do you do? Yeah, it’s like circular logic. “I’ll give you a job if you can show me you’re employable. I’ll give you a home if you show me the home you’ve been living in.” I don’t know, maybe I’m skewed, but that’s how I see it.”

Others, such as Callie, reinforced this opinion in their interviews, expressing the difficulty of finding housing without a current address or a rental history, or in using programs such as Section 8 housing, which many landlords refuse to accept largely due to the stigma attached to those receiving the benefit. The same held true for jobs. When employers found out about homeless situations, they questioned the interviewee’s ability to be a good employee, citing distracting life circumstances and lack of transportation, as justification for their concerns. Even with experience, many of those experiencing homelessness are passed over for less qualified candidates with more stable situations.

Furthermore, there is a stigma produced by those working or volunteering with those experiencing homelessness. Several participants mentioned feeling judged by others and spoke of how people assumed their situation was a result of their own poor choices, without considering the role of family structure or other contributing factors. Upon taking her daughter to church one day, Callie, who utilized the church’s overnight shelter, was approached by a woman who wanted to introduce her son to “one of the homeless people who sleeps here at night.” Similarly, others in the program expressed that those working with these groups are often outright about their feelings of superiority, viewing their time in the shelter as a “service” or an “obligation” to the “less fortunate.”

For some, viewing the effects on their children is difficult and emotional. Speaking of her daughter, Mary said, “She’s only a sophomore. And the biggest setback of this program is the churches like to have teenagers help. We’ve had experiences where her peers are seeing her in this program. Humiliation is huge. It makes me feel bad.” At this point, Mary began to cry, then continued, “Ya know, she’s in high school. And umm… (wipes tears)… ya know she acts like she doesn’t care, but I know better.” While this may on the surface seem simply like an emotional reaction by a parent, it is in reality a very telling indication of future difficulty in developing social capital. As evidenced above and by empirical research such as that demonstrated in Coleman’s work, social capital in the family as well as the development of capital among peers, particularly pertaining to education, can have strong implications of the outcome of the students in terms of educational attainment. Difficulty to cultivate what most would consider “normal” relationships during high school and teenage years can lead to inadequate network connections down the road, which often lead to job acquisitions and other benefits of social capital.

**DISCUSSION**

This study has several limitations that should be considered when discussing the findings. The sample was small, but does include the entire population at the program which granted me access to do interviews. It is, therefore, representative of experiences in this program, but cannot fully be generalized to the experiences of all homeless mothers.
There were problems reaching the initial target population, which resulted in narrowing the study in scope to homeless families, specifically to mothers. No other shelter allowed access to interview their homeless clients. Nevertheless, a broader sample, one which incorporates multiple programs, would improve the generalizability and credibility of the study.

Interviews were conducted in the housing program, and while confidentiality was ensured, some participants seemed hesitant to discuss negative thoughts about the program. Additionally, one must consider the dynamics of a researcher coming in and conducting what some referred to as a “science experiment.” This presents questions about how to best conduct similar research, minimizing the perceived gap between the researcher and the homeless. If future studies are to overcome the issues addressed above, they will require greater time, resources, and cooperation from local shelters.

This study set out to answer two primary questions: Does the homeless population lack significant social capital? If so, did social networks exist at one point and deteriorate over time, or are the networks insufficient or lacking in some way that allows homelessness to occur? In addressing the first question, it can be said that the participants of this study all had significant deficiencies in social capital. The homeless interviewed had little to no connection with family. Those with family stated that they were in similar situations, if not worse. In terms of the second question, most had little social capital to begin with. The small social networks that had been built over time were unstable and many times, contributed to the problem, for instance in the case where the boyfriend became abusive.

Of great importance is the impact that these deficiencies have on the children of homeless mothers. As the literature suggested, the impacts on children can lead to significant problems down the road. In contrast, children with high levels of social capital typically attain higher levels of education and upward social mobility. Most of the mothers interviewed are examples of this, given that they came from childhoods with little social capital. In order to disrupt the potential cycle of homelessness for these families, special attention must be given to developing social capital both within families and with outside social networks. The creation of these networks and accumulation of social capital are key elements for preventing homelessness in the future. Further research would be well served by developing improved methods of measuring social capital, such as indices which examine factors such as network size, contact with social connections, and proximity of network connections. Given the prominent role of social capital and the deficiency exhibited by those interviewed, further pursuit in this area could yield substantial results and begin to shift the way we address homelessness.
REFERENCES


Appendix A

Interview Guide

Name of Interviewee:

Meeting place for interview:

Date:

Demographic Information
Sex  Male ___  Age ___
Female ___

Employment status:  ___Employed full-time
___Employed part-time
___Unemployed

Education  ___HS diploma/less  ___4 year college degree
___Some college  ___Technical/vocational training

Marital status  ___Married  ___Single, never-married
___Divorced/Widowed  ___Cohabitation
___Other

1. INTRODUCTION/PURPOSE/CONSENT

2. BASIC DEMOGRAPHIC: Sex/Race. Let’s start off with your name and age. What’s the highest level of education you’ve received?

3. FAMILY: Have you ever been or are you currently married? Do you have any children?

4. EMPLOYMENT HISTORY: What is your most recent job? What were you doing before that? How long have you lived in Liberal?

5. CURRENT SITUATION: How did you come to be affiliated with _____? Approximately when was that? In what ways are they assisting you? How helpful do you find these services?

6. SOCIAL RESOURCES: Have you received assistance from any other sources? (Family/ Community/ State?) Did you receive any support from family? Friends? If so, what kind of support did you receive? How helpful?

7. CONCLUSION: How optimistic are you about your future? What other comments would you like to share?
# APPENDIX B

## Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Race</th>
<th># of Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary</td>
<td>45</td>
<td>White</td>
<td>1</td>
</tr>
<tr>
<td>Anna</td>
<td>22</td>
<td>White</td>
<td>2 (and one stepchild)</td>
</tr>
<tr>
<td>Callie</td>
<td>23</td>
<td>African-American</td>
<td>1</td>
</tr>
<tr>
<td>Marie</td>
<td>30</td>
<td>Hispanic</td>
<td>3</td>
</tr>
<tr>
<td>Elizabeth</td>
<td>27</td>
<td>Native-American</td>
<td>1</td>
</tr>
</tbody>
</table>
Inhibition of L-type and cyclic nucleotide-gated calcium channels demonstrates synergistic mechanisms for prolonging vascular contractions induced by a mimetic of thromboxane A₂

Joseph W. Kellum

INTRODUCTION
Thromboxane A₂ (TxA₂) is a metabolite of arachadonic acid—an unsaturated membrane phospholipid. TxA₂ is released by platelets during tissue trauma and inflammatory events (1). This prostanoid signaling molecule is responsible for further platelet activation and aggregation, as well as constriction of smooth muscle comprising the walls of bronchioles and blood vessels (1). The current study examines the effects of TxA₂ on vascular smooth muscle.

It has been shown that TxA₂ evokes vasoconstrictive responses that persist for a longer duration than a number of other vasoactive molecules (e.g. phenylephrine, KCl and others) (2). This observation is of clinical importance, due to the fact that TxA₂ vascular contractions elicited in vivo have the potential to decrease blood supply to tissues for prolonged periods of time.

Such circumstances could be life-threatening in the case of TxA₂ release during acute, traumatic events in which decreased blood flow leads to reductions in nutrient delivery and eventual cell death, such as myocardial infarction or stroke (3). In these situations, TxA₂ produced in response to tissue trauma would promote vasoconstriction, which would trigger a positive feedback cycle resulting in greater decreases in blood supply. Strong correlations...
have also been observed between increased levels of thromboxane B₂ (a metabolite of TxA₂) and patients suffering from angina pectoris, which could be considered a chronic manifestation of the negative effects of TxA₂-induced vasoconstriction (4).

The primary purpose of this investigation was to gain a better understanding of the molecular mechanisms responsible for these characteristically prolonged vascular contractions elicited in vessels exposed to TxA₂. Unfortunately, TxA₂ is an unstable molecule, with a half-life of ~30 seconds in aqueous solution at 37°C (5). This instability makes use of the endogenous compound impractical in the laboratory. For this reason, a stable mimetic of TxA₂ (known as U-46619) was used to elicit the vascular contractions of interest throughout these experiments (6).

Both TxA₂ and U-46619 bind to the TP receptor to elicit cellular signaling cascades, ultimately leading to smooth muscle contraction. The TP receptor is a metabotropic, G protein-coupled receptor. Specifically, the activated G protein has a Gαq subunit which dissociates from the βγ subunit and diffuses into the cytosol to activate phospholipase C (PLC). Activated PLC cleaves membrane phospholipid phosphatidylinositol 4,5-bisphosphate (PIP₂), producing inositol 1,4,5-triphosphate (IP₃) and diacyl glycerol (DG). IP₃ migrates to the sarcoplasmic reticulum (SR), where it binds to Ca²⁺ channels in the membrane of the SR. This permits the release of intracellular Ca²⁺ stores into the cytosol. Increases in cytosolic Ca²⁺ concentrations lead to activation of a number of Ca²⁺ dependent signal transduction cascades (1).

Diacyl glycerol (the portion of PIP₂ that remains in the membrane) then couples with Ca²⁺ in the cytosol to activate protein kinase C (PKC). Activated PKC phosphorylates L-type Ca²⁺ channels in the plasma membrane. Phosphorylation, coupled with cell membrane depolarization, leads to the opening of these L-type Ca²⁺ channels, which are both voltage-gated and ligand-gated. Opening of L-type Ca²⁺ channel permits influx of extracellular Ca²⁺, which leads to greater increases in intracellular Ca²⁺ concentrations. Elsewhere in the cell, these increases in intracellular Ca²⁺ concentration lead to the formation of Ca²⁺/calmodulin kinases, which activate myosin light chain kinase (MLCK) via phosphorylation. In turn, MLCK propagates the signal by phosphorylating myosin light chain (MLC). MLC then undergoes cross-bridge cycling with actin filaments, thus promoting contraction of the smooth muscle (1).

Concurrent with the mechanism for contraction discussed above, myosin phosphatase acts to dephosphorylate MLC. This promotes return of the smooth muscle tissue to a relaxed state. Myosin phosphatase is regulated by a signaling cascade known as the Rho-kinase pathway (1). This cascade also begins with a G protein coupled to the TP receptor (7). When activated, this Gα subunit activates a membrane-bound guanine-exchange factor, RhoGEF, which activates RhoA. RhoA then activates Rho-kinase, which phosphorylates myosin phosphatase. Phosphorylation of myosin phosphatase inactivates the enzyme. This shifts the contraction/relaxation equilibrium in favor of the contracted state, and serves as a mechanism for prolonging vascular contraction (1).

FIGURE 1.

Left is a flow chart of the signal transduction pathways for TxA₂-induced contraction in smooth muscle. Here, it can be seen that binding of the ligand (TxA₂ or U-46619) to the TP receptor activates two separate signal transduction pathways. One pathway leads to increases in intracellular Ca²⁺ concentrations, which promotes contraction. The other serves the purpose of maintaining established contractions. A more detailed description can be found in the text (1).
Unpublished data from this lab (8), as well as many published works over the past decade have demonstrated that inhibition of Rho-kinase does lead to significantly increased rates of relaxation in vessels initially contracted using U-46619 (9, 10, 11). Thus, it is apparent that the Rho-kinase pathway is necessary in establishing the prolonged nature of the U-46619-induced vascular contractions. However, this pathway has also been shown to be activated by a number of other vasoactive agents, none of which display these significantly prolonged contractions (10, 11). Phenylephrine (PE), for instance, binds to an α1 adrenergic receptor. This receptor has been demonstrated to be linked to both the Gαq protein responsible for establishing the U-46619 contraction, as well as the Rho-kinase pathway (10, 11). These similarities render the PE contraction a reliable control to which the U-46619 contraction can be compared. The difference, however, is that PE-induced vascular contractions relax within minutes following removal of PE from the bathing solution of isolated blood vessels, while U-46619-induced contractions persist for hours before returning to basal tension (6). Therefore, another unidentified mechanism must play a significant role in prolonging U-46619-induced contractions.

In work published from this lab, inhibition of L-type Ca\(^{2+}\) channels was examined in the context of two different types of contractions (6). Under normal circumstances, treatment of vascular smooth muscle with KCl leads to significant contractions due to depolarization of the cell membrane potential and opening of voltage-gated Ca\(^{2+}\) channels. When L-type Ca\(^{2+}\) channels were inhibited, KCl treatment elicited no measurable contractions. Inhibition of L-type Ca\(^{2+}\) channels was also effective in attenuating U-46619-induced contractions; however, the TxA2 mimetic evoked measurable (though markedly reduced) contractions, even in the presence of these L-type Ca\(^{2+}\) channel inhibitors. The authors concluded that the U-46619 contraction mechanism likely utilizes more than one membrane channel for influx of extracellular Ca\(^{2+}\) (6). More recent work, published by Leung et al, introduced the idea that cyclic nucleotide-gated (CNG) Ca\(^{2+}\) channels may play a role in the U-46619-induced mechanism (12). This conclusion led to speculation that CNG Ca\(^{2+}\) channels might be the extra conduits for influx of extracellular Ca\(^{2+}\) referenced in the earlier work by Liu et al.

Therefore, the objective of this experiment was to inhibit both L-type (using an L-type channel inhibitor known as nifedipine) and CNG Ca\(^{2+}\) channels (using a CNG channel inhibitor known as L-cis-diltiazem) to test whether they played roles—either separately, or in combination—in prolonging the TxA2/U-46619-induced contraction. It was hypothesized that inhibition of L-type and CNG Ca\(^{2+}\) channels would lead to significant increases in rates of relaxation in U-46619-treated vessels. We also predicted that inhibition of only one channel at a time would lead to moderate increases in the observed rate of relaxation, while simultaneous inhibition of both channels would lead to significantly greater increases in rates of relaxation.

MATERIALS AND METHODS
To test the effects of L-type and CNG Ca\(^{2+}\) channel inhibitors (nifedipine and L-cis-diltiazem, respectively) on U-46619-induced vascular contractions, segments of aorta were removed from euthanized New Zealand white rabbits (IACUC: AUS 42-02). Vessels were placed in a modified Krebs solution (6) and kept overnight at 40°C. All experiments were carried out the following day using a conventional isolated organ bath preparation. 95% O2/5% CO2 was bubbled through a physiological buffer (pH ~ 7.4), which was maintained at 37°C. The vessels were held in place by hooks, which applied tension to the vessel throughout each experiment. One hook was stationary, while the other relayed the contraction force created by the vessel to a force transducer. At the beginning of each experiment, a baseline tension of 2 grams of force was established to mimic the basal muscle tone that occurs in vivo.

FIGURE 2.

This figure is a schematic of the general organ bath setup utilized to measure tension elicited by the vessel throughout each experiment. As the vessel contracted, it applied tension to the force transducer shown at the top of the figure. The transducer relayed the magnitude of the force applied at a given time to a computer, which produced a graph like the one seen in figure 3, below.
In each experiment, six individual segments of the aorta were placed in six separate organ baths. All six baths were subjected to the same general procedure to begin each experiment. Following a period of equilibration, the organ bath was filled with 60 mM KCl to induce maximal contraction, followed by a wash in which the KCl solution was drained from the bath and fresh buffer at pH 7.4 was added. The vessels were then allowed to relax to baseline tension. This sequence was then repeated once more. Following the second wash, all vessels were subjected to the addition of 5μM U-46619 to elicit contraction. Once the contraction reached its peak, as recorded by the force transducers on a computerized graph (see figure 3 above), the bath was washed for a third time. Following this third wash, the protocol varied, dependent upon whether inhibitors or vehicles were added to each bath. Figure 3 below has been included for the purpose of easily relating this protocol to the experiment conducted.

In the variable portion of the experiment, the vessels were treated with four different combinations of drugs and respective vehicles. The drugs used included nifedipine, which is an L-type Ca²⁺ channel inhibitor, at 200 μM (dissolved in 0.4% ethanol/99.6% water), as well as L-cis-diltiazem, which is a CNG Ca²⁺ channel inhibitor, at 140 μM (dissolved in 100% water). These dosages were obtained from previously published reports in which dose responses were carried out to determine effective doses of each drug (6, 12). Each drug was prepared by first preparing a concentrated stock solution, which also contained a greater concentration of ethanol in the case of nifedipine. This stock solution was then diluted upon addition of a small quantity (693 μL for nifedipine and 450 μL for L-cis-diltiazem) to 20 mL of physiological buffer in the organ bath during the experiment. Nifedipine and L-cis-diltiazem were purchased from Enzo Life Sciences, Farmingdale, NY. U-46619 was purchased from Cayman Chemical Co., Ann Arbor, MI. The first treatment group consisted of vessels treated with both inhibitors, namely 200 μM nifedipine, followed by treatment of 140 μM L-cis-diltiazem. Following treatment, all vessels were allowed to relax to baseline tension and the relaxation time was recorded. The second group consisted of vessels treated with 200 μM nifedipine, followed by treatment with L-cis-diltiazem vehicle (100% water). The third group consisted of vessels treated with nifedipine vehicle (0.4% ethanol/99.6% water), followed by treatment with 140 μM L-cis-diltiazem. The fourth group consisted of vessels treated with nifedipine vehicle, followed by treatment with L-cis-diltiazem vehicle. This was the control set for this experiment.

As stated previously, vessel tension was monitored electronically throughout the duration of the experiment (see figure 4A – 4D). At the conclusion of each experiment, the graphs obtained were analyzed to yield quantitative data in the form of rates of relaxation for each vessel. This method of data analysis was chosen to normalize vessels that varied in the magnitude of the contraction. These rates were obtained by using the following formula:

\[
\text{Ave. Rate of Relaxation} = \frac{\text{Magnitude of contraction (in grams) - 2.00 g}}{\text{Time required to relax to baseline (in minutes)}}
\]

An example graph from a representative experiment is shown above. The first peak was caused by the KCl treatments, respectively. The second peak is representative of the U-46619-induced contraction. Notice how the peak caused by U-46619 plateaued at its maximum, whereas the KCl-induced peaks began to slope downwards even before the wash. Each treatment is marked along the x-axis, with Ni and Dil denoting nifedipine and L-cis-diltiazem, which are L-type and CNG Ca²⁺ channel inhibitors, respectively. The dotted line at 2 g of contraction signifies baseline tension, and the black arrow indicates the point at which the vessel returns to baseline tension following treatment with U-46619.
RESULTS
Computer-generated graphs produced during the course of an individual experiment are shown in figure 4 below. The y-axis of each graph displays vessel tension (grams). The x-axis displays time (minutes) throughout the duration of the experiment. Thus, the height of a line at any given point on the x-axis represents the force of contraction elicited by the vessel at that particular point in time.

Figures 4A – 4D display two different contractions: an initial KCl-induced contraction, followed by a U-46619-induced contraction. This comparison provides good visual representation of the prolonged nature of U-46619-induced contractions. While contractions elicited using KCl relax immediately following removal of the high KCl buffer (wash), the contractions produced by U-46619 treatment persist long after the drug has been removed from the organ bath.

Figure 4 also facilitates qualitative comparison of the four different treatments given, and the rates of relaxation of each. The vessel represented in figure 4A was treated with the vehicles for each inhibitor. This served as the control group. It is obvious that the control group exhibited a decreased relaxation rate as compared to the groups treated with one or both inhibitors (shown in figures 4B – 4D). Figure 4B presents the responses of a vessel treated with both inhibitors, nifedipine and L-cis-diltiazem. The slope of this line is noticeably greater than that in figure 4A, but quite similar to the slopes in figures 4C and 4D, which were treated with L-cis-dilitiazem and nifedipine, respectively. This indicates that no significant differences were present between the relaxation rates of these three groups of inhibitor-treated vessels.
Data representing the contractions and relaxations of four vessels are shown. The panels are labeled according to which drugs they received prior to the relaxation phase. Notice how the vessels treated with various combinations of drugs reached baseline tension much more quickly than the vessel treated with vehicles only. On the x-axis, the treatment given at each point in time is indicated. Ni and Dil represent nifedipine and L-cis-diltiazem, respectively. Also, note that the arrows indicate the time at which each vessel returned to baseline tension after treatment with U-46619. Baseline tension (2 g) is indicated by the dotted horizontal line.
The mean rates of relaxation for all vessels within each treatment group are presented in figure 5. The control group (vehicle treatment only) had a significantly reduced mean rate of relaxation as compared to the three inhibitor-treated groups. This observation was tested using a one-way, unstacked ANOVA, which resulted in a test statistic of $F = 7.61$ with 46 degrees of freedom and $P$-value $< 0.001$, thus, supporting the initial hypothesis that inhibition of L-type and CNG Ca$^{2+}$ channels will lead to increases in the rates of relaxation in U-46619-treated vessels. The mean rates of relaxation for all vessels within each treatment group are presented in figure 5. The control group (vehicle treatment only) had a significantly reduced mean rate of relaxation as compared to the three inhibitor-treated groups. This observation was tested using a one-way, unstacked ANOVA, which resulted in a test statistic of $F = 7.61$ with 46 degrees of freedom and $P$-value $< 0.001$, thus, supporting the initial hypothesis that inhibition of L-type and CNG Ca$^{2+}$ channels will lead to increases in the rates of relaxation in U-46619-treated vessels.

This graph also allows the mean rates of relaxation for the three inhibitor-treated groups to be compared. Small differences exist between these means, especially when comparing vessels treated with only L-cis-diltiazem to those treated with only nifedipine. However, statistical testing with a one-way, unstacked ANOVA in this instance failed to refute the null hypothesis for these means ($F = 1.17; 31$ degrees of freedom; $P = 0.324$). Therefore, these data indicate that no difference in relaxation rate is observed between vessels in which different Ca$^{2+}$ channels are inhibited, as long as at least one channel is inhibited.

DISCUSSION

Role of L-type and CNG Ca$^{2+}$ channels in prolonging U-46619-induced vascular contractions

The data obtained from these experiments support the hypothesis that inhibition of L-type and CNG Ca$^{2+}$ channels does, indeed, lead to increased rates of relaxation in U-46619-treated vessels. The mean rate of relaxation for the vehicle (control) treatment group was significantly reduced in comparison to groups receiving nifedipine only, L-cis-diltiazem only, or both inhibitors simultaneously. However, the vessels treated with only one inhibitor—either nifedipine or L-cis-diltiazem—displayed rates of relaxation similar to vessels treated with both inhibitors simultaneously. This result was unexpected, and contrary to the prediction that inhibition of both types of Ca$^{2+}$ channels would lead to significantly greater rates of relaxation than vessels in which only one type of Ca$^{2+}$ channel was inhibited. While inconsistent with original predictions, this observation is equally significant. Thus, it was observed that inhibition of either set of Ca$^{2+}$ channels led to a significant drop in the efficacy of the TxA$_2$ mechanism for prolonging vascular contraction. We conclude that simultaneous, optimal functioning of both L-type and CNG Ca$^{2+}$ channels is necessary in order to maintain the prolonged contractions characteristic of U-46619-treated vessels.

L-type Ca$^{2+}$ channels have long been associated with the TxA$_2$/U-46619-induced contraction. These channels are considered to be more abundant in the plasma membranes of vascular smooth muscle cells, and serve as the primary source of Ca$^{2+}$ influx (1, 6). They are also thought to be essential in establishing the initial contraction, though it has been shown that a small
contraction can still be obtained by addition of U-46619 to vessels pre-treated with L-type Ca\(^{2+}\) channel inhibitor, nifedipine (6). L-type Ca\(^{2+}\) channels have two different gating mechanisms—they are both voltage-dependent and dependent upon allosteric modification (phosphorylation) from protein kinase C (1). When the membrane is sufficiently depolarized, and when the channel is in its phosphorylated state, it opens to the extracellular environment. At this point, L-type channels facilitate the selective influx of Ca\(^{2+}\) ions, thereby increasing intracellular Ca\(^{2+}\) concentrations.

While the mechanism for L-type channel opening/closing is well known, the function of CNG Ca\(^{2+}\) channels remains mostly unexplored. These channels are known to be gated by cyclic nucleotides (such as cAMP or cGMP) in some fashion (12). Because cGMP is often associated with vascular relaxation through the nitric oxide (NO) pathway, it is more likely that cAMP is responsible for mediation of CNG Ca\(^{2+}\) channels. Regardless of the pathway involved, it has been demonstrated by this experiment that CNG Ca\(^{2+}\) channels are essential to prolonging U-46619-induced vascular contractions, since inhibiting these channels significantly increases the rates of relaxation in aortic vessels.

**FIGURE 6.**

Shown is a flow chart outlining the proposed mechanism for prolonged vascular contractions induced by TxA\(_2\)/U-46619 based on the results of this experiment. Here, the TP receptor is thought to activate another (currently unidentified) G protein, which proceeds to trigger a signaling cascade resulting in the opening of CNG Ca\(^{2+}\) channels. Ca\(^{2+}\) influx through these channels is thought to serve a variety of mechanisms (as discussed in the text) for prolonging TxA\(_2\)-induced vascular contraction (1).
Figure 6 provides a revised schematic of the TxA2/U-46619 pathway for vascular smooth muscle contraction. It has been modified to reflect the CNG Ca\[^{2+}\] channel-dependent mechanism proposed in light of our results. For simplicity, the Rho-kinase pathway has been deleted from this diagram, although it remains a key component of the overall mechanism for prolonged vascular contraction.

The cascade resulting from Gaq protein activation is the same as was proposed originally. In this revised pathway, the TxA2 receptor (the TP receptor) is coupled to yet another G protein. Though this G protein has not been identified, it may be a G\(_\alpha q\)-containing protein. Activation of this G protein is then likely to lead to activation of either guanylate cyclase or adenylate cyclase. The latter is more likely, due to the cGMP mechanisms discussed earlier. At this point, the cyclic nucleotides responsible for regulating the opening of the CNG Ca\[^{2+}\] channels are produced. These second messengers lead to further modification of other cellular proteins, which ultimately lead to an allosteric modification of CNG Ca\[^{2+}\] channels, promoting the open state.

Once open, the CNG Ca\[^{2+}\] channels allow Ca\[^{2+}\] influx from the extracellular environment. Ca\[^{2+}\] influx through these channels in particular is thought to promote prolonged vascular contraction via three different mechanisms. The most direct effect would be a contribution to the formation of Ca\[^{2+}\]/Calmodulin kinases, which lead to cross-bridge cycling and promotion of the contracted state, as discussed earlier. This mechanism alone would explain the persistent (albeit diminished) nature of the contraction following pre-treatment with L-type Ca\[^{2+}\] channel inhibitors observed by Liu et al in 1997 (6). CNG Ca\[^{2+}\] channels also have the possibility of promoting contraction through two indirect means, both of which involve contributions to the open state of the more traditionally acknowledged L-type Ca\[^{2+}\] channels.

The first indirect means involves the voltage-gated property of L-type Ca\[^{2+}\] channels. By acting as another route for Ca\[^{2+}\] to enter the cell through the plasma membrane, CNG channels lead to a more depolarized state in the vicinity of the L-type channels. This increases the likelihood of the latter remaining open for longer periods of time. The second strategy for keeping the L-type channels open for prolonged periods involves Ca\[^{2+}\] entering through the CNG channels and working with diacyl glycerol to activate protein kinase C. Because this is independent from previously discussed mechanisms for PKC activation, this pathway can be speculated to lead to greater amounts of active PKC in the cell at any given time, thus promoting the phosphorylated, open state of L-type Ca\[^{2+}\] channels.

Based on this model, CNG Ca\[^{2+}\] channels are able to elicit their effects not only via a direct route, as is the case with L-type Ca\[^{2+}\] channels, but also in an indirect manner by promoting the open state in L-type channels. Therefore, we believe that L-type and CNG Ca\[^{2+}\] channels function in an interdependent fashion to elicit the prolonged vascular contractions characteristic of TxA2/U-46619-treated vessels. When L-type Ca\[^{2+}\] channels are inhibited by nifedipine, the primary source of extracellular Ca\[^{2+}\] has been removed from the equation. This eliminates the cooperative mechanism for prolonging TxA2-induced vascular contractions, and relaxation ensues. In the absence of functioning L-type channels, the effects of CNG channels are much less significant. On the other hand, when CNG Ca\[^{2+}\] channels are inhibited by L-cis-diltiazem, an equally essential component of the system is removed. Here, the cell retains its primary source of Ca\[^{2+}\] influx in the form of the L-type channels; however, these channels returned to the closed state much more quickly. This is thought to be analogous to the case of PE or KCl-induced contractions, in which CNG channels likely do not play a role. Thus, early L-type channel closure during CNG channel inhibition is thought to be due to lack of promotion of the open state by increased PKC activity and decreased membrane potential, both of which normally result from the increased Ca\[^{2+}\] influx provided by CNG channels.

In each case discussed, the interdependent, cooperative Ca\[^{2+}\] channel system for prolonged contraction has been eliminated due to inhibition of one component. Therefore, when both channels are inhibited simultaneously, the increase in rate of relaxation is synonymous to the increase observed when only one channel is inhibited. This is because individual inhibition of either channel has an indirect, inhibitory effect on the other, leaving nothing more to be accomplished by dual or simultaneous inhibition.

**LIMITATIONS OF THE METHODS**

This investigation has several limitations. It is our assumption that the inhibitors used in these experiments are exerting specific effects on the channels of interest without non-specific effects on other channels or intracellular signaling molecules. This assumption appears to be reasonable, based on previously reported data in the literature (6, 12). We also relied on literature sources...
for the doses of the inhibitors used in these experiments. Once again, this seems reasonable based on previous investigations geared toward carefully obtaining dose response data as a means for determining appropriate doses for similar experimental preparations.

**SIGNIFICANCE / CLINICAL IMPLICATIONS**
This study has clinical significance with respect to disorders in which tissue is damaged as a result of inadequate oxygen and nutrient supply due to decreased blood flow. In the chronic sense, TxA₂-related vascular tension has been identified as a contributor to poor coronary artery circulation underlying angina pectoris (4). Of even greater interest are acute cases of vessel constriction resulting in myocardial infarction (heart attack) or stroke. In these circumstances, blood supply to the tissues in question (either cardiac or neural tissues, both of which have high requirements for oxygen, glucose, etc.) is decreased, resulting in severe tissue damage, and even necrosis (3). This trauma prompts the release of TxA₂, which elicits powerful, prolonged vasoconstrictive effects that further decrease blood supply. Therefore, the presence of TxA₂ in these cases induces a positive feedback cycle in which tissue trauma leads to more vasoconstriction, which leads to more severe tissue trauma, etc. By elucidating the mechanisms responsible for significantly prolonging TxA₂-induced vascular contractions, it is possible that effective treatments for the inhibition of this phenomenon could be developed. Moreover, outlining unique components of these mechanisms could prove especially important for providing treatments capable of specifically targeting TxA₂-induced vascular tension, thereby avoiding negative side effects resulting from interfering with basal systemic vascular tension.

Based upon the results obtained in this experiment, it can be concluded that both L-type and CNG Ca²⁺ channels are necessary, but not sufficient for prolonging TxA₂/U-46619-induced vascular contractions. Furthermore, following the logic and speculations discussed above, it can be concluded that these two types of Ca²⁺ channels are linked together in an interdependent, cooperative mechanism whose optimal functioning is necessary for prolonging the vascular contractions traditionally observed in TxA₂/U-46619-treated vessels.

**ACKNOWLEDGEMENTS**
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Remnants of Ritual: A discussion of burial practices and material remains of Pompeian tombs

Jennifer Geller

ABSTRACT
As scholars, it is important to remember our own folly and the cultural biases we may be inadvertently projecting upon our scholarship. Nineteenth century excavators were appalled by piles of charred bones, terracotta and architectural fragments that were found near and in the tombs at Pompeii. It appeared to these excavators that Pompeians neglected their tomb sites and allowed rubbish and trash to pile up; they used this as evidence for a theory that Pompeii was experiencing a societal decline previous to the tragic destruction in the Vesuvius eruption of 79 AD. In my paper, I explore the tombs as multi-functioning centers of active ritual and retreat. In my opinion, these material remains are likely remnants of these rituals and banquets, and their existence should be expected in such active and often frequented venues. These piles of so-called rubbish should not be taken as evidence of a societal decline; rather they exemplify the dynamic and important role that tombs played in daily life at Pompeii.

I. INTRODUCTION
Mt. Vesuvius erupted in 79 AD, burying the city of Pompeii and its inhabitants under feet of volcanic ash and lava debris, where the city remained until its rediscovery in the eighteenth century. Excavators at Pompeii in the nineteenth century noted the presence of what they assumed to be graffiti and ancient trash in and around the tombs and concluded they were in a state of disrepair long before the catastrophic eruption. The excavators interpreted the condition of the tombs as a sign of neglect, theorizing that the earlier

Q&A
How did you become involved in doing research?
I first approached Professor Gerry in the fall of 2011 when she was teaching the survey course; I asked if I could complete an extra credit paper on the cult of the saints. After that, my interest continued to grow. In August 2012, I approached Professor Gerry about creating a more long-term project that would enable me to delve deep into my interests. Together we came up with my Undergraduate Research Award project. However, this is really only one aspect of my larger research goals.

How is the research process different from what you expected?
The research process can be draining! Every article I read leads me to numerous other relevant articles. Sometimes it’s difficult for me to stay on track for my specific paper, and not get carried away reading everything I come across. It involves a lot of narrowing down, and even then, I feel like my research is never done. There is always something more to learn.

What is your favorite part of doing research?
My favorite part of research is reading and absorbing so much interesting information. I also love taking notes from readings because I am a visual learner and cannot process things without physically recording them with my hands. I love to write as well, especially when I have so much to talk about.

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After the Roman colonization of Pompeii in 80 BCE, the Pompeians rapidly adapted Roman customs, structure, and visual culture, which is visible in the burial practices and tombs of Pompeii. Before the Roman colonization, we have evidence of plain, largely undecorated inhumation burials from the Samnite period. However, the Romans practiced cremation and brought their customs to Pompeii; grand tombs were erected along the main roads leading out of the city, oriented to Rome. These monuments fulfilled a symbolic role, and the cinerary urn containing the ashes would be buried in the ground or placed in a niche on the outside or inside of the tomb. These street tombs are characterized by their diversity in styles, ranging from elevated aedicule tombs, resembling temple architecture, to altar tombs, to semicircular benches called schola tombs, to tombs with exterior or interior niches for urns and columnae, burial stelae.

These changes in burial customs that accompanied Roman colonization were highly visible; the tombs were ostentatious structures, and their placement along main roads meant they were a prominent element of the visual landscape. The presence of bench tombs demonstrates that these monuments were built as much for the living as for the dead. These tombs fulfilled new roles as the inhabitants of Pompeii adopted Roman practices and beliefs; they were spaces created in accordance with the Roman cult of the dead.8

The Roman cult of the dead refers to the belief and practice of honoring departed ancestors. Much of the ritual occurred at the tomb, although larariums, small shrines, and imaginex, waxen death masks, were found in the atriums of many houses, showing that honoring ancestors was also an important part of domestic life. The tomb was the site of various festive events, including the banquet after the funeral in addition to occasions like anniversaries, birthdays, and publicly celebrated holidays such as Parentalia, or All Souls.10

The architecture of many of the tombs at Pompeii demonstrates that the tombs were conceived to be interactive and functional spaces for the rituals and celebratory events associated with the cult of the dead. Alastair Small points out the open air triclinium, or dining room, at the tomb of Gnaeus Vibius Saturninus, was a structure that clearly indicates events were being held. Wilhelmina Jashemski also remarks on its similarity to triclinia built for outdoor dining in the gardens of the living. She details the evidence for tomb gardens, a commonly-recorded feature in Rome, in Pompeii, citing enclosures adjacent to the schola of Marcus Tullius and the schola of Aesquilla Polla as probable tomb gardens, among others. The presence of tomb gardens demonstrates that the tomb sites were venues for rituals and planned gatherings, but could also be a space for meditations of a spontaneous and personal nature. This suggests how these spaces were conceived as a pleasant spot, locus amoenus, to spend leisure time. The bench monuments further this understanding, as these spaces were intended to invite the relaxation of passers-by.

The Street of Tombs outside the Herculaneum Gate demonstrates that tombs were located beside villas and shops, further indicating that the tomb spaces were interactive, functional retreats for both the living and the dead. As Jashemski writes,"Nothing of sadness pervaded a Roman cemetery."16

III. MATERIAL REMNANTS
As such frequented venues, a wide range of objects would be present at different events. Sometimes prized possessions, a bronze coin for the ferryman, or other grave goods were buried in tombs or urns. During the Roman feast of Parentalia, families brought flowers and food to their ancestors’ tombs. Wreaths of dried or artificial flora are occasionally found in tombs at Pompeii; the bodies and funeral urn were often decorated with flowers at death. During Violatio, there would be a feast for the relatives, who would light lamps and make offerings to the dead. Thomas Dyer records an instance where urns and lamps were both found in carved niches inside the funeral chamber of Navoleia Tyche in Pompeii. Inside the urns were a liquid of water, wine, and oil, evidence of the ceremonial libations poured into the urn through a tube in the burial stelae, or columnella. Some also contained fragments of burnt bones, in the tradition of os resectum, where a small part of the body was separated to remain whole, then buried with...
the cremated ashes, in order for the purification and end of mourning to be valid.\textsuperscript{21}

Dyer also describes a spot, behind two tombs,\textsuperscript{22} where the excavators found skulls and partially burnt bones of sheep and oxen, as well as an ornamented altar. There were apparently enough skulls and bones to prompt the excavators to refer to the spot as the “sepulcher of animals.” This is clear evidence of ritual offerings and activity occurring at the tomb site. In addition to these offerings, the family would often have banquetts on special occasions at the tomb site; while much of the material would be consumed or brought back home, some bones or other material remnants of their feasts likely remained.

The examination of charred remains from burial pits at a Gallo-Roman cemetery at Faulquéumont in Moselle, France, may give us insight into material deposits around 1st century Roman graves. The graves were mostly pits, with a few glass and ceramic urns found near or in the central building. Ceramics found at the site date from the end of the 1st century to the beginning of the 3rd century. In addition to various fruit and plant remains, the pits contained large quantities of charcoal, burned animal bones as well as human bones, “burned ceramic shards, textile fragments, white and colored glass fragments (green and blue), nails and metal artifacts, including precious metals such as copper, gold, and alloy partly composed of gold.”\textsuperscript{23}

Preiss, Matte, and Latron analyze the carbonized remains of seeds of fruit found in 70 graves, identifying around 20 plant species varying from cereals, pulses, fruits, bread, and tubers. They classify the plant remains into three categories: “inedible plant parts, leftovers of partly consumed plants, and burned whole fruits.”\textsuperscript{24} The differences in degree of carbonization, specifically the consistently poorly preserved cereal grains, suggest that cereals and pulses were exposed longer to the fire, perhaps implying prior cooking.\textsuperscript{25} Offerings like perfumes, clothes, oil, breads and pastries, grapes and other fruits were often placed on the pyre during the cremation of the deceased. From here, they suggest the remains can be classified into two groups: remains of offerings made at the pyre, and remains of funeral banquets and meals.\textsuperscript{26}

The fact that artifacts, metals, and various personal objects of the deceased were found in pits alongside cremated human and animal bones and plant remains demonstrates that what could have been interpreted in the nineteenth century as “trash” are in fact standard remnants from an active site of funerary rituals and meals. The charred bones from Pompeii are likely either from sacrificial offerings or remnants of funerary banquets.

The clay pottery fragments and bricks could have several explanations. They could be objects related to or owned by the deceased, left as symbolic grave goods. They could be part of ritual offerings or related to the vessels used to house these libations. They could be fulga, objects struck by lightning that needed to be ceremonially buried, as Alastair Small explains is inscribed by a small pile of broken tile and building rubble buried shallowly in the earth at the House of the Four Styles.\textsuperscript{27} They could have unknown magical or ritual significance, related to the two lead curse tablets (defixiones) found buried at the Tomb of Epidii. Their inscriptions are not fully understood, but one seems to devote an enemy’s body parts to the underworld.\textsuperscript{28}

There is still much to understand about specific religious and funerary rituals of Pompeii, but my interpretation is that piles of charred bones, clay ceramic ware, and bricks, as found in and around the tombs, can not be taken as evidence of an increasingly neglectful society. While original excavators may have been surprised at the presence of such rubble near burial sites, the Pompeians did certainly not see it as disrespectful or neglectful. On the contrary, tombs were conceived of as interactive spaces that functioned for the living as much as the dead. As such, material evidence of rituals, offerings, banquets and gatherings should be expected for these frequented spaces.

Allison Emmerson, a graduate student at the University of Cincinnati, began excavating at Pompeii in 2009. In 2012, at the Meeting of the Archeological Institute of America, Emmerson presented research called “Repopulating a ‘Abandoned’ Suburb: The Case of Pompeii’s Tombs.” A copy of her presentation is currently unavailable, but its abstract indicates that Emmerson explains the so-called “trash” around the tombs as unremarkable vestiges from an active center of mixed activity.\textsuperscript{29} Emmerson reports it is a demonstration of the Pompeians’ casual attitude towards trash, discussing this as one element in her larger refutation of the prevailing idea that the tombs were abandoned. I look forward to reading publicly available research from Emmerson.\textsuperscript{30} My paper does not attempt to comment on Emmerson’s larger refutation; I only wish to detail why these materials found near the tombs should not be used as evidence for a theory of decline or abandonment.

IV. AREAS FOR FURTHER RESEARCH

Taking into account my language limitations for accessing scholarship, it seems this issue would benefit from greater examination. Firstly, if there are available detailed accounts of the original excavation of the tombs, we could determine what has been since removed or otherwise changed. It is possible that there were originally greater quantities found than what is present today. I would
be interested to know if there were any other residual materials found besides bones, clay, and architectural materials, like remains of fruit, cereals, and other foods as seen in the Faulquemont cemetery pits. I would also like to do further research on grave goods and artifacts found inside the urns and tomb chambers.

In terms of our current knowledge of Pompeian burial practices and spaces, more excavation around the tomb sites would likely prove fruitful. Dr. Squarciapino has identified several enclosures around tombs as busta, the place where the body was burned and the ashes were buried.31 The bustum is differentiated from the ustrinum, the location of cremation in cases where the ashes were taken to be buried elsewhere. However, Jashemski thinks that the identification of busta does not exclude the possible existence of a public ustrina, standard by the Flavian period as the more efficient and economic option.32 She thinks a public ustrina could possibly be the rectangular enclosure at the apex of the road division outside the Herculanenum Gate,33 as well as identifying other specific tomb sites that would benefit from further excavation.

Discoveries at related sites may further our understanding. At Ostia, a number of tombs have permanent triclinia similar to those found outside the Herculanenum and Nuceria Gates at Pompeii. Ovens and wells have also been found at those sites in Ostia for the commemorative banquets, as well as water for cleaning the tomb.34

According to Jashemski, a discovery at Scafati demonstrates that a walled enclosure might include a garden and an ustrina.35 At the Faulquemont cemetery, the funerary pits contained remains of cremated bodies, organic materials and offerings, but there has been no bustum or ustrinum found.36

Emma-Jayne Graham devotes much thought on the subject of the monuments of M. Nonius Balbus, the patronus of Herculanenum.37 She suggests that the altar commonly referred to as his tomb altar is not the burial site of his ashes. The urn buried beneath it, identified by Small as his “funerary urn,”38 contained a human finger bone in a layer of carbon and sand, sandwiched in the middle of compact ashes. The finger bone is accepted as the os resectum of Balbus, referring to a documented practice common from the mid-republic to the early imperial period40 in which a fragment of the body was separated before cremation, kept by the family during the mourning period of nine days, at the end of which it was involved in a ritual purification with fire and water called suffitio.41 Graham suggests the ashes inside this urn that surround the os resectum are the remains of the suffitio pyre, which would explain why researchers were unable to find any other bone fragment in the ashes.42

If the altar monument marks the os resectum burial, the rest of Balbus’ ashes would have been buried elsewhere and marked by yet another inscribed marble altar. For a direction of research, Graham offers the knowledge that members of the Nonii household were buried in a columbarium on the south–east edge of town; I agree with her that it is unlikely to contain the ashes of the prestigious senator, but knowledge of the possible family plot could begin to narrow down an area where his sepulchre might be found.

V. CONCLUSION

There are still many questions left unexcavated at Pompeii and Herculanenum. Hopefully, further exploration will uncover the locations of busta and ustrina; the actual sites of cremation could provide rich analysis as to the various objects included in the ritual pyres. No actual burial, that is to say an urn containing ashes as opposed to an ornamental urn, has been found yet for any of the schola tombs at Pompeii,43 a very curious instance that begs further examination. The phenomenon of os resectum at Pompeii and Herculanenum should be studied to determine differences in location patterns, ritual, and visual constructions between os resectum burials and primary funerary burials. All of these gaps in our knowledge make it clear that there is much to learn about these ancient burial practices.

It is important as scholars to remember our own folly. Excavators at Pompeii in the nineteenth century likely misinterpreted materials found near the tombs, unable to think beyond their own cultural norms. Charred bones and broken architectural material are not abnormal findings near ancient Roman tomb sites, which were designed as interactive retreats for the living and the dead. It is most likely that these materials are remnants of rituals or banquets. Now, as we study Pompeii, we should be critical of these early conclusions and reinvestigate in order to discern what is truly material fact and what has been projected from nineteenth-century ideals.
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2 Reilly
5 Cormack, 585-599.
6 Columellae are the burial stelae characteristic of Pompeian burials; they were an indigenous tradition that was continued and adopted by the colonists. Cormack. 585-599.
7 Zanker, 76
9 Erasmo, 31-43. These wax ancestor masks were worn by younger boys in the family during the funeral processions.
12 Small, 195
13 Jashemski
14 Jashemski; Cormack, 594
15 Jashemski
16 Jashemski, 99
17 Small, 195; Jashemski, 99
18 Jashemski, 100
20 Cormack; Small, 195
22 The tombs are near two separate inscriptions, one dedicating land to M. Porcius, and one dedicated to Mamia, daughter of Porcius, but it does not seem overtly evident which tomb matches which inscription. Dye, 519-531
24 Preiss, Matterne, Latron 369
25 Preiss, Matterne, Latron 369
26 Preiss, Matterne, Latron 369
27 Small, 196
28 Small, 196
30 Emmerson’s 2011 Preliminary report on the excavations also describes a very interesting structure found by the Porta Stabia that dates from early to mid-3rd century BCE, long before the Roman colonization. She identifies the small (1.40m x 2.24m) structure as a sacred zone due to a square shelf of large stones in the eastern portion, which she suggests may be identified as an altar, as well as the objects found: a large number of votive cups, supports used for separating vessels in a kiln, and fragments of tiles and pottery. She also writes that the structure collapsed most likely due to unintentional burning, after which the worshippers dug a pit into the collapsed rubble to deposit a burnt offering. Here, along with charcoal and ash, Emmerson found carbonized foodstuffs such as bones of fowl and small mammals, various nuts, and small round cakes. (Ellis, Steven J.R., Allison L.C. Emmerson, Amanda K. Pavlick, Kevin Dicus, and Gina Tibbott. “The 2011 Field Season at I.1.1-10, Pompeii: Preliminary report on the excavations.” Journal of Fasti Online. (2011): n. page. Print. <http://www.academia.edu/2376984/The_2011_Field_Seaon_at_I.1.1-10_Pompeii_Preliminary_report_on_the_excavations> ) ; see also Reilly.
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34 Jashemski, 100; R. Meiggs, Roma Ostia (Oxford 1960), 461.
35 Jashemski 108-110
36 Piess, Matterne, Latron
37 Graham, 58
38 What is commonly thought to be his burial site, the altar adjacent to the Suburban Baths just outside the city gate. Graham, 56-60.
39 Small, 196
40 Graham, 56
41 Graham, 56
42 Graham, 60
43 Jashemski, 103
Herzlian Zionism and the chamber music of the New Jewish School, 1912-1925

Erin Fulton

The stated goals of the St. Petersburg Society for Jewish Folk Music—the organization around which the New Jewish School of composition arose—focused on the creation of opera and large-scale choral and symphonic works. However, the middle period of the New Jewish School (ca. 1912-1925) was dominated instead by chamber music. Previous scholarship has emphasized ease of performance in encouraging chamber music composition during these years. While smaller works doubtless presented reduced fiscal and logistical challenges, two political factors also contributed to this interest in chamber music.

Firstly, the Society used touring chamber ensembles as propaganda, presenting compositions inspired by Russian Jewish folk music as an expression of Herzlian Zionism. By programming newly-written works alongside canonic chamber pieces, these composers drew on the perceived importance and profundity of the chamber repertoire to legitimize their own music and the political agenda they supported.

1“Chamber music” refers to art music for a small ensemble in which each player is responsible for his or her own part, as opposed to symphonic or choral practice in which multiple performers play or sing the same part. Chamber instrumentations have historically been associated with music intended for private performance, frequently meant for the performers’ rather than an audience’s pleasure. Because of this, chamber music acquired, and to some degree still holds, a reputation for being intricate and erudite, written with a musically literate audience in mind.
Secondly, the reverence in which Herzlian Zionists held Yiddish folk culture led New Jewish School composers to draw on klezmer music, a genre already associated with chamber instrumentations. As Hebraicist ideals that came into vogue with Cultural Zionism in the late 1920s fostered a musical idiom drawing instead on cantorial chant, the importance of chamber music to the New Jewish School correspondingly declined. This examination of the role of Herzlian Zionism in encouraging chamber music composition during the middle period of the New Jewish School further confirms the far-reaching influence of Zionism on the blossoming of Russian Jewish art in the early twentieth century.

Herzlian Zionism took its name from Theodor Herzl, the journalist and political theorist who founded the World Zionist Organization in 1897. Herzlian Zionists rejected assimilation as a viable option for European Jews, claiming that they would never flourish except in a state of their own, preferably in Palestine. Herzlian Zionism found the most favor among Eastern European, and especially Russian, Jews, who did not have the level of emancipation enjoyed by those in Western Europe. Even as the Russian government relaxed some restrictions on Jewish activity and travel outside the Pale of Settlement, anti-Semitic violence only increased, especially after reports of Jewish involvement in the 1881 assassination of Alexander II. The aesthetic ideals of Herzlian Zionism centered on creating an independent and distinctly Jewish art that could serve as a legitimization of their political cause; nationalist art was a proof of nationhood. Herzl himself wrote that the Jewish state would be “a model country for social experiments and a treasure house for works of art,” one worthy of the admiration of the established nations whose support he was attempting to garner. As nationalist artists had done throughout the nineteenth century, Zionists turned to their folk culture for inspiration, especially that of Yiddish-speaking Eastern European Jews.

Around 1900, Achad Ha’am established the foundations of Cultural Zionism, which would gradually overtake Herzlian Zionism following the refusal of the Ottoman Empire to relinquish Palestine to Jewish control. Ha’am postulated that, since the establishment of a Jewish state was impossible under the current political circumstances, Jews would have to create a respectable role for themselves within the Diaspora. Cultural Zionists considered their main threat to be not anti-Semitism but the loss of a distinctive cultural identity through assimilation. Since many Cultural Zionists viewed traditional Judaism as outmoded, they aimed to construct a secular culture—based in the revival of the Hebrew language—that Jews could adopt while still participating in European society.

At the dawn of the twentieth century, a contradiction weighed on the Russian Jewish intelligentsia: a disproportionate number of professional musicians were Jews, yet there was no distinctly “Jewish” art music for them to perform. As a St. Petersburg newspaper stated in 1909, they say that we Jews are the most musical nation, that the violin is our national instrument; we have given the world composers of genius; we have more professional musicians among us than any other people […] but you will hardly find another nation whose national music has been so much neglected as ours.

The examples set by Zionism, Russian nationalist art, and the last breath of the Haskalah supported a flourishing of Russian Jewish art and literature in the final years of the nineteenth century. The work of Marc Chagall in visual art and of Abram Efros in poetry are examples of this burst of activity. After lagging behind the other arts, music blossomed into the New Jewish School of composition.

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1 Klezmer music is a genre of instrumental music typical of the Ashkenazi Jews of Eastern Europe. Small ensembles of four or five musicians known as klezmorim, led by a pair of violins, would perform dance music, improvisations, and paraliturgical pieces for holidays and other celebrations.

2 The Pale of Settlement was an area of the Russian Empire encompassing much of modern-day Ukraine, Poland, Belarus, Moldova, and Lithuania, founded by Catherine the Great in 1791 and dissolved in 1917. Russian Jews were forbidden to permanently settle outside the Pale of Settlement without special permission, frequently requiring conversion to Christianity. Most of the composers of the New Jewish School were such semi-assimilated Jews living outside the Pale.


5 The “Haskalah” refers to the so-called “Jewish Enlightenment,” a movement towards increased rationalism and secularism in Ashkenazi thought generally traced back to Moses Mendelssohn (1729-1786).

Several composers who would eventually be associated with the New Jewish School turned towards Jewish nationalism in music independently and at roughly the same time. Perhaps earliest were a group of students from the Moscow Conservatory who presented an opera for the festival of Purim to the Zacherievka Kryuyak salon in 1894. Seven years later, Efryaim Shkliar and Shlomo Rosovsky founded Kinor Tzvion, a club of St. Petersburg Conservatory students dedicated to the composition of Jewish art music; Shkliar was already experimenting with writing Lieder to Yiddish texts. However, the Society for Jewish Folk Music (founded 30 November 1908), was to be the organization most closely associated with the New Jewish School. Despite its misleading name, the primary concern of the Society for Jewish Folk Music was the cultivation of art music. The Society sponsored the performance and publication of works by Jewish composers, including those who were not or were no longer members. A musician associated with the Society, Mikhail Gnesin, would be the first to attach the label “New Jewish School” to these composers.

Scholars have long divided the music of the New Jewish School into three periods. This view likely originated with Aron Marko Rothmüller, who traces the development of the School thus: first, an initial period focusing on the collection and arrangement of folk music; second, a middle period in which folk melodies become bases for free compositions, almost universally for chamber ensemble; and finally a mature period marked by a preference for larger forms and the abandonment of folk tunes for original themes. If judged by these criteria, the middle period begins with the widespread appearance of free-standing compositions in the Society’s third concert season (1911-1912) and ends with the widespread appearance of large-scale pieces for choir or orchestra around 1925.

The middle period of the New Jewish School was marked, as Rothmüller observed, by an abundance of chamber music. The School’s earlier output was not devoid of this genre; a lecture on Yiddish folk music given by Yoel Engel to the Imperial Ethnographic Society in 1900 included several chamber arrangements of folk songs, as did the Society for Jewish Folk Music’s inaugural public concert in 1909. The emphasis on chamber music only increased in the middle period, when members of the New Jewish School started applying chamber instrumentations to typically large-scale genres. For example, Yoel Engel’s incidental music for Shlomo Anski’s Yiddish play Der Dibuk oder Tzvishn Tsvey Veltn is scored for only six players. A similar focus on chamber music is evident in the activities of the Moscow chapter of the Society. After its founding in 1912, chamber music performances were the primary activity of the Moscow chapter. Even when it replaced its St. Petersburg cousin as the Society’s base following the Soviet Revolution, the Moscow public concerts were still being advertised as “chamber music evenings.” The Moscow chapter also sponsored its own string quartet beginning in 1916.

This bulk of chamber music is surprising, since the constitution of the Society for Jewish Folk Music declared that the organization would support orchestral and choral works, making no mention of chamber music. Logistical advantages partially explain this phenomenon, since Society members could perform chamber works themselves without

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10 Weisser, *Renaissance of Jewish Music*, 45. The early history of the Society for Jewish Folk Music is obscure; while the Society’s papers date their meetings back to March 1908, the St. Petersburg District Commission did not grant the organization letters of registration until 1909; see Galina Viktorovna Kopytowa, “Die Gesellschaft für jüdische Volksmusik in St. Petersburg/Petrograd,” in *Jüdische Musik in Sowjetrussland: Die Jüdische Nationale Schule der 20er Jahre*, ed. Jascha Nemtsov and Ernst Kuhn (Berlin: Ernst Kuhn, 2002), 103; Rabinovitch, *Of Jewish Music*, 156.

11 The organization was intended to have been called “The Society for Jewish Music,” but was forced to adopt its ultimate name upon registering with the St. Petersburg District Commission; see Rabinovitch, *Of Jewish Music*, 155-156.


15 Weisser, *Renaissance of Jewish Music*, 76. The double bass part is optional.

recruiting (and paying for) a larger ensemble. This is the explanation Jascha Nemtsov and Beata Schröder-Nauenburg offer: “The astonishing wealth of piano and chamber music is largely explained through the favorable performance opportunities in the concerts of the Society.”18 A symphony concert planned for the 1926–7 season had to be abandoned because of financial concerns, even though the Society enjoyed its highest membership that year.19

Large-scale pieces were also more expensive for the Society to publish; they printed only one large work.20 Despite these difficulties, the early activities of the New Jewish School indicate an interest in large-scale music. The first pieces to which the Society bought publishing rights in 1909 included choral but no chamber music; the organization had its own choir between 1909 and 1911. Finally, despite increasing government disapproval and the eventual disbanding of the Society, the New Jewish School only produced more symphonies, concerti, cantatas, oratorios, and stage works after 1925.21

However, factors other than the availability and affordability of large ensembles influenced the interest of New Jewish School composers in chamber music; one of the most important was Herzlian Zionism, the dominant ideology among composers of the School during the middle period. The School used touring chamber ensembles as a form of Zionist propaganda. From its earliest days, the New Jewish School had been entwined with Zionism. The Zacharijewka Kruyok salon in which Yoel Engel made his first forays in Jewish music included Zionist agitators, as did Kinor Tziyon.22 Israel Rabinovitch, one of the first historians of the movement, thought the School arose directly from a combination of Zionism with Russian nationalist art, even making direct comparisons between Engel and Theodor Herzl:

The first herald of a musical renaissance in Jewry, Joel Engel, was, like the first builder of political Zionism, Dr. Theodor Herzl, a Jew obliquely at ease in an assimilated environment when he heard, as through some mystical communication, the call to return to his own people and with might and main to put himself in their service.23

Yoel Engel and Alexander Krein both left accounts identifying their first interest in Jewish music as an expression of ethnic identity. Krein in particular advocated nationalist music to resist absorption into Russian culture, calling his compositions a “turning towards Jewish melody as a protest against persecution and assimilation.”24 One performer associated with the New Jewish School went so far as to say that “music by Jewish composers— even if it contains historically Jewish melodic material—cannot be called ‘Jewish music’ if it lacks the spark of a nationalist awakening.”25 Outside observers also noted the School’s political streak; the first pieces the Soviet government forbade from appearing on the concerts of the Society for Jewish Music were banned because of associations with Zionism.26

These political influences encouraged composers of the New Jewish School to write music that could be played by touring.
ensembles intended to spread Zionist ideas, and small chamber groups were best suited to such wide travel. The Zionist press of the time had already identified music as an important source of propaganda. One newspaper stated in 1909, “There is no such thing as nationalism without music and song,” pointing out that a vibrant shared culture could serve as the necessary unifying force for a nation that, as yet, had no homeland.37 Correspondingly, the Society for Jewish Folk Music sponsored touring ensembles that visited Zionist organizations in Germany, Austria-Hungary, Lithuania, and Russia beginning in 1909. Special mention was given to the chamber music tours as one of the Society’s primary achievements at the organization’s third anniversary session, indicating the importance its members placed on this activity.38 An observer at such a concert given in the Pale of Settlement in 1912 noted “the excited activity before and after the event on the part of the local Zionists. The artists were […] made a symbol of the autonomous and sanguine hopes of the folk.” 28

A more explicitly Zionist agenda surrounded the Zimro Ensemble. This clarinet quintet with piano30 was founded in 1918 under the auspices of the Society for Jewish Folk Music; some of its members had been involved in the Society’s previous chamber music tours. The ensemble’s goal was to perform for Zionist organizations in Asia and North America, use their proceeds to travel to Mandatory Palestine, and “contribute potentially to the revival of the Jewish Nation and cooperate with the development of Jewish art[.]”31 The Eastern European Jews who most staunchly supported Herzlian Zionism could never have hoped to produce the funds necessary to buy Palestine out of Ottoman hands without the aid of more affluent Western Europeans and Americans, and the Zimro Ensemble was intended to court their support. The ensemble’s tour began in December 1918, touching on Russia, China, Japan, and the Dutch East Indies before their arrival in Chicago for the annual convention of the American Zionist Federation in September 1919. There they hoped to win support from the AZF and other American Zionist organizations, to which they donated much of their profits.32 The Zimro Ensemble never reached Palestine as a group, but their other goal was realized; according to a contemporary review in the Chicago Herald Examiner, “The Zimro Ensemble has been a great asset in reviving the nationalism of the Jew by appealing to his deepest sentiment.”33

The Zimro Ensemble’s programs indicate another attraction chamber music presented Zionists. While the ensemble mainly played music written by members of the School, it juxtaposed these newly-written pieces with respected chamber works.34 Neil W. Levin suggests that this combination was intended to elevate the newer repertoire, drawing on the perceived importance and profundity of canonic chamber pieces to legitimize the works of the New Jewish School.35 This approach was again successful; the Russian musical world began to take the New Jewish School seriously only with the turn to chamber music that marked the opening of its middle period. A review of the Society’s first chamber music concert in the Russian newspaper Den’ stated,

This concert marks an important step in the life of the organization: the young Jewish composers obviously already feel some ground under their feet through five years’ experience in collecting and arranging folk melodies; with their best works they create serious artistic value, interesting not merely Jews alone.36

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37 Pinchas Minkovskii writing in Shirei ‘Am, quoted in Loeffler, Most Musical Nation, 57.
39 Weisser, Renaissance of Jewish Music, 47.
40 i.e., two violins, viola, cello, clarinet, and piano.
41 Levin, “The Russians are Coming,” 76.
43 Quoted in Levin, “The Russians are Coming,” 79.
44 Jewish Musicians Arrive.”
45 Levin, “The Russians are Coming,” 75-76, 80.
The implication is that the first works of the New Jewish School—the folk song arrangements mentioned by the reviewer—were merely of ethnographic or cultural interest. Only with the production of chamber music of “serious artistic value” could the School be considered worthwhile by non-Jews. Like other artistic expressions of Herzlian Zionism, the middle period of the New Jewish School had its aesthetic basis in Yiddish folk culture. Therefore the main musical influences on the School were Yiddish-language folk song and klezmer dance music. The chamber music of the middle period recalls the small dance ensembles typical of klezmer, particularly because both tend to rely on strings and clarinet.

Yoel Engel even noted in one of his early lectures that instrumentation and timbre are the primary points of distinction between Russian Jewish folk music and the musics of surrounding Eastern European cultures.

Klezmer influences are readily identifiable in the works of the School: Zimro’s repertoire even included one bona fide klezmer work, a taksim or improvisatory prelude attributed to the Ukrainian klezmer and clarinet virtuoso Abraham Kholodenko of Berditchew.

Joseph Achron’s Esquisses Hébraïques (1909), one of the first pieces of chamber music written for the Society, was modeled on the playing of Krein’s badkhn father: “The form was improvisational, after the manner of my father’s extemporizations on the violin.”

The dance movements in Yoel Engel’s incidental music for Der Dibuk (1922) also allude to klezmer improvisation.

Joseph Achron’s Hebrew Dance (1912) is based directly on a klezmer tune collected in one of the Society’s ethnographic expeditions. Klezmer models are also hinted at in the names of pieces like Kopyt’s Freilichs (1912) or Joseph Achron’s Tanzimprovisation über ein hebräisches Volkslied (1914) and Scher (1917). The loss of this Yiddishist orientation is at least partly responsible for the decline of chamber music as more members of the New Jewish School began to favor cultural over Herzlian Zionism. Originally the Society for Jewish Folk Music had been concerned equally with sacred and secular music, as their constitution makes clear. However, Cultural Zionism and the privilege it lent the Hebrew language came into increasing influence among Russian Jews in the late 1910s. This change of focus impelled a reevaluation of cultural orientation within the New Jewish School: should the School continue in the Yiddishist path it had been struggling to establish, or find new inspiration in Hebrew liturgical music?

During 1915 and 1916, Lazare Saminsky and Yoel Engel argued this issue in the papers Razsvet and Evreiskaia Nedelia. Saminsky, who had been researching trop as early as 1911, posited that Hebrew synagogue music was more authentically Jewish than Yiddish folk music because its scales showed less influence from surrounding cultures and were shared by both Eastern European and Caucasian Jewish communities.

He applauded those members of the School who were already writing music based on the scales or motives of cantorial music and moving away from secular models. Engel countered these assertions from a Herzlian perspective by arguing that the Jewishness of a melody stemmed from cultural associations rather than musical structure, and that shared characteristics of Ashkenazic and other Eastern European musics were a sign of adaptability rather than assimilation.

When Engel and Saminsky ceased their argument by mutual agreement in 1916, consensus had not yet been reached among the members of the New Jewish School.

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34 These instruments continued to be unusually prevalent even after the middle period; all the concerti written by members of the New Jewish School are for violin, cello, or clarinet; see Nemtsov and Schröder-Nauenburg, Eintritt des Jüdischen, 16.

35 Loeffler, Most Musical Nation, 68.

36 Levin, “The Russians are Coming,” 76.

37 “Die Form war improvisationsartig nach Art der Geigenimprovisationen meines Vaters.” Nemtsov and Schröder-Nauenburg, Eintritt des Jüdischen, 80–90. A badkhn is a musician-jester who performs at weddings.

38 Yool Engel’s incidental music for Der Dibuk (1922) also allude to klezmer improvisation.


40 Nemtsov and Schröder-Nauenburg, Eintritt des Jüdischen, 41.

For a time, one of the publishing houses associated with the school specialized in Yiddish-influenced music, while the other issued music inspired by *trop*. Despite Engel’s counter-argument, the Hebraicist view expounded by Saminsky continued to burgeon, eventually overtaking the Yiddishist perspective that had been so suited to chamber music.

The New Jewish School’s first large-scale works were written in 1923 and 1924 by Moishe Milner, Grigori Krein, Joseph Achron, Mikhail Gnesin, and Alexander Krein; Saminsky had been writing symphonic pieces even earlier, although none of them seem to have been performed. The Society’s first symphonic concert was in 1926. Under the pressure of increasing anti-Jewish legislation from the Soviet government, the organization formally dissolved on 22 March 1930. Most of the composers associated with the New Jewish School emigrated to Mandatory Palestine or the United States. Many of them, including Lazare Saminsky, Yoel Engel, Joseph Achron, Shlomo Rosovsky, Jacob Weinberg, and Joachim Stutschevsky, continued to compose large-scale choral and symphonic music in a musical idiom based on cantorial chant. However, the influence of the middle period never left the New Jewish School: the composers who would present Jewish art music to an international audience learned their craft writing chamber music.

The middle period of the New Jewish School does not merely represent a continuance of the nineteenth-century chamber music tradition, but was intended, at least in part, as an expression of political goals based in Herzlian Zionism. This phenomenon shows the pervasive influence of Zionism on Russian Jewish artistic life in the early twentieth century and more generally demonstrates that music, like all art, reflects and at times propels the intellectual environment from which it arises. Hopefully this research can form the basis for more enquiries into the ideological underpinnings of this little-studied school of composition.

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Displacement, Tension & Kinematic Properties of the Posterior Cruciate Ligament during Flexion-Extension with Applied Loads

Jamie Branch

INTRODUCTION
The objective of this research is to investigate the mechanical properties of the posterior cruciate ligament (PCL) at maximum extension angles. Tension and displacement of the PCL are two critical factors that will provide insight into how the PCL behaves in the knee joint. These parameters will be analyzed in reference to the kinematics of the knee and the loads being applied. This research seeks to better characterize the mechanical properties of the PCL to add to the existing literature and provide insight into how the PCL functions under tension.

BACKGROUND
The PCL is a ligament in the knee joint (Fig. 1) that is responsible for restraining the posterior translation of the tibia and prevents the femur from moving too far backward over the tibia. Its primary purpose is to stabilize the knee. The PCL originates from the femoral condyle and inserts into the back of the tibial plateau. The average length of the PCL from origin to insertion is 38 +/- 4 mm.1 Approximately 25,000 PCL injuries are diagnosed in the United States per year. This is one-tenth the number of diagnosed ACL injuries. PCL tears are normally a result of high force impacts. These typically occur through vehicle accidents or contact sports. Extreme hyperextension of the leg is another

Q&A

How did you become involved in doing research?
Engineering is about learning and applying. I wanted to take the engineering principles I learned in the classroom and apply them to something tangible. I researched what professors in my department were doing and found a lab that sparked my interest. I met with the professor and began doing small tasks with the graduate students. After exposure to the work going on in the lab, I developed my own research proposal and began working on an independent project.

How is the research process different from what you expected?
There is no clearly defined route to get to the results you are wanting to obtain. You have to continuously change your methods and process to get to the end result.

What is your favorite part of doing research?
I really enjoyed the bridging of engineering with other areas of science. Through my research I was exposed to areas of biology, orthopedic surgery, and a number of engineering backgrounds.
form of trauma that may cause a PCL tear. Since fewer PCL incidents of damage (especially compared to the ACL) occur, there is less research literature available and repair techniques are not as developed. Surgical repair, while extremely common for an ACL tear, is much more complex when fixing the PCL. Patients may instead choose to sacrifice stable knee mechanics by opting out of surgery and seeking physical therapy rehabilitation.

METHODS
A cadaveric knee was obtained for experimentation. External fixings were attached to the femur and tibia. The PCL was accessed by making an incision just below the posterior center of the joint line and pulling back skin, fascia, and subcutaneous tissue to expose the deep anatomy near the PCL tibial insertion site. The PCL was located by manually pushing the knee into hyperextension and feeling for the tightening of the PCL fibers. The entirety of the PCL was exposed by removing surrounding tissue (Fig. 2). Once identified, an implantable pressure transducer (IPT) was implanted and sutured into the fibers of the PCL. The IPT is a sensor that has a small strain gauge embedded in it to pick up deformations as the ligament constricts on it (Fig. 3). The sensor measures the transverse compression created by the PCL as it elongates and becomes tense. It does not measure tension directly, but can be used as a model where the ligament undergoes tension. The fixing of the femur was inserted into a contraption to secure the knee in a fixed position. Rigid body sensors were attached to the femur and tibia fixings to track their motion in 3D space. The tibia of the knee was manually moved through maximum extension to 110 degrees of flexion while either Varus-Valgus (VV), Anterior-Posterior (AP), or Interior-Exterior (IE) loads were applied (Fig. 4). An Optotrak 3020 infrared camera system captured the motion of the femur and tibia via the rigid bodies. The IPT sensed tension in the ligament as it underwent loads at different flexion angles. Labview software synchronized with the Optotrak and IPT recorded load, kinematic, and tension feedback. After the completion of kinematic testing, the femur, tibia, and PCL attachment sites were probed to obtain knee geometry data.

A Matlab computer program was written to compile and perform operations on the data recorded in Labview. A distance code used the probed PCL attachment sites to calculate the length of the PCL throughout the knee’s range of motion. The kinematics, loads, distances, and tensions of the PCL were input into a different Matlab program to generate representative plots for analysis.

RESULTS
The PCL undergoes the least amount of load in a VV test. Because varus-valgus affects the PCL the least, the VV test was used to model the displacement of the PCL as it travels through the range of flexion and extension. The IPT sensor data is plotted next to this graph. This representation is depicted in Figure 5. It is important to note that the IPT sensor does not directly measure tension: the trend of the values correlate to tension.

Anterior-posterior loads affect the PCL the most since the PCL functions to stabilize the knee in the anterior-posterior direction. An AP test was used to analyze characteristics of the PCL and model how the PCL properties differ when under load. Figure 6 depicts the displacement, load, and IPT sensor data with respect to flexion extension.

It is necessary to relate all the parameters that may influence the PCL in one plot. Length, AP kinematics, flexion-extension angle, AP load, and tension are the variables that particularly influence the PCL. Figures 6 & 7 model the results of these variables against one another.

DISCUSSION
Figure 5 illustrates how the PCL is lengthening throughout the range of flexion-extension in the absence of load. From this figure, it can be concluded that the PCL lengths as the knee achieves greater extension until it hits a certain value (around 80 degrees) where the PCL length plateaus and remains relatively stable. In the area nearing maximum extension, the PCL begins to lengthen, which can be seen from 26-28mm range on Figure 5. This is most likely explained by the increasing distance between the two insertion sites in which the PCL has to stretch to prevent the knee from bending backward further.

The greatest tension correlates with the above described plateau region at deeper flexion angles, and in the region nearing maximum extension where the PCL reverses trend and begins to lengthen with smaller knee angle (length 33-35mm and 26-28mm).

From Figure 6, it can be seen that as load is applied, the PCL lengthens. The trend of the PCL displacing up to 8mm at a set flexion angle matches up with the anterior and posterior loads being applied at that angle. This shows that the load being applied to a knee greatly affects the displacement of the PCL length. The IPT sensor data indicates that the tension fluctuated with the load, and greatest tension (lower on y axis) is in the 80-100 degree of flexion-extension. It was surprising to find that tension did not appear to fluctuate from approximately 40
degrees to maximum extension like it did in the VV test. The greater the tension of the PCL, the more likely it is to tear. The figures model where these areas of high tension are.

Figures 7 and 8 represent the variables affecting the PCL in a multi-dimensional plot. Figure 7 indicates that greater load is seen at highest and lowest lengths of the PCL (dark red and dark blue). Figure 8, which incorporates the IPT data, shows that highest tension was recorded at maximum PCL lengths at the highest flexion angle achieved (dark blue). It also somewhat suggests that more tension is seen under anterior loads.

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Figure 5. Length of PCL as it travels through flexion-extension in a minimal (VV) load test, modeled with tension.

Figure 6. Length of the PCL as it travels through flexion-extension in an AP test, modeled with AP load and tension.

Figure 7. 3D plot of length, flexion-extension, and AP kinematic. Load is coded with color.

Figure 8. 3D plot of length, flexion-extension, and AP kinematic. IPT is coded with color.
Plato’s Psychological Manifestations of Madness: A Case for a Parallel between Philosophical and Tyrannical Souls in The Republic

Christopher Stratman

In this paper, I will argue that there is a philosophically interesting comparison to be made between the philosophical and tyrannical souls in Plato’s Republic. I will argue for this point with the intent of building a case for a valuable insight into Socrates’ and thus Plato’s conception of the philosophical soul. Both the philosophical and tyrannical souls are dominated by a kind of obsession, or what I call Platonic madness; a kind of judicious madness in the case of the former and a kind of injudicious madness with regard to the latter. From this key insight we can then proceed in taking an essential step in establishing and agreeing with Plato that, indeed, philosophy and political rule ought to be fundamentally united.

We can imagine a situation where Plato made the decision to write the Republic in the form of a systematic philosophy instead of a dialogue. I can imagine the opening line (the first and perhaps most important proposition) stating, “Until philosophers rule as kings in cities or those who are now called kings and leading men genuinely and adequately philosophize, that is until political power and philosophy entirely coincide…cities will have no rest from evils…nor, I think, will the human race” (Republic, V 473cd). This paradoxical claim concerning the unity of philosophy and political rule presents for us one of the greatest dilemmas born from a careful and critical reading of the Republic. Nevertheless, the Republic is not in systematic form, yet Plato did choose
to begin the dialogue with these words “I went down” (327a). This suggests that perhaps he has in mind from the very beginning the problem of how philosophic and political unification is even possible.

It would certainly be helpful, concerning the dilemma of the philosopher-king, if we had a more straightforward account of the philosophical soul before we attempted to answer the question concerning why the philosopher should be compelled to rule. We do not, however, have direct insight into the philosophic soul, at least not in such a way as to provide the kind of compelling argument we might hope for. Of course, this is the very heart of the debate, being one of the reasons this paradox of the philosopher-king—as it is often understood—is among the most debated issues concerning Plato’s Republic. That is why it is the current task of this paper to provide a compelling, though indirect, insight into the soul of the philosopher-king; such a task, however, is surely much easier said than done.

On one hand, Plato never gives an explicit account of the philosophical soul, or at least not an account which is as thoroughly developed as the timocratic, oligarchic, democratic and especially the tyrannical souls found in books VIII and IX of the dialogue. Interestingly, Socrates does give us a very brief look at what such a soul might look like at the conclusion of book IV. Once his argument for the division of the soul into three parts, corresponding to the division of the city into three parts, is first completed and that the rational part ought to rule (435c–441e), Socrates then proceeds to reintroduce the primary question he and his interlocutors have been thus far asking: “which is more profitable, to be just or unjust?” “Virtue”, Socrates states, “seems, then, to be a kind of health, fine condition, and well-being of the soul, while vice is disease, shameful condition, and weakness” (444d–e). Glaucon seems to be entirely satisfied with giving an answer to the question given Socrates’ tripartite city and soul; yet, Socrates clearly has much more to say (445a–c). We might wonder why Socrates still feels they must go on in their inquiry and to what extent the soul of the philosopher-king might be central in answering these questions (this point will need to be clarified and supported but it is extremely important for the purpose of this essay). On the other hand, it could be argued that this is a perfect example of Platonic aporia; if so, we might be inclined to think of the paradox of the philosopher-king, as well as Socrates’ insistence at the close of book IV that “we mustn’t give up” (445b), as something akin to a provocation.

According to Mitchell Miller in his essay entitled, “Platonic Provocations: Reflections on the Soul and the Good in the Republic”, at its most fundamental level, this dialogue is meant “to provoke us, to move us beneath and beyond its own explicit content into philosophical insight of our own” (Miller 166). I will generously appeal to Miller’s insight and argument, as I take him to suggest, that Plato’s real genius was in pushing the notion of philosophical discourse beyond the mere surface of any given argument, including those offered by Socrates in the Republic, so as to move us to enter into a kind of dialectical investigation of the richer elements available in Platonic studies. I will appeal to Miller in order to make the stronger claim that we actually do have a practical, though indirect, understanding of the philosophical soul by the merits of closely analyzing the tyrannical soul and drawing from this analysis an important parallel.

As I stated previously, both the philosophical and tyrannical souls are dominated by a kind of obsession, or Platonic madness. Again, what I mean here is a kind of judicious madness in the case of the philosophical soul and a kind of injudicious madness with regard to the tyrannical soul. But what I mean by madness needs to be made clear. Madness is essentially a manifestation, or so I wish to argue, of the development of Eros, which is expressed by either a kind of clear-sighted and judicious madness or a blinded and injudicious madness. It will be shown that the kind of madness manifested by the Eros of either soul is determined by its relation to the Forms. The philosophical soul, which has a very explicit relation to the Forms, has a kind of madness which is essentially expressed as a kind of clear-sightedness; whereas the tyrannical soul, which cannot be said to have a relationship with the Forms, has a kind of madness which is expressed as blindness. Thus, by establishing the parallel between philosophical and tyrannical souls, we will have a possible explanation or resolution to the philosopher-king paradox—why the philosopher-king should go back down into the cave-city in order to rule.

The structure of how I will make this comparison work in explaining why the philosopher-king should be compelled to rule is as follows: I will first attempt to illustrate how the very structure of the Republic often provides interesting interwoven themes or significant parallels which are not accidental. They provide both a deeper understanding of the many complex issues as they appear in the dialogue as well as significant points of aporia. From this general acknowledgement of Plato’s use of parallels, I will then build the parallel between philosophical and tyrannical souls using the notion of judicious madness and injudicious madness as essentially a manifestation of Eros. By doing so I will then elaborate on the nature of the philosophical soul as it can be discovered drawn from the parallel mentioned above and Eros as it functions both in the Republic as well as its relation to other Platonic
dialogues, specifically the Phaedrus. Finally, after these crucial points have been established, I hope to show that the basic reason why the philosopher-king should return to the cave/city in order to rule as king is not because there is a desire to do so, but because the philosopher, due to judicious madness, is able to clearly see and understands that, given the circumstances, going back down into the cave/city in order to rule is what is best for everyone.

When Socrates demands at the end of Book III that the guardian class, whom he had just established as being the rightful overseers of the just city, should live austerely, abstaining from touching or being at all associated with gold or silver and that they should have no private property at all beyond what is absolutely necessary (416cd), he is generally setting the stage for an important objection. Yet, if the task which Socrates is charged with is to prove that justice is always best for either an individual or a city (that is to say that it is always to your advantage to be just and the just person or city is always the happiest or better off), then why would Socrates here argue that the guardian class must not have anything which might generally be considered, both by Socrates’ interlocutors as well as perhaps ourselves, as material wealth?

Interestingly, the point Socrates seems to be making is that such an austere life for the guardians would actually “save both themselves and the city” (417a). Indeed, the description he gives of a guardian class that is allowed such adornments sounds very much like an early description of the tyrant, which he does not directly mention until much later in Book VIII and IX. Socrates states that if they do acquire wealth for themselves, “[T]hey’ll spend their whole lives hating and being hated, plotting and being plotted against, more afraid of internal than external enemies, and they’ll hasten both themselves and the whole city to almost immediate ruin” (417b). The point which I want to make in considering this foreshadowed description of the dangers of attaining private material wealth by the ruling guardian class is that one of the key aspects of the Republic is the way in which Plato weaves the many themes of the dialogue together in such a way that it is possible to find descriptions, of the tyrant for example, woven into some of the other vital moments such as this. By using elements of interwoven themes, vital foreshadowing and parallels, we can lay the foundation for a parallel between the philosophical and tyrannical souls.

First, however, let us examine further some of the important ways in which Plato utilizes these elements generally throughout the Republic.

Kenneth Dorter, in the very opening lines of the introduction of his book titled The Transformations of Plato’s Republic, states that:

The Republic is a book of contrasts, built on oppositions between the just and the unjust life, rationality and appetites, necessary and unnecessary appetites, being and becoming, knowledge and opinion, originals and images, blindness to dark and blindness to light, and the evolution and devolution of political and psychological constitutions, among others (Dorter 1).

What strikes me as an obvious point of emphasis here is his immediate observation that not only is the dialogue one of oppositions, but his descriptions of blindness both to the darkness as well as blindness to the light as being in opposition. We might wonder if these sight related oppositions could be construed as I have suggested already: judicious and injudicious madness.

Blindness to dark = Judicious Madness (the soul in relation to the forms). The Philosopher-king can see clearly due to a kind of injudicious madness that is like a blindness to the dark or blindness to the inability to see clearly.

Blindness to light = Injudicious Madness (the soul without relation to the forms). The Tyrant cannot see clearly due to a kind of injudicious madness that is like a blindness to the light or blindness to the ability to see clearly.

This dual nature of blindness will be further developed as the cornerstone of my argument. It therefore seems fitting to begin with Dorter’s essential description of oppositions and parallels. There are a number of ways in which Dorter spells out these oppositions; as the title of his book implies, his focus is primarily concerned with the different forms of transformations the Republic takes. Therefore, I will briefly examine some of these oppositions and transformations in light of our larger task at hand.

Dorter describes the Republic as having a kind of arch structure to it, which helps define the many transformations within it. He states, “[N]ot only are the themes of Book 1 also adumbrations of the themes of the dialogue as a whole, but Book 1 also functions as a symmetrical counterpart to Book 10, together with it framing the Republic’s arch structure” (Dorter 6). He goes on to argue that the symmetry found throughout the entire dialogue has structure which both, metaphorically speaking, ascends and descends; again he claims that it “extends in both directions the ascending and descending trajectory noesis (511bc) generally, rising to and returning from noesis as noesis rises and returns within itself, even as in other respects the dialogue continually moves forward in its inquiry” (7). Dorter seems to be indicating that as the inquiry into justice, as well as the many other modes and themes which are developed within the discussions held between Socrates and his
interlocutors, evolves, the symmetry between the many interwoven topics, such as justice and the good, evolve as well. This symmetry, I suggest, should be kept in mind as a part of the background of our analysis as we continue to build a case for the parallel between philosophic and tyrannical souls.

After describing what is perhaps the most well known of Plato's similes, the cave, as “not only a general allusion, but a precise reflection on the dialogue’s beginning at the heart of the cave” and then suggesting how we might interpret Plato as using this famous simile as an image of what the entire dialogue is doing, “the progress of the prisoners who ascend through stages to a vision of the ultimate principle and, transformation by that vision, return to the cave to benefit their successors,” Dorter leads into the dialectical nature of these oppositions and transformative elements within the text. He argues that:

Within this larger structure local structural principles permeate the argument at every level. The apparent casualness of the conversations is constantly underpinned by ordering patterns so that the narrative becomes an image of the world itself, in which the apparently random flow of becoming implicitly exhibits the ordered rationality of being (9616b-617c) (Dorter 8).

The key point here is that Plato seems to be working on a much more philosophically interesting level, far more complex and challenging than what might simply be noticed on the mere surface reading of the text. Within these complexities of oppositions and transformations which Dorter has illustrated is an implicit argument, or so I wish to suggest, that will provide us the ability to make clear the parallel between philosopher and tyrant. This argument, which was alluded by way of an early description of the tyrant, is that depth of the dialogue allows us to see important points (such as an important glimpse of the nature of the tyrant’s soul) prior to actually describing it; this same quality, I submit, can be said concerning the philosophical soul as well. Dorter's understanding of these transitions within the Republic helps justify this claim; it opens to us the possibility of going beyond the text in order to see where the parallel can be found. With these basic examples in mind, let us now turn to what I feel is a much more explicit early example of a parallel between philosophic and tyrannical souls.

The example I wish to elaborate on can be thought of as either the friend-enemy parallel or the dog-wolf parallel. In a discussion with Glaucon in Book II concerning the need for the guardian class to be both spirited as well as gentle, Socrates suggests that a well-trained dog is a good model for a “well-born youth” and that, because a well-trained dog seems to have both intelligence and courage, the guardians of the city should share these same qualities (375a-c). If a dog were not by nature courageous without the correct intellect, there would be a serious problem. That is to say, if the guardian class is by nature like a dog then its spirited nature could potentially turn on the citizens; but as a well-trained dog that has both knowledge and courage it presumably would not (375c). Yet, this then implies a further problem (which is here only addressed as a micro version of what will later become the problem of the possibility of the just city coming into existence at all). The question which is asked at this point is how one could unite within a guardian both the necessary spirited quality of a well-trained dog and a gentle quality which will ensure that the guardian never turns on the citizens (376c).

The solution which Socrates puts forward at this point is simply to look closer at what a well-trained dog is like; he claims such an animal is “gentle as can be to those he’s used to and knows, but the opposite to those he doesn’t know” and again he states, “[W]hen a dog sees someone it doesn’t know, it gets angry before anything bad happens to it. But when it knows someone, it welcomes him, even if it has never received anything good from him” (375e-376a). It is at this point that Socrates finally begins to draw out the needed details concerning a philosopher’s soul; it seems rather striking, I would suggest, that he then uses the comparison of a well-trained dog.

He suggests to Glaucon that this odd quality concerning dogs is “truly philosophical” and claims that the reason this is so is due to the fact that a dog “judges anything it sees to be either an enemy, on no other basis than that it knows the one and doesn’t know the other” and further implies a dog then is “a lover of learning, if it defines what is its own and what is alien to it in terms of knowledge and ignorance” (376b). So then it would seem that the need to know one’s friends from one’s enemies is an essential part of what it takes to be a philosopher, as Socrates suggests. But perhaps the real point of emphasis here is that “knowledge produces gentleness and ignorance produces harshness” (Rosen 85). As it relates to the two kinds of Platonic madness that I have thus far discussed, judicious and injudicious, clearly we could think of the well-trained dog as having a kind of judicious madness. Moreover, it seems to me that when Socrates describes these characteristics as “truly philosophical” (376b) he is setting the stage for judicious madness.

Aside from the overall topic which Socrates and his partners are working through at this point (which is another example of Plato’s use of foreshadowing, in this case of the solution to the third wave of laughter which is not addressed until later in Book V), we can see from this discussion “a link between philosophy and the definition of justice as doing
good to one’s friend and harm to one’s enemies” (85, 86). We can now use this idea of well-trained dog as a lover of wisdom—a philosopher who possesses a kind of judicious madness that allows it to know his enemy and friend—to see how this, in a pendulum fashion, can be compared to the much later description of the tyrant as a wolf.

It seems completely reasonable to suggest that if a philosopher is like a well-trained dog because of its knowledge concerning friends and enemies, then the exact opposite—the very antithesis—should hold, we might expect, for a non-domesticated wild version of a dog: that is to say a wolf. As such, we could then conceive of the wolf, regarding it as the antithesis of the well-trained dog, as a perfect representation of the tyrant; that is if there is indeed a parallel between the two.

In Book VII, after Socrates has proceeded through the devolution of each city and the corresponding constitutions of each soul and finally gets to the tyrannical city, he makes a very insightful claim about this particular city and soul. He compares the “beginning of the transformation from leader of the people to tyrant” to “the man in the story told about the temple of the Lycaean Zeus (Zeus the wolf-god)” (565d). The imagery which Socrates uses here is quite explicit and it seems to parallel the description of the philosopher as a well-trained dog, especially when you consider that one of the most basic differences between a dog and a wolf is simply the fact that one is domesticated or educated properly to have knowledge of friend and enemy whereas the wolf is a wild animal with no formal education. Socrates’ description is quite powerful so I have chosen to quote him at length here:

…anyone who tastes the one piece of human innards that’s chopped up with those of other sacrificial victims must inevitably become a wolf…doesn’t

the same happen with a leader of the people who dominates a docile mob and doesn’t restrain himself from spilling kindred blood? He brings someone to trial on false charges and murders him (as tyrants so often do), and, by thus blotting out a human life, his impious tongue and lips taste kindred citizens blood…isn’t a man like that inevitably fate either to be killed by his enemies or to be transformed from a man into a wolf by becoming a tyrant? (565d-e).

This is the first explicit parallel which I wish to emphasize, but it is only a partial description of the much fuller account I will develop; it should be clear at this point that the key element in this example is tied to the fact that a dog is domesticated or well trained whereas the wolf is not. The connection to be made between philosopher and tyrant is that the former has a very specific kind of education, in the Forms, which produces judicious madness, whereas the later lacks this relation to the Forms, which produces injudicious madness.

We can now move on to another aspect which will help build a case for a parallel between philosophical and tyrannical souls derived from the consideration that a tyrant lives life as if in a dream whereas the philosopher is truly awake. Put another way, the philosopher has authentic knowledge, which leads to knowing what to do in any given situation. The tyrant, on the other hand, has not only mere opinion, but the kind which is inherently self-destructive. Furthermore, examining how Socrates describes the difference between living life as if in a dream vs. living life fully awake will help identify who the philosopher is; this will then be applied to our analysis of philosopher and tyrant.

It is in Book V that Socrates fully introduces one of the central paradoxes of the Republic which I have already described as the paradox of the philosopher-king: so that it is vividly clear this paradox can be thought of as the unification of philosophy and political activity or why the philosopher who has communion with the Forms should go back down into the cave to rule as king. In his book, simply titled Philosopher-kings the Argument of Plato’s Republic, C.D.C. Reeve describes the identification of the philosopher, here in Book V as being identical to his name; he states that, “[T]he key to his identity lies in his name—wisdom-lover (475bb-9). Because he is a lover, he loves all of what he loves…Because it is wisdom he loves, he must love everything that one can learn or come to know” (Reeve 191). Now Glaucon seems unsatisfied with this relatively broad description of a philosopher who is a lover of wisdom; he responds to Socrates by saying that:

Then many strange people will be philosophers, for the lovers of sights seem to be included, since they take pleasure in learning things, and the lovers of sounds are very strange people to include as philosophers, for they would never willingly attend a serious discussion or spend their time that way, yet they run around to all the Dionysiac festivals, omitting none, whether in cities or villages, as if their ears were under contract to listen to every chorus.

Are we to say that these people—and those who learn similar things or petty crafts—are philosophers? (475d).

Intuitively it would appear as though Glaucon is perfectly justified in objecting to Socrates’ initial description of a philosopher. Socrates seems to recognize this apparent counter intuitiveness and clarifies his original position; he says that these people who chase after sights and sounds are not true philosophers “but they are like philosophers” (475e). The point which Socrates is making is that the main difference between the strange people Glaucon describes and the true philosophers or lovers of wisdom is concerned
with the difference between the kind of knowledge they have—opinion or true knowledge of the Forms themselves.

Socrates then describes the lovers of sights and sounds or someone who “believes in beautiful things, but doesn’t believe in the beautiful itself and isn’t able to follow anyone who could lead him to the knowledge of it.” He says that such a person “is living in a dream rather than a wakened state” (476c). Glaucion agrees to agree without further objections. Socrates points out that “someone who, to take the opposite case, believes in the beautiful itself, can see both it and the things that participate in it and doesn’t believe that the participants are it or that it itself is the participants” and asks “is he living in a dream or is he awake?” (476c-d). Glaucion again agrees with Socrates that such a person is “very much awake” (476d). It should be noted that here the discussion concerning a lover of sights and sounds, who is like a philosopher but who is also different in that they are living a dream and do not have true knowledge, rather only opinion, such a person is not identified directly as a tyrant—we should consider such a person as being anyone who does not have knowledge of the Forms. Nevertheless, the interesting point, which I will attempt to examine next, is the idea of a person who is living life as if in a dream and how that does in fact relate to the tyrant.

Turning to Book IX, when Socrates begins to directly describe the tyrannical soul, he examines the desires of the tyrant (571a). He claims that we all seem to have unnecessary desires which are lawless, “but they are held in check by the laws and by the better desires in alliance with reason” (571b). The desires he is referring to here are:

Those that are awakened in sleep, when the rest of the soul—the rational, gentle, and ruling part—slumber. Then the beastly and savage part, full of food and drink, cast off sleep and seeks to find a way to gratify itself. You know that there is nothing it won’t dare to do at such a time, free of all control by shame or reason. It doesn’t shrink from trying to have sex with a mother, as it supposes, or with anyone else at all, whether man, god, or beast. It will commit any foul murder, and there is no food it refuses to eat. In a word, it emits no act of folly or shamelessness (571c).

Once Socrates has introduced the idea that there are such lawless desires in perhaps even the most just person while they are asleep, he then goes on to describe what happens when someone such as a tyrant lives life chasing after such lawless desires which are normally in check but have now become freed and able to be expressed.

He describes the tyrant as having implanted within him “a powerful erotic love, like a great winged drone, to be the leader of those idle desires that spend whatever is at hand” (572e). With this description of erotic love as motivating force within the tyrant, he then claims that those “other desires…buzz around the drone” and make it increase in size and intensity; “making it grow as large as possible, they plant the sting of longing in it” (573a). So we have unnecessary and lawless desires which have become freed from a dreaming psyche and an erotic love which has been planted within the soul of the tyrant and, when it becomes enlarged, creates what Socrates describes as a “sting of longing,” presumably referring to the intensity of the lawless desires within the tyrant’s soul. He then adds to this what is perhaps the most significant description for the argument I wish to put forth; he describes the tyrant’s soul as having madness as its leader and bodyguard. “[This leader of the soul,” he claims, “adopts madness as its bodyguard and becomes frenzied. If it finds any beliefs or desires in the man that are thought to be good or that still have some shame, it destroys them and throws them out, until it’s purged him of moderation and filled him with imported madness” (573a-b). He states that this too is why “erotic love has long been called a tyrant” (See Book I: 329c) (573b). Socrates summarizes what has just been confirmed by Glaucion that, “a man becomes tyrannical in the precise sense of the term when either his nature or his way of life or both of them together make him drunk, filled with erotic desire, and mad” (573c).

The task now has turned to describing the tyrannical life; the issue to be made clear is not only that the tyrannical life is unpleasant (this is Socrates’ main argument). I submit that the tyrannical life, driven by the erotic passion and desires which have become manifested as a kind of madness, has become blinded to what is best and good. Socrates suggests that the tyrannical life, driven by erotic love, spends all his money, thus “when everything is gone” all the lawless desires that are now within him demand even more; “driven by the stings of the other desires and especially by erotic love itself (which leads all of them as its bodyguard)” he will “become frenzied and look to see who possesses anything that he could take, by either deceit or force” (573e). The tyrannical life is one of a kind of madness which is expressed as something akin to an obsession which leads this person to do all kinds of evil actions; as Socrates elegantly claims:

Now, however, under the tyranny of erotic love, he has permanently become while awake what he used to become occasionally while asleep, and he won’t hold back from any terrible murder or from any kind of food or act. But, rather, erotic love lives like a tyrant within him in complete anarchy and lawlessness as his sole ruler, and drives him, as if he were a city, to dare anything that will provide sustenance for itself and the unruly mob around it…Isn’t this the life that a tyrannical man leads? (574e-575a).
Again, Socrates declares that “someone with a tyrannical nature lives his whole life without being friends with anyone” (576a). This can be viewed in relation to the parallel mentioned previously concerning the philosopher as a well-trained dog who is able to recognize and has knowledge of the difference between friend and enemy, whereas the wolf, who is really a tyrant, cannot. The tyrannical person, says Socrates, is “the worst type of man: His waking life is like the nightmare we described earlier…the longer he remains tyrant, the more like the nightmare he becomes” (576b).

Previously, I stated that the madness, which is expressed as an uncontrollable obsession for the lawless desires and will stop at nothing to satisfy them, is also a kind of blindness; it was for this reason that I described the madness of the tyrannical soul as *injudicious madness*. The relevant question that now applies is whether or not Socrates actually makes the same connection? Perhaps it would be a better reason if the blindness which is connected to the madness of a tyrannical soul, *injudicious madness*, results not only in potentially being unable to know what is best, but, more specifically, in the least pleasant life. In this way it could be argued that the tyrannical life is by far the most unjust and what Socrates does describe as “totally opposite” from the philosophical soul or city ruled by a king (576d). With that said, it seems important to have a better understanding of how the tyrannical soul becomes maddened in such a way as to become blinded to what is actually good. For it would seem unrealistic to suggest that once the erotic desires have become freed within his soul they automatically or magically are expressed as a kind of blindness. Rather, I suggest that the process of becoming blind to what is good is a process which can be discovered and described by looking closely at the devolution of constitutions in Book VIII.

In a very insightful essay titled “Degenerate regimes in Plato’s Republic,” Zena Hitz recognizes that as the process of degeneration occurs there is a struggle between reason and the appetites. She states that “[R]eason is not dispensed with in the degenerate regimes; rather, it pursues inadequate objects. Rather than seeking what is genuinely good, degenerate reason pursues certain shadowy appearances of the good; honor, constraint, and lawfulness” (Hitz 113). Her description of “shadowy appearances of the good” is then employed in each constitution which results in, according to my interpretation of her argument, a further development of falsehood, deception and, ultimately, blindness; she claims that, “love of wealth in the timocracy is the engine of its decline” and that the “love of wealth is secret” (114). This secretiveness should be considered, according to my interpretation, the beginning of the coming of blindness which will be maximized by the tyrant.

What about the other constitutions, one might wonder? How are they involved? Consider the Oligarchy and how they “impoverish their subjects” as Hitz claims; “under the guise of restraining petty injustice such as thievery and temple-robbing (552d), the oligarchic rulers maintain a legal structure which enriches them” (Hitz 116). Going on, she argues that these rulers must have an appearance of being just, or at least trustworthy, in order to make loans which will increase their wealth (116). Thus, there remains a kind of false impression which could be taken simply as a secretive reversal of virtue, i.e. honesty particularly between friends and fellow citizens. This mere façade of virtue of honesty is, as it were, a furthering of blindness, or so I wish to claim.

The democratic constitution is a bit different, for there remains “a certain kind of restraint and with the projection of a certain kind of appearance” which according to Hitz, “can be seen in part by looking backward from the tyrant” (Hitz 116). It seems as though the democratic constitution also has something akin to secretiveness. If we consider that in the tyrannical soul the lawless desires are fully realized and expressed as a kind of blinding manifestation of madness, “[T]he democratic character settles a compromise between his necessary and unnecessary appetites, under something like a law of equality (572b10-d3). In doing so, the democratic character imagines he is being moderate”, and it is here that we can see how “the democrat has no real grounds to oppose the pursuit of lawless desires” (117). Indeed, one could view the democrat as being quite similar to the other constitutions in that, “like the oligarch and the timocrat” the democrat inevitably “nurture[s] appetites hostile to his own values while pretending to himself—and perhaps to others—that he is in fact safe from them” (117). This is clearly a case of both self-deception and secretiveness; but it is not yet maximal. Hitz’s insight here, however, shows that these shadow virtues, in relation to the devolution of constitutions, can be considered as proof of a sort of self-blinding quality; ultimately this blindness, I submit, will be completed in the tyrannical soul as a kind of psychological manifestation of madness actively expressed in the soul of the tyrant.

It is interesting to notice, prior to moving on, that Plato seems to have had a great appreciation for this notion of blindness, which should be understood in terms of the inevitable consequences of hubris or selfishness. In the Ion, for example, Socrates attempts to describe a passage from Homer, in this case from the *Odyssey*, which is a worthy example of good poetry which has been inspired by
the gods. He chooses to describe the scene where Theoclymenus warns the suitors of their self-deception:

> Ah, wretched men, what bane is this ye suffer? Shrouded in night. Are your heads and your faces and your limbs below, And kindled is the voice of wailing, and cheeks are wet with tears. And the porch is full of ghosts, the hall is full of them, Hastening hellwards beneath the gloom; and the sun Has perished out of heaven, and an evil mist enfolds the world (Ion 539).

How brilliantly this passage suggests that blindness in the form of a gloomy evil mist has completely encompassed the minds of the suitors; might we extrapolate from this just a bit and consider a very similar mist of blindness is what has been planted in the soul of the tyrant and become manifested in the form of *injudicious* madness? I suggest such a connection is quite reasonable, especially given the appreciation Plato seemed to have both for Homer (to some extent) and for Homer's hero Odysseus (See Republic X: 595b and 620c).

Until this point, one might object, all I have merely been building is a case for a parallel between the philosophical soul and the tyrannical soul. My image he uses, the *ship of state*, is that to his audience; the basic force of the philosopher-king paradox; “How, then, can it be true to say that there will be no end to evils in our cities until philosophers—people we agree are to be useless—rule in them?” (487e). Socrates, in his usual fashion, gives a simile to help describe the situation to his audience; the basic force of the image he uses, the *ship of state*, is that those who dismiss the true ruler of a ship do not recognize or understand the purpose of ruling. Socrates states that they:

> ...don’t understand that a true captain must pay attention to the seasons of the year, the sky, the stars, the winds, and all that pertains to his craft, if he’s really to be the ruler of the ship. And they [those who dismiss him] don’t believe there is any craft that would enable him to determine how he should steer the ship, whether the others want him to or not, or any possibility of mastering this alleged craft or of practicing it at the same time as the craft of navigation. Don’t you think that the true captain will be called a real stargazer, a babbler, and a good-for-nothing by those who sail in ships governed in that way in which such things happen? (488d–e).

Here we have a slight indication into how we might consider a philosopher as also having a kind of madness, one which is here described as stargazing, etc. (I will come back to this point in a moment). First, however, there is another important point which Socrates makes following this passage which needs to be addressed in order to see the full force of my argument at its conclusion.

After agreeing that the philosopher or true captain of a ship is considered by most people as completely useless, he then states something rather remarkable. He claims that it is not right for one who is a ruler to beg to rule; that is to say “[I]t isn’t for the ruler, if he’s truly any use, to beg the others to accept his rule” (489c). This remark, it seems to me, is strikingly similar to what he states much earlier in the dialogue concerning who the best ruler is:

> ...good people won’t be willing to rule for the sake of either money or honor. They don’t want to be paid wages openly for ruling and get called hired hands, nor to take them in secret from their rule and be called thieves. And they won’t rule for the sake of honor, because they aren’t ambitious honor-lovers. So, if they’re to be willing to rule, some compulsion or punishment must be brought to bear on them—perhaps that is why it is thought shameful to seek to rule before one is compelled to. Now the greatest punishment, if one isn’t willing to rule, is to be ruled by someone worse than oneself. And I think that it’s fear of this that makes decent people rule when they do (347b–c).

This claim, of course, was stated
way back in Book I, but it has a great deal of importance here as our argument proceeds to its end. We shall see how it impacts the paradox of the philosopher-king once we have further examined the relevance of madness with regard to the philosophical soul.

As I have mentioned previously, there is no good description of the philosophical soul in the Republic, but Plato does provide a basic understanding of the philosopher as a lover of wisdom. I will turn now to a very brief summation of the relation between Eros and madness as Socrates describes it in the Phaedrus; there Socrates gives two speeches describing the nature of love (Eros) in connection to madness. In the first speech we see Eros as an energizing force which is manifested as a kind of madness and can be conceived of as the kind of madness we saw related to the tyrannical soul, a kind of injudicious madness.

The speeches Socrates gives are meant to describe the role Eros plays between the older lover and a beloved younger boy. In the first speech, Socrates claims that “the older, stays with the younger, and will not leave him, day nor night, if he can help it; constraint and mad desire drive him onwards; the sting of love allures him with the gift of constant joy in seeing, hearing, touching the beloved…” (Phaedrus: 240). Here it seems that the older lover, driven by a sensual, lustful, erotic and bodily Eros, has become utterly obsessed with the beloved and this obsession turns out to be very harmful to the beloved. Socrates says to the young boy, “you must know the fondness of the lover, what it is. Its nature is not that of kindness. No, it comes to satisfy its appetite, to devour you as a sort of food: Like as wolves adore a lamb, thus do lovers love a boy” (241). Yet, this speech turns out to be an inadequate description of Eros and Socrates is compelled by his conscience, or perhaps fear of offending the gods, to recant and give a second more adequate speech.

In his second speech, Socrates now declares that instead of madness always leading to unsound and harmful judgment he instead says that “in reality the greatest blessings come to us through madness, for there is a madness that is given from on high” (244). Again Socrates praises this divine kind of madness saying:

> Where the direst maladies and woes have fallen upon certain houses through ancestral guilt, there madness has intervened, and with oracular power has found a way of deliverance for those who are in need, taking refuge in supplications to the gods and worship of them; and thus, through cleansing and mystic rites, he who has part in this madness finds safety now and for the future; to him who is rightly mad, rightly possessed, the madness brings release from his present ills (244).

We can begin to see at this point, even with this very brief reference to the Phaedrus that there is another kind of madness—a judicious madness and it is precisely this divine and judicious version which I wish to associate with the philosophical soul. Simply put, the soul of the philosopher is paralleled by the soul of the tyrant exactly at this point. The philosophical soul is maddened and obsessed with what its nature corresponds to, namely the Forms; this enables it to have sound judgment and understanding. Moreover this judicious quality of the philosophical soul is essentially one of clear-sightedness, being able to know what is best and good in any given situation and thus moved by the energizing force of Eros, this judicious madness is able to “bring release from…present ills” (244). On the other hand, the tyrannical soul, as it has been previously demonstrated, is maddened and obsessed with what its nature corresponds to, namely its own lawless erotic desires; this then prevents it from having sound judgment and understanding.

Now that this parallel is complete and we can see, to some degree, what the philosophical soul is like, we are in a far better position to give a reasonable solution to the paradox of the philosopher-king. Why should the philosopher go back down into the cave-city and rule?

After Socrates has finished describing the unforgettable simile of the cave in Book VII, and states that the philosophers must not remain with the Forms forever but must be compelled “through persuasion or compulsion” (519e) to rule the city, he makes what is perhaps the most difficult yet important point; he suggests that true philosophers “despise political rule” more than anyone else (521b). This is the main point my argument has come to.

In sum, the philosophers will not want to rule. They, of all people, will want to rule the least. However, because the philosophical soul is characterized by a judicious madness which enables clear-sightedness, the true philosopher will know and understand best that, given the situation, what is best for themselves as well as the happiness of the city as a whole is for them to rule the city as philosopher-kings. Moreover, it would be wrong to consider Socrates’ remarks here as being mistaken or inauthentic. When Socrates argues that the philosophers will not want to rule the city we must take him seriously.

If my interpretation of Plato here is correct, then it would be a mistake to argue, as some tend to do, that the philosophers actually do want to go back down into the cave in order to rule, despite their desire to be with the Forms forever. No, in comparison
to the madness which they possess, and in conjunction with their obsession of the Forms (which is the only thing the philosophers are really concerned with) they will not want to rule. They will want to stay in the light of the Forms, forever learning; for they are by nature lovers of wisdom and are maddened by their desire of the Forms. However, and this is the central point, this same madness is what allows them to see clearly or judge rightly that the situation calls for them to rule, though they really do not want to. This is why Socrates says very early on in Book I that the best kind of rulers (the philosopher-kings) are those who do not want to rule but are compelled by a kind of judicious awareness of what is best, both for themselves as well as the city at large (347b-c). Thus, we have come to our conclusion: there is a parallel between philosophical and tyrannical souls and the philosopher’s soul is distinguished by a kind of judicious-madness whereas the tyrant’s soul is clearly seen to be marked by a kind of injudicious-madness.

References


Archaeological Survey of Center Chapel, Franklin County, Kansas

Paul Thomas

INTRODUCTION
Center Chapel is a small chapel ruin located in a patch of trees that now lies off the southwest junction of Oregon and Pawnee Road, northeast of the city of Ottawa, in Franklin County, KS. The project undertaken was an archaeological survey of the site. Largely, the research introduced me to key surveying techniques, as well as helped to familiarize myself with archaeological fieldwork. Archaeology focuses on the remains and artifacts of the past. Through these vestiges, the archaeologist is able to reconstruct the past. Due to the fact that history is slowly being lost when it is not being analyzed, this project was an attempt to preserve what could be gathered about a small but interesting ruin that does not receive much attention. As such, this project is extremely valuable to local Franklin County history. The final product will be presented to the Franklin County Historical Society, an organization that collects information about the aforementioned county and will inevitably find the information useful.

Dr. Philip Stinson, assistant professor of Classics at the University of Kansas, was instrumental in teaching me the proper techniques to survey this structure, as well as explaining key concepts, such as how to identify the various periods of use. In addition, my father, Mark Thomas, assisted me in measuring the walls and surveying their heights.

BACKGROUND AND METHODS
Center Chapel is currently owned by the Sims family, who live just west

Q&A

How did you become involved in doing research?
I was enrolled in a class taught by Professor Michael Vitevitch that explained the basics of undergraduate research. We were all instructed to pick a potential topic and develop some sort of research project idea out of it. I chose to look at a local chapel. After the class concluded and I was picked for an Undergraduate Research Award, I secured permission from the individuals who own the structure, and began working with Professor Philip Stinson, a professor in the classics department, on archaeological techniques.

How is the research process different from what you expected?
Originally, I thought that most of my research would be text-based and that I would be trying to locate original photographs and messages about the building. I realized that fieldwork would play a big part in this project, but at first I thought that I could survey this building in a few days. It took much longer to survey—granted, part of that was due to the weather—and my project was almost entirely based in the field; I found hardly any textual evidence about the chapel.

What is your favorite part of doing research?
The most interesting part of the research was drawing the structure. Although it easily took the most time—because I had to draw each stone by hand and then convert the image to a vector file on the computer—it was the most rewarding because I could see what I was doing. It also stretched my art skills and allowed me to grow my knowledge of archaeology, which is always something exciting.

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of the site. Much of the information regarding the structure has been lost over the course of 100 years, although the Franklin County Historical Society did have information pertaining to the building in its archives: “This stone building was an independent church known as Center Chapel, built around the turn of the century by men of the community. The Gothic style creates a picturesque ruin in fall and early spring” (Franklin County Historical Society 2001). According to the Sims family, the chapel was constructed so that new ministers who had recently graduated from Baker University would have a place to practice before they were reassigned to other churches (Sims Family 2012).

The first course of action was to scout out the site and take pictures. Following this step, I would begin measuring the structure. Finally, I planned on reproducing several key maps. The first of these would be a site map of the structure (Fig. 1). This map, illustrated as if one were looking down onto the structure, would provide a layout of the ruin and would feature various rocks, wood beams, and debris fields. Next, I would create a state drawing of one of the walls, which is an illustration of the status that the ruined wall is in currently (Fig. 2). With the information collected and recorded—the site map, state drawings, and various historical documents—I planned on reconstructing a state-elevation of the chapel prior to its ruination in graphics editing software AutoCAD. Originally, this model would have shown what the structure looked like before its ruination. However, as the project progressed, I decided to use AutoCAD to create the state drawing itself and bypass the idea of what the original structure looked like; this was largely due to time constraints, as well as the fact that my interest shifted towards the state that the ruin is in today.

RESULTS

After basic textual information about the site was gathered, the archaeological survey of the structure began. Six trips were made out to the structure between January and May 2013. During the first of these trips, the purpose was to become familiarized with the structure, its ruination, and the area that surrounded it. The trip was taken in the middle of winter to minimize the presence of plant growth. The five remaining trips were undertaken for the purpose of documenting and surveying the ruins. The site was documented in situ—that is to say, in the position of deposition that the artifacts and ruins rest. This was to ensure that the state of decay—such as areas where the walls have collapsed—were explicitly recorded, lest archaeological context be lost.

Currently, only the north and west walls of the structure are still standing. The north wall is for the most part complete, with four window cavities largely preserved (the remainder of the paper will refer to these windows by the numbers 1, 2, 3, and 4. The first window is the farthest east, whereas the fourth window is the farthest west). The third window even has the skeleton of its wooden window frame preserved (this will be expanded upon later). The west wall did not have any windows to begin with, and is one solid surface. The top of the west wall terminates into an apex. The slopes of both sides of the apex have eroded, most likely due to either the weathering of time, or the collapse of the roof. Both the south and east wall are fragmentary. The only remnant of the south wall is a single wall fragment that had originally stood between the east wall and a window. The remaining south wall collapsed long ago and the stones are missing. Local residents salvaged them for other uses; in fact, the Sims’ home is partially constructed from these repurposed stones (Sims Family 2012). Similarly, the east wall is limited to a single wall fragment that connects directly to the north wall.

Much of the surrounding area is littered with the fallen stones of the structure. Most of these stones have been dislodged and weathered for so long that it is all but impossible to tell where they originated from on the structure. Despite this limitation, there are several important artifacts surrounding the chapel. The first of these artifacts is the structure’s cornerstone. Located an average of 1.6 feet away from the corner of the east and north walls, the corner stone had been culled from the base of the structure and flipped onto its side. There is a small cavity on the side of the stone that looks as if at one time there was a small plaque or inscription stone inside it. The damage that the removal of the cornerstone did was rather severe; the entire lower portion of the northeast corner is missing and caving in (Fig. 2).

In front of the east wall are the remains of the sidewalk that led up to the chapel’s front door. Due to tree growth, most of the cement blocks that were laid in the ground have been uprooted and broken. The only remnant of the chapel’s door is a space between the vestiges of the east wall, and this space is not well defined due to the complete ruination of the east wall.

The interior of the chapel is filled with a mix of fallen rock, scattered wooden beams, and miscellaneous debris. The eastern portion of the interior is largely a tangle of said beams, many of which seem to have been deposited following the structure’s abandonment. The southern portion of the interior has developed into a mound of rocks and soil. Only the slightest edges of the south wall—largely the stones that make up the southeastern
corner—emerge from this mound. The northern part of the interior is scattered with fallen stones and wooden beams, although the beams are less densely layered than the eastern portion. Although most of the artifacts—especially the wooden ones—have been weathered, certain key finds were recorded inside the ruin. For instance, many of the wooden shards were identified as parts of the various windows' frames. Just south of the second window are the telltale remnants of both a jamb and a window's curved head. South of the first window, a lever from one of the windows' pulley systems was discovered. Directly north of the second window is the remnant of a decayed jamb. Curiously, it appears that all of the confirmed wooden remains belonged to the north wall's windows; no wooden remnants from the south wall's windows were discovered or documented (Fig. 1).

Inside the ruin, key artifacts helped establish the various periods of use. The chapel, according to various sources, was constructed in the 1900s. This would be the first period of use. While documenting the site, it was noted that embedded wooden beams in the lower part of the chapel's interior walls were charred and blackened, evidence of a fire. What is more interesting, however, is that many of these beams were covered by plaster that had just recently begun to crack and flake away, revealing the carbonized wood beneath (Fig. 3). This is evidence that after a fire had burned much of the original wood, someone attempted to rebuild or at least repair parts of the chapel. This is the second period of use, which I referred to as the “post-fire” period. Finally, “out-of-place artifacts” found inside the ruin—such as modern bottles, cans, gutter railing, and contemporary wood beams—as well as the currently ruined state of the structure, seems to suggest that after the repair, this structure was finally abandoned, was no longer occupied, and was used as a receptacle for unwanted objects. This is the final period of use.

Once the ruin itself was documented via photographs, it was then surveyed. Because of time constraints, a large portion of this survey focused almost exclusively on the north wall because it was both the most preserved, as well as the most interesting, due to the preserved window cavities and the artifacts surrounding it. It was decided early on to measure the entire structure using the Imperial system of measurement. Although most archaeological expeditions use the metric system, the reason that the Imperial system was utilized is due to the fact that it was the system utilized by the builder of the original chapel. It was reasoned that it would be easier and quicker—given the short period of time allotted for this survey—to use the Imperial system. The chapel measures 50.35 feet from east to west, and roughly 30 feet from north to south. The eastern end of the north wall is 15.4 feet high, and the western end is 15.29. The median of the wall is 14.42. The top of the north wall has crumbled, making the top uneven and non-horizontal. The wall itself is divided into nine segments: five wall segments, and four window segments. The wall segments measure roughly 7.25 feet wide. The window segments are roughly 3.65 feet wide.

The cross-section width of the walls was roughly two feet. Using a level, it was discovered that the north wall is beginning to cave in by a distance of about 1.5 inches in the middle. This could potentially be due to the removal of the cornerstone. Using a surveying compass, it was calculated that the structure's north wall is situated roughly 5 degrees north of east.

The windows are all roughly the same size and measure 3.65 feet across. Due to the sloping nature of the windows, a plum-bob was used to measure the varying heights. The plum-bob was attached to a string and then dangled from the height that was being measured. Gravity would then pull the weight down, and after it stopped swinging, an accurate measurement of the height could be taken. From the peak of the window to the base measures 10.41 feet. The completely vertical part of the window jamb measures roughly 8 feet high. Below each window is a centered rectangular ledge that measures 4.35 feet wide by 0.42 feet high. The ledge was missing from both the first and the fourth windows. Furthermore, the wall segment below the fourth window had largely deteriorated.

Of note, the structure’s third window still had the skeleton of the original window frame intact (Fig. 4). Unlike the other windows, whose frames had been scattered onto the ground and deteriorated, this window frame was in remarkable condition. Due to the settling of the structure, the frame was off-center and leaning heavily towards the eastern side of the stone cavity. However, both a single horizontal grille as well as the metal latches are still connected to the frame (Fig. 5). In addition, the internal weight and pulley system that were originally used to open and close the window are still preserved within the wood, although they have long since stopped functioning.

Once the information and measurements were acquired, a site map was produced (Fig 1). This map illustrates, as if from a bird’s-eye view, all of the major walls, as well as debris fields, the location of artifacts, and orientation of the structure. After this map was created, a state drawing of the structure’s north wall was created (Fig. 2). Originally, I planned
on constructing a state drawing for each wall, but due to time constraints, the other walls had to be scrapped. All of these maps were hand-drawn onto graph paper that measured 11 by 17 inches. Great care was taken to ensure that each stone was drawn precisely where it was with respect to the walls. The illustrations were then scanned onto a computer, and, using AutoCAD, a vector image of the maps was reproduced.

CONCLUSION
First and foremost, the survey of Center Chapel was instrumental in locating various artifacts that had once been integral parts of the building, such as window beams and a pulley. Furthermore, the location of all of these artifacts was preserved, so that the context of the ruin was successfully documented. This survey allowed for both an accurate digital reconstruction to be created on the computer, as well as to preserve the artifacts for the future. One of the biggest finds during this survey was the discovery of the burnt wooden beams. These telltale beams shed new light on how and why the structure may have been initially ruined; prior to this survey, information regarding the chapel’s abandonment was either unclear or lacking.

This project was also invaluable to my education. Not only have I received the opportunity to practice archaeology out in the field, I have also learned key surveying techniques—such as measuring, documenting, sketching, and rendering images on the computer—that will prove extremely useful in my future career. As mentioned before, I plan on submitting my findings to the Franklin County Historical Society. I am also looking into finding a contractor to see if the damage made to the cornerstone can be alleviated so that the site may be preserved for several more years.

References
Franklin County Historical Society
2001 Welcome to Ottawa and Franklin County Kansas—Driving Tours: Northeast Tour of Franklin County.

The site map of Center Chapel. South is oriented towards the top of the image. This map notes several artifacts including a lever from a window (1), an arching jamb (2), window beams with sockets for where the latches had been (3, 5), charred wood (4), and the original door cavity (6).

FIGURE 2.

The digital reconstruction of the north wall of Center Chapel. Note the preserved third window, as well as the missing cornerstone in the bottom left-hand corner. The window on the far left is Window 1, whereas the window on the far right is Window 4; the window numbers progress left to right.
Carbonized wood, covered in plaster; this is evidence that the structure experienced a fire and then was repaired.

The third window, complete with frame.

The original metal latches to the third window’s frame.
Q&A

**How did you become involved in doing research?**
Last year I was awarded an Undergraduate Research Award which afforded me the opportunity to go to London and perform research in the British National Archives at Kew. I then presented my research at the Undergraduate Research Symposium and submitted it to the *Journal of Undergraduate Research*. This year, my second grant allowed me to perform research in Paris, France at the Alliance Israélite Universelle archives.

**How is the research process different from what you expected?**
I found that research takes a lot of personal curiosity as well as the ability to encounter pieces of information and distinguish its importance from a larger body of information. Also the ability to synthesize research into an argument is a major part of the research process.

**What is your favorite part of doing research?**
My favorite part of doing research is the feeling I get when I discover something new and use the historical context to create my own arguments and to ask my own questions about a certain topic or issue.

About Joseph Siess

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**INTRODUCTION**
The purpose of this research is to isolate the environmental, social and political changes occurring in Morocco as a result of European influences, and to examine the ramifications upon the Moroccan Jewish identity. These European influences include: French colonial penetration and Zionism. Synonymous with my senior honors thesis, this research relies upon archival research performed at the Alliance Israélite Universelle archives in Paris, France, as well as literary sources authored by Moroccan born Jewish authors, including esteemed authors Edmond Amran el-Maleh and Ruth Knafo Setton. The archival component of this research examines these environmental, social and political changes through a Franco-Jewish lens, while the literary component acts to personalize the effects of these influences upon the Moroccan Jewish identity as subjectively as possible. The goal of this research is to contribute to the field of scholarship concerning Moroccan Jewish identity, and notions of identity in general, as well as to promote contemporary Moroccan Jewish literature as an important primary source base. The hope is that this research will open up the forum concerning broader notions of identity, and the ways in which identity transforms and adapts under specific circumstances, such as European colonial influence.

**BACKGROUND/METHODS**
French colonialism in Morocco was an experience shared by both its Muslim and Jewish inhabitants, who
were surrounded by the same walls separating the conquered from the conqueror. The French conquest of Morocco, a physical and cultural conquest, caused Moroccans—both Muslim and Jew—to reconstruct their cultural, national, and ethnic identities. By the time the French left Morocco in 1956, Moroccan Jews faced a second challenge to their identity as they found themselves caught in the middle between the fervent influx of Arab nationalism and the Zionist movement, not fully accepted by either. The Alliance Israélite Universelle, a Jewish humanitarian organization based in Paris, France, existed in Morocco 50 years prior to French colonial penetration. The Alliance Israélite Universelle, supported by the French government, built a network of schools throughout North Africa with the aspiration of providing a quality European education for their coreligionists. Zionism as well was present in Morocco only a short time after its politicization at the Basel conference in 1897, and its influence reached its peak in the years following the establishment of the state of Israel in 1948. This research relies on literary sources, written by Moroccan born Jewish authors, as well as archival research performed at the Alliance Israélite Universelle archives in Paris, France. The archival component of this project provided information about the activities of the Alliance Israélite Universelle, and by extension, the French protectorate, as well as the effects of Zionism on the Moroccan Jewish identity. This research aims to outline the effects of the factors that led to this reconstruction of Moroccan Jewish identity culminating in the ultimate mass exodus of Moroccan Jewry after Moroccan independence in 1956. Finally, this research also aims to personalize the effects these events had upon the Moroccan Jewish identity through a Moroccan Jewish literary lens. Thus, reflected in Moroccan Jewish literature, the Moroccan Jewish identity may be characterized as the phenomenon of dual exile, in which the authors’ identities are being challenged from multiple angles simultaneously.

RESULTS, DISCUSSION, AND IMPLICATIONS

This article focuses on the Jews of Morocco, and it may be argued that before the fall of the Western Caliphate, the Arab Maghreb and Muslim Spain existed as a greater cultural milieu that defined the Mediterranean Jewish world. This research, as a component of my senior honors thesis, depicts the decimation of the Moroccan Jewish world via factors including French colonial and Zionist influence, and this article focuses on Moroccan Jewish literature as a way to personalize the archival component of this research. Within this article, the writings of two Moroccan Jewish authors, Edmond Amran el-Maleh and Ruth Knafo Setton, will be incorporated into the broader historical narrative.

El-Maleh, born in Safi in 1917, 5 years after the establishment of the French Protectorate in Morocco, experienced firsthand the exile that characterizes his identity. El-Maleh writes from exile in France, and in his writings he stresses a sense of exile that assumes a dualistic nature, namely his physical exile from his home in Morocco, and also in a more abstract sense, exile from Israel. El-Maleh, as a militant, communist anti-colonialist fighting alongside his fellow Moroccans for independence, essentially writes from the vantage point of a privileged observer, “equally at home and equally exiled from the various societies he frequents.” El-Maleh’s writings depict the chaotic phenomenon of “double colonization simultaneously… that of Morocco by France, and that of a vulnerable Moroccan Jewry by Ashkenazi Israel.” This notion of double colonization, or the dualistic nature of this unique strain of exile, is also apparent within the writings of Moroccan-born author, Ruth Knafo Setton. For Setton, her exile is emphasized by her Sephardic heritage, which is emboldened by the pride she has for her Moroccan cultural roots.

Setton’s writings, a different kind of dualism is apparent. Setton grew up in the United States, with one foot in the old world (Morocco) and the other in the new. Setton depicts the alienation she feels amongst the Ashkenazi Jews she encounters in France and the United States, as well as the alienation she feels as a Jew, and especially as a woman, in Morocco, the land of her birth. Setton does not speak Arabic, and communicates with her family in Morocco by way of French. This linguistic disconnect further enunciates her cultural exile. The Dualistic nature of this exile is described when Setton writes, “…and I set pen to paper and begin the American novel—as interpreted by a Moroccan-Jewish immigrant girl. But I’ve been burned already, even though I’m barely 21. The first story I sent out returns with a rejection note: You write well. Next time try writing about the real Jews.” Setton depicts her situation as that of the unwanted, or the ostracized, too “dark” in her “African” heart for America, and too Arab to be considered a “real Jew”.

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1 Schroeter, Daniel J. “The Shifting Boundaries of Moroccan Jewish Identities.” Jewish Social Studies. no. 1 (2008), 146.
3 Ibid.
within the Eurocentric paradigm characteristic of the “Jewish identity”5 as constructed within the Zionist context, and as propagated by Ashkenazic Israel.

In his writings, el-Maleh fears the onset of the cultural amnesia experienced by Setton, and whereas el-Maleh is uprooted from his physical environment, Setton is uprooted from her identity. Both are exiled in their own way, but what unites their stories is this dualism and sense of being exiled from two angles, namely their physical exile from Morocco, as well as their exile from the newly constructed Jewish identity.

In the words of celebrated author and activist Christine Daure-Serfaty, the wife of Moroccan Jewish political activist Abraham Serfaty, a Christian French national, and a teacher in Tangier:

“Yet all of Morocco is truly cut off, isolated on the north by the Mediterranean, on the west by the Atlantic, on the south by an enormous desert plagued by war, and on the east by a long border that has remained closed for decades. On top of all that, Moroccans are cut off mentally by their strong feelings of identity and nationalism. They form an island, just like the Chinese must have during the Middle Empire. They’re convinced of their uniqueness, or at the very least of the uniqueness of both their misfortunes and windfalls. Travel and symposia have made little or no difference, because the inner wall that isolates Morocco’s thirty million inhabitants from the rest of the world is so thick. It’s an ancient wall, built to resist foreign invaders—from the early Portuguese and Turks right up to the more recent Spanish and French colonizers. In order to drive them back, the country closed itself off militarily as best it could; but more importantly, it strengthened its own identity, cultivating a special kind of density as a means of fending off any new input from the vast world outside...”6

Morocco’s isolation, both physical and cultural, is the backdrop in which the Moroccan Jewish identity developed, and Jews are very much a major component of this environment. As a result of this phenomenon of duel colonialism experienced by Moroccan Jewry, the Moroccan Jewish identity, as expressed in Moroccan Jewish literature, can be characterized as a form of exile, assuming a dualistic nature, as previously mentioned.

Further, the historical narrative begins with the arrival of the French and the establishment of the French Protectorate in Morocco in 1912, and it ends with the mass Moroccan Jewish exodus beginning for the most part in the 1950’s and 60’s. This mass exodus of Moroccan Jewry can be described as the culmination of various factors and as a “complex process of political change in the twentieth century.”7 This article focuses on the dualistic nature of colonialism in Morocco; namely that of French colonial penetration via the AIU and Zionist influence in the years after Israeli independence in 1948. The objective of this article is to personalize, via Moroccan Jewish literature, the effects of this dualistic challenge to Moroccan Jewish identity, and to demonstrate how these challenges translate into cultural alienation.

The vehicle that drove French colonialism into the midst of Moroccan Jewry was the AIU. The AIU, though not intentionally, acted as the mediator between the Moroccan Jewish communities and the French government, and served to bring the Jews closer culturally and politically to France, creating a rift between Moroccan Jewry and its Muslim counterpart. El-Maleh in his memoir, Parcours immobile, writes, in reference to the AIU’s influence on the Jewish population, “the children learning French, limited to the walls of the class, skimpy, like the skimpy suite worn by Ben Ruben (teacher from the AIU school), borrowed clothes, like the apron or the smock: The work of the Alliance Israélite, the work of France.”8 El-Maleh is expressing the existence of the political relationship between France and the AIU in his writings. El-Maleh clearly views the situation with contempt, as, due to this political affiliation between the AIU and the French protectorate, the AIU represents an arm of French colonial penetration in Morocco. Further, the AIU subsequently served as the vehicle in which Zionism staked its claim in Morocco, eventually leading many Moroccan Jews to immigrate to Israel.

Zionism, along with the establishment of the state of Israel in 1948, succeeded in the formation of a new Jewish identity, Eurocentric in nature, and exclusive of the Moroccan Jewish identity. Zionists in Morocco and the AIU initially were ideologically opposed in regards to the solution to the “Jewish question.” The Zionists believed Jews worldwide could only be emancipated if they uprooted themselves from the Diaspora and built a nation of their own. The AIU, on the other hand, saw these notions as destructive and were vehemently opposed to the formation of a Jewish state in Palestine. The AIU believed that the Jews could gain emancipation via

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6 Ibid.
7 Christine Daure-Serfaty, Letter from Morocco, (Michigan State University Press), 54-55.

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assimilation, though towards the end of the Second World War the AIU capitulated with the Zionists by way of allowing them to utilize their schools to promote a Zionist agenda. Utilizing AIU archival sources, this article will demonstrate that Zionism and the AIU inadvertently collaborated in attempting to engender amongst Moroccan Jewish youth a sense of Jewish nationalism in order to prepare them for future immigration to Israel.

As reflected in Jewish Moroccan literature, this is a phenomenon that may be described as a sort of “exile from exile.” Israel may have been known “in their bones”9, but Morocco was known in their hearts. Below, Setton in her novel, The Road to Fez, describes the Zionist influence on Jews living amongst the Berbers, “Do you know that when the Zionists went to the Berber villages in the mountains and told the Jews about Israel, the villages emptied overnight? The next morning the Berbers searched the villages and couldn’t understand how the Jews could leave like that, in a second, give up everything they’d ever known, for a land they’d never seen…A land they’d never seen but that they knew in their bones…”10

Zionism in a religious sense, namely, the Messianic return to the land of Israel, existed as a purely spiritual aspiration in Morocco for as long as the Jewish tradition has been practiced in the region. Ever since Zionism was politicized at the Basel Conference in 1897, a rift developed between the AIU and the Zionists in Morocco. According to historian Michael Laskier, “the conflict was clear: the AIU aspired to transform and liberate the Jews in their respective countries and what it would do was to fight for legislative reforms, bringing the Jews closer to France. The Zionists, on the other hand, called for the solution to the “Jewish problem” not through assimilation but rather by physically uprooting the Jews from the Diaspora and placing them in a homeland of their own. Such a solution was unacceptable to the AIU for quite some time.”11

After the war, the destruction of European Jewry forced the AIU to capitulate with the Zionists and adapt their policies to accommodate their calling for a Jewish national homeland in Palestine.12 Below is a translation of an official memorandum from 1953 located in the Alliance Israelite Universelle archives, which outlines the basic activities of The General Zionist Organization of Morocco.

“The General Zionist Organization of Morocco, which already employs much activity: By way of its youth movement Hanoar Hazioni (Zionist Youth) with more than 150 children, boys and girls, by its Hebrew courses and by its library in the French and Hebrew languages—and by its lecture room in which are available a number of newspapers and journals in the French and Hebrew languages which are at the disposal of its members.

You are cordially invited to attend our first “Onegh Chabat” that will be held at the local “Charles Finzi Center”… Saturday, May 9th… where films on Israel will be screened.”13

It is clear from the memorandum that whereas before the AIU was anti-Zionist, the French education provided to Jews in Morocco is now being utilized as a tool to engender feelings of Jewish nationalism within Moroccan Jewish youths. According to Laskier, “theoretically, French education was intended to gear the youths toward accepting the notions of emancipation through assimilation. Yet the institutions of the AIU, which also taught Jewish values, had wide-ranging effects on the youths, often in contrast with the schools’ doctrinal motives.”14

Amidst their French education, Moroccan Jewish youths were attending Jewish youth programs celebrating Yom Haatzmaout, or Israeli Independence Day, in order to inspire a sense of national belonging with their coreligionists cultivating a new nation in Israel.15 Essentially, Moroccan Jewish identity, traditionally and distinctly steeped in the Sephardic Jewish tradition, is being reconfigured in several ways. A new linguistic, national, and cultural identity is being imposed on Jewish youths via Zionist organizations in collaboration with the AIU as Moroccan Jewish youths are instructed in Hebrew and exposed to Israeli culture. Thus, while Moroccan Jews are provided a French education representing one side of the challenge to their identity, they are receiving a second challenge by way of Zionist influence, and these two challenges characterize the dualistic nature of colonization experienced by Moroccan Jews.

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9 Setton, 97-98.
10 Ibid, 97-98.
11 Laskier, 195. 12 Daniel J. Schroeter, 147.
12 Ibid, 213.
13 Organisation des sionistes generaux du Maroc. “L’organisation des sionistes generaux du Maroc qui deploie deja une grande activite” par son mouvement de jeunesse Hanoar Hazioni qui compte plus de 150 enfants, garcons et filles— par ses cours d’hébreu— par sa bibliotheque en langue francaise et hebraique— et par sa salle de lecture ou de nombreux journaux et revues juifs en langue francaise et hebraique sont a la disposition de ses membres. Vous etes cordialement invite a assister a notre premier “omnegh Chabat” qui sera donne dans son local “Centre Charles Finzi” 165, Bld des Regiments Coloniaux, le Samedi 9 Mai a 18 heures au cours duquel des films sur Israel seront projetez.”
15 Helene Cazes-Benatar, Alliance Israelite Universelle, Casablanca, le 29 Avril 1953. Alliance Israelite Universelle Archives.
Jewish youths were being prepared through AIU-sponsored Hebrew programs designed to immerse Jewish youths in Hebrew in preparation for immigration to Israel. In June 1952 twelve students completed the courses of the Ecole Normale Hébraïque, receiving French teaching diplomas as teachers of Hebrew. According to Laskier, it “was about time that the AIU made Morocco the testing ground for its Hebrew education program through the creation in 1946...of the Ecole Normale Hébraïque in Casablanca.” While the AIU prepared Moroccan Jews for assimilation in general, Zionism made significant inroads in the Moroccan Jewish community throughout the years, prompting many to eventually immigrate to Israel.

Before 1939, despite Jewish immigration to Palestine being weak in comparison with later years, Jewish immigration enraged the AIU. After many Jews previously inhabiting Fez left for Palestine, the AIU blamed their departure on the government’s lack of support to the Jewish community. In 1928, the AIU appealed to the French government to allow Jews to buy land outside the old city, as well as for permission to open retail stores within the Arab quarter, in order to augment the socioeconomic position of the Jews of Fez. The purpose of these reforms was to combat the increasing Zionist presence in the country, and thus to make life more appealing to the Jews of Fez so they would not leave for Palestine.

While the AIU’s intent was to improve Moroccan Jewish life in order to prevent Jews from leaving, the progress they did make in improving the lives of Jews essentially resulted in the deterioration of Muslim-Jewish relations. The Zionist influence, on the other hand, succeeded in providing many Jews the option of leaving for Palestine, but at the same time alienated them further from their Muslim counterparts. Again, these two aspects are characteristic of the dual nature of colonization experienced by Moroccan Jews. As reflected in Setton’s writings, Israel and Zionism became one and the same in Morocco after 1948, and Jew was equated with Zionist in the eyes of the Muslim masses. Below, Setton writes,

“Mani says, “I work with Arabs all day at the factory. Sometimes a whole day goes by, even two, and we’re just people, brothers, doing our work, laughing at the same jokes. Then the news comes on the radio. Someone mentions Israel, and the mood turns ugly. Eyes that were friendly a minute ago watch me. Most Jews I know won’t even go into work whenever anything happens in Israel. How long can we live with that kind of fear?”. “

This passage enunciates the feelings of Moroccan Jews, which prompted them to leave their home country for Israel. From Setton’s writings, it appears that Moroccan Jews are not particularly thrilled about leaving their home, but, at the same time, living without constant fear would be a better alternative.

In an AIU file, the recreation of a Jewish identity within a Zionist context is apparent. Ruben Tajouri, a French-educated Jew of Libyan descent who was a dominant individual in the development of the Alliance Israélite Universelle in Morocco, received an invitation to Paris. The invitation was from a French committee in charge of memorializing the Jewish martyr of the Warsaw ghetto uprising, and Tajouri was invited to participate as follows:

“We have the honor to inform you that the date of the first stone laying ceremony of the Tomb of the Unknown Jewish Martyr has been set for next Sunday, May 17th, a date that coincides with the 10th anniversary of the last battles, glorious and tragic, of the Warsaw ghetto.”

Tajouri’s reply is as follows,

“I am very touched by your attention and thank you. To my great regret, I will not be able to come to Paris on the date indicated for many reasons of occupation in need of attention at my office during this time of the school year. Please excuse my absence.”

This exchange of an invitation and a response is indeed rather simple, but it brings to light certain questions. Firstly, what connection besides religion does Tajouri, a Jew of Libyan decent, have with the martyrs of the Warsaw Ghetto?

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9 Ibid, 214.
10 Ibid, 97-98.
11 Ibid, 211.
12 Ibid, 213.
15 Letter from the Comité Mondial to Monsieur R. Tajouri, Délégué de l’A.I.U. Rue Éléonore-Fournier Casablanca (Maroc): Reply from R. Tajouri: “Je suis tres sensible a votre aimable attention et vous en remercie vivemment. A mon tres grant regret, je ne pourrai me rendre a Paris a la date indiquee en raison des multiples occupations qui me sont crees par ma charge a cette epoque de l’annee scolaire et vous prie en consequer ce de bien vouloir excuser mon absence. Le personnel de l’Alliance Israélite au Maroc et moi-meme serons avec vous en pleine communion de pensee et de sentiments au jour de la ceremonie, en cette date du 17 Mai coïnciant avec le 11ème anniversaire de la glorieuse defense du Ghetto de Varsovie.”
16 Ibid, 214.
17 Ibid, 111.
18 Ibid, 97-98.
19 Ibid, 214.
20 Ibid, 97-98.
The invitation is a clear gesture of solidarity on the part of the French Zionist Federation, though, in declining the invitation, whether out of necessity or not, Tajouri is maintaining the wall that divides the two worlds; Morocco and the outside world, as described by Christine Daure-Serfaty. Therefore, such gestures of Jewish solidarity, noble as they may be, perhaps have a difficult time crossing the ethnic, cultural, and national boundaries that separate the Moroccan Jewish world with the European Jewish world.

In conclusion, colonialism played a profound role in restructuring and reconfiguring the social, political and cultural makeup of the broader Middle East. Moroccan Jewry, an indigenous Middle Eastern community, was uprooted from its traditional home as a result of this large-scale reconfiguration of the broader Middle East. The result of these challenges to the Moroccan Jewish identity was the creation of an identity characterized by exile and alienation. In the case of el-Maleh, who writes from Paris, he is forced to leave his home, the very land he fought to emancipate from French rule, and at the same time, in a more ideological sense, he is exiled from Israel. Setton, on the other hand, is robbed of her identity and grows up in America, “rootless,” and “sprouted from nowhere,” and never really fitting in with the “real Jews”. Thus, what el-Maleh feared, namely Moroccan Jewish cultural amnesia, Setton experiences as a Moroccan Jew exiled from both her Moroccan cultural identity as well as the newly created Jewish identity centered in Ashkenazic Israel. Setton describes this sense of cultural alienation in her novel writing,

“...When I look back into our past as Moroccan Jews, it’s dark, like the mellah (Jewish quarter). A dark line, broken by glimpses of sun. A friend from Paris told me once, you come to Morocco to forget. We suffer from a sort of cultural amnesia. We forget what happened to us yesterday, the coming and going of the French, the dynasties of Sultans. A great blur of darkness buries us.”

Finally, the aspiration of this article is to open the forum in regards to certain questions of identity in general, and the dualistic nature of exile discussed in this article is only one question in the broader examination of the complex phenomenon of identity. Identity is a major theme in my honors thesis, and I hope to continue my research in the future and focus my work on broader notions of identity and the ways in which identity is affected by various factors, such as colonialism, as is the case in this article.

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Bibliography


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24 Setton, 85.
Effects of paedomorphosis on signaling behaviors in dyadic encounters of the domestic dog

Jennifer Aucott

ABSTRACT
Domestic dogs, Canis lupus (variety familiaris), show extremes of morphological variation in comparison to their ancestor, the wolf (Canis lupus), with some breeds being much smaller than a typical wolf (males 40–60 kg, females 30–45kg), while other breeds are much larger. A major trend observed to be a result of the process of domestication is paedomorphosis, or retention of juvenile traits into adulthood. Dogs express paedomorphic traits to different degrees, ranging from phenotypes that resemble wolves to extreme forms such as toy dogs, with short muzzles and legs. These traits can be both morphological to behavioral in nature. Such traits must interact because morphology is used to express behavior. One key example of this is the use of both ear and tail orientation to signal status in interactions among dogs. By observing dyadic encounters, I measured the extent of paedomorphic reduction of the ability to use signaling behaviors, specifically those involving the ears and tails. I did not find a correlation between overall paedomorphosis and frequency of signaling, but did find significant interactions between signal frequency and the degree of dissimilarity of the tail of individual breeds from a wolf tail. Despite this interaction, I found that signaling was consistent across breed types and sizes. This indicates that signaling is highly conserved and evolutionarily important, even across

Q&A

How did you become involved in doing research?
Undergraduate research is encouraged and well publicized at KU, so I approached several labs. I worked in the lab of Deborah Smith before working with Raymond Pierotti.

How is the research process different from what you expected?
It is much more reading of current literature than I had expected (or hoped for). I did not know I would like it so much, or want so strongly to make an impact, however small, on my field.

What is your favorite part of doing research?
Finding results in the data. The statistical tests were interesting, and calculating the significance of everything I worked toward was humbling, yet rewarding.
a large range of phenotypes. When tail signaling is reduced, it is often associated with a highly variant tail, especially those artificially shortened by human action.

INTRODUCTION
It has been established that the ancestors of all domestic dogs are wolves, and this domestication occurred several times across the world (Morey 1995). Along each of these separate lineages, the domestication process has yielded a variety of animals whose mature morphology shares traits with the juveniles of its ancestral form.

Termed paedomorphosis (Gould 1976), this phenomenon is not unique to the domestic dog; it appears in virtually all domesticated animals. A major process in domestication, it allows a lowered reproductive age and heightened threshold of aggression (Kretchner 1975). One can easily speculate why humans may select for these traits. However, the paedomorphosis also occurs naturally in numerous wild species, such as the axolotl (compared to its ancestral salamander form) and modern humans (derived from australopithecines).

In the dog, Canis lupus (variety familiaris), physical paedomorphic traits often include a large, rounded skull, a shortened muzzle, folded ears, a curled or shortened tail, and small size (but see lupine breeds below). Behavioral traits include a propensity toward play, heightened threshold of aggression, and increased barking in comparison to the dogs' wild ancestor, Canis lupus (Morey 1993). These qualities have been cultivated under the protection of humans. In this context, survival pressures were not as strong as in the wild. Deviation from the ancestral wolf did not reduce the dog's chance of survival and reproduction, regardless of its impact on overall health and fitness.

Dog breeds exhibit paedomorphosis to various degrees. So-called lupine breeds, such as huskies, malamutes, and samoyeds, retain more characteristics of an adult wolf, and less of the appearance of a juvenile wolf; this contrasts to many toy breeds (Pekinese, Cavalier King Charles spaniel) whose unnaturally short muzzles, folded ears, and rounded skulls serve as evidence of extreme paedomorphosis.

One impact of such a drastic change in morphology is a reduction in tendency to communicate (via visual body signals) with other dogs. A major role of canid communication is the maintenance of a relatively peaceful and stable social setting through establishment of dominant and subordinate roles to reduce potential physical conflicts among other dogs.

If we look at the wolf's behaviors, they consist of postures and movements. Table 1 shows several commonly seen behaviors, taken from Goodwin (1997). These are more extreme signals that convey dominance or submission; less exaggerated signals are also used.

The interaction between dominance and submission is critical to have smooth functioning within group relationships. As illustrated by

<table>
<thead>
<tr>
<th>Dominant Behaviors</th>
<th>Submissive Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stiff, erect stance</td>
<td>Crouch</td>
</tr>
<tr>
<td>Tail raised</td>
<td>Tail tucked down between legs</td>
</tr>
<tr>
<td>Ears forward</td>
<td>Ears flat</td>
</tr>
<tr>
<td>Direct stare</td>
<td>Licking or “grinning” at the face of another animal</td>
</tr>
<tr>
<td>Muzzle grab</td>
<td>Arched back</td>
</tr>
<tr>
<td>Sniffs recipient’s groin</td>
<td>Tail wag</td>
</tr>
<tr>
<td>Foreleg across subordinate’s shoulders</td>
<td>Rolls onto back</td>
</tr>
</tbody>
</table>

TABLE 1.
Mech (1999), these demonstrations can be used in situations of food-begging, conflict avoidance, promotion of peaceful relationships, and food distribution. For example, older offspring will frequently eat before younger siblings; however, wolf parents may preferentially feed growing pups, rather than offspring of an older litter, when food is scarce (Mech 1999).

Through the process of domestication, human intervention has added both additional artificial selective pressures and relaxed natural selective pressures (Price 1984). This change can be manifested in signaling behavior. As humans regularly provide ample food and intervene in conflict situations, both the cost of aggression and the need for signaling have been relaxed. Therefore, signaling can lessen in intensity and frequency without causing harmful results, and can even be used in inappropriate contexts. Dogs may roll onto their backs before their dominant human not as a submissive signal, but rather to incite attention (Frank and Frank 1982); however, it can be argued that this attention-begging is an offshoot of the food-begging explained by Mech (1999).

Several researchers have investigated the relationship between signaling behavior and paedomorphosis. Goodwin et al. (1997) observed that because humans intervene so frequently in an aggressive situation, the cost of aggression is lowered, and therefore the need for submissive signaling is reduced. Similar reduction is also seen in wolf puppies, which are largely protected by their youth. Adult dogs rarely attack puppies, and this reduction of aggression may apply—to some extent—to small or paedomorphic dogs. An apparent contradiction can be found in the study of Bradshaw and Lea (1992), which observed that some “subordinate” behaviors (namely, a resistance to being sniffed by others) occurred more frequently in dogs than in wolves. This typically submissive action was frequently seen in both dogs in a dyadic encounter.

Physical limitations in these breeds are probably largely responsible for decreased signaling. For example, a Maltese may not be able to convey a submissive message by flattening its already drooping (also obscured by long hair) ears. Some breeds, although wolf-like in basic behavior, have lost some behavioral variants, e.g., Border Collies are incapable of howling and also have ears that tend to flop over in their natural carriage. Behavioral reduction can also occur without physical disability. Though a dog may be capable of assuming a submissive posture, the tendency to display this behavior may be decreased in paedomorphic dogs, because they already appear to be in a crouching position with lowered ears.

Some dogs also must cope with non-heritable modifications. The common practices of tail and ear docking may severely interfere with these signaling capabilities. Tail docking removes the majority of the tail, leaving a stub that may or may not be able to visibly convey social signals. Ear cropping is the removal of large portions of the pinnae. The resulting ears stand stiffly up or flop over near the top as in boxers and Boston terriers. These procedures are common in pit bulls, boxers, Doberman pinschers, and great Danes. Tail docking is also seen in some breeds of sporting dogs.

Unlike Goodwin et al. (1997), Bradshaw and Lea (1992) reported largely conserved behaviors across breeds. Though not examining individual signaling behaviors, but instead concentrating on regular action patterns, the authors described largely uniform behavior sequences. These include sniffing of the oral and anogenital regions. Bradshaw and Lea (1992) also noted humorously that the dog’s size only slightly affected their tendency to attempt to end the interaction.

Also, in seeming contradiction to Goodwin et al. (1997)’s findings, Kerswell et al. (2009) found no significant difference in signaling related to paedomorphism at this age. Authors observed intra-litter signaling of 5-week-old pups in a highly precise study of paedomorphism. This observation could be due to the stage of development or the emphasis on intra-group observation. As the study notes, pups may not need to send strong, frequent signals with their littermates, with whom they have fairly well established social structures.

For this reason, it is necessary to test interactions between dogs that are not only mature, but which have no previous history, so the need for dominant or submissive postures would presumably be greatest. Dyadic encounters take on much different natures in dogs than in wolves. Where encounters between
Wolf packs are sparse and often violent, dogs rarely display aggression when meeting others (Bradshaw and Lea 1992). Furthermore, a public setting (such as a dog park, where the study was done) will likely weed out dogs that have previously shown aggressive or fearful reactions to unknown dogs.

Researchers such as Goodwin et al. (1997) have drawn connections between degrees of paedomorphosis and displays of wolf-like behaviors, but specific traits have not been thoroughly researched. The goal of this experiment is to look more closely at two distinct signaling behaviors—the orientation of the tail and the ears during a dyadic encounter—and determine if the frequency of occurrence is related to 1) the dog's overall degree of paedomorphosis, or 2) the tail's and ears' degree of dissimilarity to those of a wolf. It would be expected that if paedomorphosis reduces mature ancestral behaviors, then the more the dog differs from its ancestral form, the less it should signal.

**METHODS**

Dyadic dog interactions were filmed at Shawnee Mission Park and Lawrence, Kansas Mutt Run, both of which are off-leash dog parks. Video recordings were taken of dyadic encounters between dogs with no known previous encounters. Data was taken from the videos as described in the following manner. 1) Tail change was measured by the difference between the initial and final angles (using vertically down as an initial point of reference). Measurement used only the angle of the base of the tail in an effort to detect motion in breeds that have curled or short tails. A lack of signal in any tail was marked as either “no change” (indicating visible lack of change) or “no data” (indicating the observer could not see the tail well enough to measure a change). 2) Ear change was taken as the movement forward or back (or no change). Again, the base of the ear was used in measurement so as to detect a similar pattern of movement in drop, erect, and cropped ears. Individual breeds were identified using breed standards from The Complete Dog Book (AKC). Mixed breeds were noted, and possible breed contributions were estimated. If the dog wagged its tail for most of the encounter, it was marked as wagging. If the dog had any following interaction with the other dog (such as play, aggressive, submissive or dominant behaviors), it was described.

Ear type was marked as drop, erect, or cropped. Cropped was separated from erect based on breed standards.

Tail types, as adopted from The Complete Dog Book, include:
- Bobtail: very short, either docked or natural
- Feathered: long, carried down, with fringe
- Flag: long, carried high, with fringe
- Otter: thick, tapering tail, carried down
- Ring: forms at least a half-circle, carried high
- Saber: forms a semicircle
- Whip: carried straight, skinny

Breed data were later lumped into broader categories by type of breed, e.g. sport, working, herding, and approximate weight: small (<30lb), medium (30-60lb) and large (>60lb). These followed AKC's The Complete Dog Book guidelines, and in data analysis, the three most common groups were used.

Degree of paedomorphosis was also noted. Each breed received a score based on presence of the following: short muzzle, flop ears, big head (relative to overall body size), short or curly coat, and small size. Scores 0-1 had a low degree of paedomorphosis; scores 2-3 had medium; and scores 4-5 were marked as high.

Chi-squared tests were applied to the results from observing dyadic interactions, and significance was determined using an alpha-value of 0.05.

**RESULTS**

It appears that overall physical paedomorphosis did not impact the behavioral frequencies (Tables 2 and 3, p>0.05). Additionally, neither size nor breed type impacted signaling frequency (Tables 6-9, p>0.05).

There was a significant difference in signaling frequencies according to type of tail (Table 4, p<0.001). Those that were most likely to signal had either whip or feathered tails. Dogs with bobtails and ring tails were not observed to unambiguously signal with them, however, it is possible that the degree of movement is discernible to dogs but not to the observer. In contrast, ring tails are normally carried high so it would take a major effort to lower them on the part of the dog. Thus, it seems that these tails have diminished signaling capabilities. In contrast, tails docked halfway (marked as “half-whip” tails) appeared to signal as successfully as full tails (Table 4), suggesting that this type of docking has less behavioral impact on the dog.

Interestingly, there were no obvious differences in signaling among phenotypes using the ears (Table 5), implying that whichever mechanisms might be involved in reduction of tail signaling has not affected ear signals. Overall, ear signaling was much more common than tail signaling (88.24% and 61.76% of all dogs, respectively: see Table 10). Perhaps a clear ear signal is sufficient to convey a dominant or submissive role, allowing tail signaling to decrease in frequency in dogs.
As seen in Table 10, ear and tail movements were found to correlate significantly (p<0.001). There was some correlation of dominant signals, but the relationship was not nearly as strong as with both submissive signals. When the tail lowers, ears are likely to lie back as well. The majority of dogs that did not signal with their ears held their tails up. Likewise, most of those that signaled with ears forward did not change their tail orientation. It was rare that a dog would send crossed signals (ears forward and tail down, or ears back and tail up), implying that these signals serve an important role in social interaction and should not be confused. The vast majority of dogs gave some sort of signal (144 out of 154).

Tables 6 and 7 show the frequency of dominant and submissive signals by dog size. For the sake of clear role identification, the “absence of signal” category was removed from this table. Each size category followed the findings of Table 8; i.e. that ears back often paired with tail down, and dominant signals were likely to correlate, though with a weaker association. Small and medium dogs were most often found to show submissive signals, while large dogs were more likely to take a dominant role, shown in Table 11.

Tables 8 and 9 show tail and ear signaling by breed type; divided into working, herding and sporting groups. There were no significant differences among these groups, which supports the idea that these are universal signals among dogs.

**DISCUSSION**

**Overall paedomorphosis**

I originally hypothesized that the impact of physical paedomorphosis would positively correlate with the degree of behavioral modification, which was assumed to manifest as a decrease in signaling frequency of either ear or tail in a dyadic encounter. This experiment did not find any correlation between degree of overall paedomorphosis and signaling frequency. In contrast to the findings of Goodwin et al. (1997), overall physical paedomorphosis may not be an accurate predictor for behavioral paedomorphosis.

This topic requires further research. The nature of the study—observation at dog parks—generated a sample consisting predominantly of medium to large dogs, and very few of toy or companion groups. These smaller dogs are the clearest representatives of high paedomorphosis, thus their absence from the sample could prevent a robust conclusion on the matter. Another notable factor is that huskies made up a large portion of the low-paedomorphosis group, and this breed had ring tails, which consistently could not signal in a reliable fashion. In fact, some of the most lupine dogs (samoyeds, huskies, and malamutes) may have experienced artificial selection for ring tails that would not impede them when pulling sleds, but coincidentally—would impede their communication. Lastly, the specific behaviors of ear and tail signaling could be conserved across dogs, and thus remain unaltered by behavioral reduction. If this were to be the case, it would indicate that these two signals are very important in dyadic encounters between unfamiliar dogs.

This result led me to consider two more hypotheses, each of which investigates a different measurement in place of overall physical paedomorphosis.

**Dissimilarity of signaling feature**

The first hypothesis is that dissimilarity of the signaling feature in itself may have a larger impact on its signal frequency. This hypothesis was investigated by separating dogs by tail type, which yielded a significant result. Those phenotypes with highly deviant tails (rings and bobtails) were found to signal much less frequently than those that had more wolf-like tails, i.e., tails that were held naturally lower than 90 degrees. Dogs with bobtails were often docked. Bobtails used in analysis were visible, so a lack of signal could indicate either a lack of behavior or, more likely, an inability to express the behavior. Either way, dogs with bobbed tails were not observed to display signals of dominance or submission.

The human practice of docking tails could present a danger in dyadic encounters, where the animals show no clear patterns of dominance and submission, because clear, unambiguous signaling allows two dogs to communicate their relationship without displays of violence. If communication is inhibited, likelihood of aggression, violence, and possible injury to one or both dogs increases. Thus, tail docking constitutes a potentially harmful alteration not only to morphology, but behavior as well. No conflict was observed in this study, which is likely in part a result of the pool of dogs that owners would deem safe for the public dog park. More research must be done on correlation between docking and violent encounters. Dogs were also analyzed by ear type. Drop ears are a paedomorphic trait, and thus might be used to signal less frequently. This was not observed to be the case, however, as drop, erect, and cropped ears were found to signal with similar high frequencies.

**Size and breed type as variables**

The second hypothesis tested was that breed type is a better indicator of behavioral paedomorphosis than physical appearance. For example, though sporting dogs appear highly paedomorphic, strong signaling capabilities may be crucial to human-dog communication, and may have been preserved.
Neither breed type nor dog size affected signaling frequency, however, which is notable in itself. Across a wide variety of phenotypes, including drastic changes in morphology, these signaling behaviors are relatively constant. Size of the dogs involved did, however, affect the frequency of assuming the dominant or submissive role.

**Signal pairing**

Data showed a strong correlation between use of ears and tails to indicate a submissive state, whereas the dominant signals showed a weaker correlation that might be a result of altered tail and ear structures. This strong concurrence of submissive signals indicates that clear submission is evolutionarily important because it reduces the likelihood of an aggressive interaction.

A dominant signal from either ears or tail was most frequently paired with a lack of signal in the other variable. Dogs taking a dominant role may be reluctant to broadcast multiple strong signals depending on the other dog’s reception. It must be noted that dogs do not enter a dyadic encounter in the same manner each time; each signal should be seen as a reaction to the other dog and its specific behaviors. For example, it is likely that when meeting an extremely submissive or non-threatening dog (e.g., a puppy), strong dominant signals are unnecessary. There is also the possibility that unnoted dominance behaviors were taking place that served as stronger signals to the recipient in place of tail or ear signaling.

Given Goodwin’s findings correlating paedomorphosis and behavioral reduction, I anticipated a clear link between paedomorphosis and signaling behavior of the tail and ears in dyadic encounters. This was not the case. Overall paedomorphosis has no significant relationship with these two signals (although the poor representation of toy and companion dogs calls for a more inclusive sample). Because the signals are also unaffected by breed function and size, I conclude that they are vital enough in dog communication to be conserved traits. Morphology of the tail serves as a better indicator of its signaling frequency; dogs with ring or bobbed tails appeared to have difficulty using them in interactions, likely due to physical disability. Dog owners should take these findings into consideration, especially when considering tail and ear docking. These signaling mechanisms are vital indicators of intent across breeds.

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**References**


### TABLE 2. Tail signaling by degree of paedomorphosis

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<tr>
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### TABLE 3. Ear signaling by degree of paedomorphosis

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<td>Total</td>
<td>23</td>
<td>92</td>
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### TABLE 4. Tail Signaling by Tail Type

<table>
<thead>
<tr>
<th>Tail Type</th>
<th>Tail change</th>
<th>Bobtail</th>
<th>Saber</th>
<th>Otter</th>
<th>Flag</th>
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### TABLE 5. Signaling by Ear Type

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<th>Ear Type</th>
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<tr>
<td>Drop</td>
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<td>Erect</td>
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### TABLE 6. Tail signaling by size

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<td>Medium</td>
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### TABLE 7. Ear signaling by size

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<td>Medium</td>
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<td>Large</td>
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<td>Total</td>
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### TABLE 8. Tail signaling by breed type

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### TABLE 9. Ear signaling by breed type

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</tbody>
</table>
TABLE 10. Ear vs. Tail Signaling

<table>
<thead>
<tr>
<th>Tail change</th>
<th>Ear change</th>
<th>Forward</th>
<th>No change</th>
<th>Back</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up</td>
<td></td>
<td>16</td>
<td>10</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>No change</td>
<td></td>
<td>29</td>
<td>4</td>
<td>19</td>
<td>52</td>
</tr>
<tr>
<td>Down</td>
<td></td>
<td>8</td>
<td>2</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>53</td>
<td>16</td>
<td>67</td>
<td>136</td>
</tr>
</tbody>
</table>

TABLE 11. Tail and Ear Signaling by Size

<table>
<thead>
<tr>
<th>Ear change</th>
<th>Tail change</th>
<th>Up</th>
<th>Down</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward</td>
<td>Small</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>7</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Large</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Back</td>
<td>Small</td>
<td>1</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>3</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Large</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>21</td>
<td>49</td>
<td>70</td>
</tr>
</tbody>
</table>
Safety and liability issues have always been a concern of the Alternative Breaks program at the University of Kansas. To promote participant safety and to protect the program from litigation, this research was done to gain a deeper understanding of what other University’s Alternative Breaks programs have been doing. This research was done specifically to find out if there were other additional protections and steps implemented by other programs that could serve as a good reference with regards to participant safety and litigation for the Alternative Breaks program at the University of Kansas.

All 32 of the Alternative Breaks programs at the public Association of American Universities (AAU) were chosen as the subjects for this research. A web search was done on the 32 Alternative Breaks programs and the results were analyzed. Six Alternative Breaks programs were selected for more in-depth research. The six programs were chosen based on their similarities to the program at the University of Kansas, the location of the universities, the size of the universities and the types of trips that the programs run. The size of the university had to be similar to the University of Kansas, the structure of the program had to be somewhat similar, and trips were organized over winter, spring, or summer breaks.

Q&A

How did you become involved in doing research?
I became involved with research through volunteering for Alternative Breaks. I truly enjoyed my break experiences and when the opportunity came up to become an intern with the organization I applied for it. I was appointed as the research intern and worked on this project during the spring 2012 semester.

How is the research process different from what you expected?
I did not expect to do so much web research initially. It was time consuming and attention to details was crucial.

What is your favorite part of doing research?
Obtaining the results and being able to learn about other programs, the way they function, and the trips they organize. The sense of fulfillment and achievement when the research was completed, as well as the knowledge that the work done will be able to benefit the program is also my favorite part of doing research.
METHODOLOGY
The six Alternative Breaks programs chosen for in-depth interviews were from the University of Illinois Urbana-Champaign, the University of Indiana-Bloomington, the University of California-Berkeley, the University of Missouri, the University of Maryland, and Michigan State University. An email was sent to the Alternative Breaks director or staff advisor of these programs with the option of doing an email interview or a phone interview. Interviews were conducted after receiving the consent from all the programs. The results from the interviews have been recorded in Table 1.

RESULTS
Transportation Safety
There are indeed additional steps that can be taken to promote participant safety during the trips to the sites. Some programs have a policy regarding the number of drivers required for the trips depending on the length of the journey. For trips over 15 hours, each van has to have three drivers. In addition, halfway housing would be provided for trips that are longer than 24 hours. To encourage eligible participants to drive, all drivers receive a $50 discount on their trip fees. In the event that there are insufficient drivers for a trip, the trip will be cancelled as participant safety is of high concern. The programs also require drivers to submit their driver’s license information to the University Risk Management office. Some of the programs run background checks on the drivers and participants to ensure that all of them have good records and the participant’s student identification and information are kept on file. Driver training is a requirement for all drivers and one of the programs has a policy that does not allow any driver to drive for more than four hours at a time. The groups are not allowed to travel from 12am-6am, ensuring adequate rest for the drivers.

Housing Safety
In the context of housing for participants, all the programs take the post-trip evaluations on the housing locations seriously. Participants will not be sent back to housing locations with bad reviews. In addition, participants would not be sent to housing locations in areas with high crime rates.

RISK MANAGEMENT
With regard to risk management, drivers insurance is purchased and some of the programs purchase insurance for participants as well. For programs that run international trips, all participants are required to have insurance. The programs have detailed policies and bylaws. Participants are introduced to those policies during meetings, classes, and also through the participant agreements. Besides, participants are required to provide detailed medical, dietary, and emergency contact information before they are allowed to go on the trips. Some programs also require participants to sign media release forms and an Assumption of Risk and Release from Liability form which includes the University’s obligations to participants and the participants’ obligations on the trips. To allow the programs to anticipate any problems that might arise on the trips, Site Leaders have to prepare trip proposals that include risk management plans. The participant agreements, waivers, and liability forms of each program are available upon request.

DISCUSSION
The Alternative Breaks program at the University of Kansas has been growing in size over the last few years and more could be done to promote participant safety and the program from litigation. The suggested steps are:

- A detailed policy has to be drafted so the Break Coordinators have a good reference while planning trips.
- Current policies have to be standardized and updated. For example, the length of the trips for it to qualify for halfway housing, and the hours that groups are not allowed on the road.
- Detailed participant agreements should be drafted. The participant agreement has to be specific and include the University and the program’s expectation of the participant’s conduct, and the behaviors that will result in dismissal from the trips. The participant agreement should also include the participant’s acknowledgement of the policies of the program to have proof that the participants are clear about the policies and agree to abide by them.
- Waiver forms should be revised. The liability waiver should contain more clauses.
- A media release form should be drafted so that the program can legally use and publish photographs, videos, blogs of participants for editorial trade, advertising, and any other purpose.
- Program policies should be introduced to participants during the first class.
- Attendance for the first class should be mandatory for all participants to be informed about the Alternative Breaks policies.
- A copy of the policies, the participant agreement, and the
waiver forms should be in the Site Leader Packets so that it can serve as a resource to participants during the trips.

- Break Coordinators and the Co-Directors should build a good rapport with all participants. This would give participants the confidence in confiding in the Break Coordinators and Co-Directors should problems arise during the trip. The earlier the Coordinators or Co-Directors learn about a problem, the faster it can be solved and participants would not be left in an uncomfortable situation for too long.

There are other additional protections and steps implemented by other programs that could serve as a good reference with regards to participant safety and litigation for the Alternative Breaks program at the University of Kansas. The Alternative Breaks program at the University of Kansas can be more proactive to improve the safety of participants and risk management. The suggestions regarding risk management should be taken into serious consideration.

CONCLUSION
A continuing relationship should be maintained with all the programs that were interviewed so that the Alternative Breaks program at the University of Kansas would be able to learn more from them on a yearly basis. All that being said, the program would not be able to function and expand to benefit more students without funding and more research could be done in that area.
<table>
<thead>
<tr>
<th>Location</th>
<th>University of Illinois Urbana-Champaign</th>
<th>University of Indiana Bloomington</th>
<th>UC Berkeley</th>
<th>University of Missouri</th>
<th>University of Maryland, College Park</th>
<th>Michigan State University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of Student Body</td>
<td>46,759</td>
<td>40,000</td>
<td>36,142</td>
<td>33,000</td>
<td>38,000</td>
<td>47,131</td>
</tr>
<tr>
<td>Seasons</td>
<td>Fall, Winter, Spring, Summer, Weekend (2 days, 1 night)</td>
<td>Winter, Spring, Weekend</td>
<td>Spring</td>
<td>Winter, Spring</td>
<td>Winter, Spring, Graduate trips</td>
<td>Winter, Spring</td>
</tr>
<tr>
<td>No. of Trips/ Season</td>
<td>26-30</td>
<td>16-20</td>
<td>10</td>
<td>26</td>
<td>27</td>
<td>20-25</td>
</tr>
<tr>
<td>No. of Participants/ year</td>
<td>400-460</td>
<td>112-122</td>
<td>120</td>
<td>300</td>
<td>300-350</td>
<td>250-300</td>
</tr>
<tr>
<td>Cost of trips</td>
<td>$225-$275 (Drivers and Site Leaders pay $50 less)</td>
<td>$250-$1500</td>
<td>$200-$450</td>
<td>$200 (the rest of the money comes from fundraising)</td>
<td>$225-$2100</td>
<td>$245-$1200</td>
</tr>
<tr>
<td>Pre/post-trip classes/meetings</td>
<td>Orientation, fundraising, pre-break service project, Coffee talk, trip meetings, post-break service, completing surveys</td>
<td>Orientation, training, Info sessions</td>
<td>A course on service learning (2 credit hours). 1 specific class for each trip.</td>
<td>Meetings and participation in fundraising activities</td>
<td>Mini-break before the trip, social meeting, individual trip fundraising activities. Graduate trip has academic component, but the graduate students will not be given academic credit unless they get consent from their respective departments.</td>
<td>No class for credit. Meetings.</td>
</tr>
<tr>
<td>University Organization</td>
<td>YMCA (Independent of the University)</td>
<td>Kelley School of Business, Civic Leadership Development</td>
<td>Cal Corps Public Service Center</td>
<td>Center for Leadership Development and Community Involvement</td>
<td>Leadership and Community Service Learning</td>
<td>Center for Service Learning and Civic Engagement (CSLCE)</td>
</tr>
<tr>
<td>Affiliations</td>
<td>None</td>
<td>Break Away and Outreach 360</td>
<td>None</td>
<td>Break Away</td>
<td>Break Away</td>
<td>Break Away and Outreach 360</td>
</tr>
<tr>
<td>501I3 Status</td>
<td>Yes (Not their own, the program uses the code of the YMCA status)</td>
<td>No</td>
<td>Yes (Using the federal code of Cal Corps)</td>
<td>No</td>
<td>No</td>
<td>Yes (Using the code from CSLCE)</td>
</tr>
<tr>
<td><strong>Student-run?</strong></td>
<td>University of Illinois Urbana-Champaign</td>
<td>University of Indiana Bloomington</td>
<td>UC Berkeley</td>
<td>University of Missouri</td>
<td>University of Maryland, College Park</td>
<td>Michigan State University</td>
</tr>
<tr>
<td>-----------------</td>
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<td>----------------------------------</td>
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<td>--------------------------</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes and No. Students seem to be running it but there is a staff member on board.</td>
<td>Yes and No. Students run the program but they work with a few staff members.</td>
<td>Yes</td>
<td>No</td>
<td>5 Staff members: a full time coordinator, a graduate student coordinator (20 hours/week), 3 undergraduate student coordinators (10 hours/week).</td>
<td>East Lansing, Michigan Yes</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td>Has a full time staff member from the YMCA who oversees and coordinates all YMCA programs</td>
<td>A Director for CLD overseeing the program, and a Director for AB that works 20 hours a week. In the past, the AB Director worked full time.</td>
<td>A staff supervisor of Cal Corps, and other staff members work with the AB committee to ensure that they are fulfilling major checkpoints as a Cal Corps program.</td>
<td>A staff advisor helps organize paperwork, facilitate van rentals etc</td>
<td>A staff advisor from the CSLCE works to oversee the program and to coordinate all travel arrangements. Works 10 hours/week on ASB.</td>
<td></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td>Fundraising, grants. Student Organization Resource fees (student optional fee, ASB submits an application every year but have been rejected a few times)</td>
<td>Funding from the IU Foundation, Student Senate, Kelley Business School Student Government, Kelley Impact for Social Impact. Funding for International trips increased this year.</td>
<td>Fundraisers, in-kind donations through the Cal Corps, Student Council, Grants.</td>
<td>Participant fees, donations, University Grant from a special endowment for service organizations from the Office of Student Affairs ($20,000), and a Kaplan Sponsorship</td>
<td>Fundraisers, university grants, funding from the university (flat budget and separate budget), Scholarship from past participant: Berlage Alternative Spring Break Endowment <a href="http://www.celebratescholarships.umd.edu/celebration/showScholarship.php?main_id=1555">http://www.celebratescholarships.umd.edu/celebration/showScholarship.php?main_id=1555</a></td>
<td>Participant fees, donations and fundraising</td>
</tr>
<tr>
<td><strong>Fundraising</strong></td>
<td>A lot of fundraising done per year (that is where they get their funds for the Maria Soma Scholarship, Maria Soma is the name of the ASB founder)</td>
<td>Student Organizations sell apparel and merchandise at the Kelley Bookstore</td>
<td>Many fundraisers throughout the year.</td>
<td>Each trip does its own fundraising. The ‘adopt-a-breaker’ letters, caroling at non-student neighborhoods are the most successful methods.</td>
<td>Individual trip fundraising</td>
<td>Adopt-A-Breaker, individual trip fundraisers.</td>
</tr>
<tr>
<td><strong>Insurance</strong></td>
<td>None</td>
<td>None</td>
<td>Travel and driver’s insurance included</td>
<td>Yes</td>
<td>Insurance for international trips, driver’s insurance</td>
<td>Travel insurance for international trips, driver’s insurance</td>
</tr>
<tr>
<td>Precautions</td>
<td>University of Illinois Urbana-Champaign</td>
<td>University of Indiana Bloomington</td>
<td>UC Berkeley</td>
<td>University of Missouri</td>
<td>University of Maryland, College Park</td>
<td>Michigan State University</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------</td>
<td>------------</td>
<td>-----------------------</td>
<td>-------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td></td>
<td>2 drivers per van if the trip is less than 15 hours, 3 drivers per van for trips more than that. Driving schedule for drivers established before the trip.</td>
<td>Drivers are required to submit their license information with IU’s Risk Management office.</td>
<td>Drivers have to go through a proper driver training. Break Leaders have to do a trip proposal with a risk management plan to ensure safety considerations.</td>
<td>Every driver goes through driver training with a certified instructor. No one person can drive for more than 4 hours at a time, no driving between 12am-6am</td>
<td>Background checks for Trip Leaders. And drivers have to go through Driver Training.</td>
<td>Background checks on ALL participants.</td>
</tr>
<tr>
<td>Waivers</td>
<td>Participants sign waivers and agree to a set of policies: <a href="http://illinoisasb.org/policies/allpolicies/">http://illinoisasb.org/policies/allpolicies/</a></td>
<td>Participants sign waivers releasing them from liability. International trip participants have to pay for trips even if there is a last minute cancellation.</td>
<td>Participants fill out Media Release Waivers, Emergency/ Medical/Dietary Forms, Liability Waivers, and Participant Agreements.</td>
<td>Participants sign waivers, copies of their Student ID and driver’s license are on file, implementing a strict no drugs/alcohol policy.</td>
<td>Participants sign waiver forms and their information (Student ID and License) are on file.</td>
<td>Participants sign waivers and go through policy documents</td>
</tr>
<tr>
<td>Other</td>
<td>1. They no longer do international trips because of the cost and there are other organizations within the YMCA that does that. 2. They stopped being a part of Break Away because the fees were expensive and they did not use the database that was provided. 3. Liability issue: one of the vans ran into a deer. Enterprise replaced the van immediately and the trip went on. Participants could not abstain from alcohol and went to bars/clubs on the trips.</td>
<td>1. They are currently facing problems with domestic trip participants cancelling since they do not have the non-refundable clause on their waiver. 2. There is a minimum of 2 male and 2 female students per trip. 3. The trips are open to all students, but the Committee members have to be Business School students.</td>
<td>1. Break Leaders have to fill out service reports and have mandatory check-ins throughout the trip. 2. The participant fees are highly subsidized. 3. Student leaders and break leaders get stipend and money from the Americorps award.</td>
<td>1. Campus police runs background checks on the drivers for free. 2. Had two minor crashes last year but the insurance paid for the damage. 3. Reason they are with Break Away: Site Leader Retreats and access to other AB programs.</td>
<td>1. One Trip Leader and one Staff Advisor (usually a graduate student) go on each trip to make sure that everything is going well and safety is not compromised. 2. All five staff members attend a retreat with Break Away over the summer every year to improve the quality of the program.</td>
<td>1. Money from donations and fundraisers will be returned to participants as a refund. 2. Break Away and Outreach 360 affiliations provided a network for the program. 3. There have been some legal/liability issues around the alcohol policy and they have taken measures to tighten the policy to reduce risk.</td>
</tr>
<tr>
<td>Contact Person</td>
<td>Ruth Huang, Co-Director, <a href="mailto:co_directors@illinoisasb.org">co_directors@illinoisasb.org</a></td>
<td>Hannah Smith, President, <a href="mailto:hasmith@uiu.edu">hasmith@uiu.edu</a></td>
<td>Emily, Communications Director, <a href="mailto:berkeleyaltbreaks@gmail.com">berkeleyaltbreaks@gmail.com</a></td>
<td>Cole Donelson, President, <a href="mailto:coledonelson@mail.missouri.edu">coledonelson@mail.missouri.edu</a></td>
<td>Timothy Ghazzawi, Coordinator, <a href="mailto:timothyg@umd.edu">timothyg@umd.edu</a></td>
<td>Michelle Nickerson, CSLCE staff Advisor, <a href="mailto:nicker176@vps.msu.edu">nicker176@vps.msu.edu</a></td>
</tr>
</tbody>
</table>
Fantasy is often purported to be a contextless genre, defined by escapism, a secondary world of literature springing entirely from the mind of the author and, thereby, independent of any historicism; however, despite codifying the very genre, the works of author J.R.R. Tolkien, and in particular *The Lord of the Rings*, subvert this expectation through Tolkien’s premier creation: hobbits. These diminutive creatures, hobbits, function as an anachronistic culture of 19th century Midland farmers placed within the larger Dark Age setting of Middle-earth. Tolkien’s depiction of this hobbit race, in general, amounts to a caricature of rural Englishness, a warm picture of a simple people who love to “laugh… and eat, and drink, often and heartily, being fond of simple jests at all times, and of six meals a day (when they could get them)” (*Tolkien Lord of the Rings* 2). But this initial, static image of hobbit culture is changed by the events of the War of the Ring, and, likewise, the characters, Frodo, Bilbo, and Sam, who once stood as emblematic templates of a 19th century, rural, English ideal, are forever altered and unsettled by their trials. In this fashion, the journey undertaken by Frodo and his Halfling companions can be understood as the painful transition between the literary modes of the 19th century fairy tale (as found in *The Hobbit* and initial chapters of *The Lord of the Rings*) and the more complex, historical realism of 20th century literature.

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**Q&A**

*How did you become involved in doing research?*

My research developed out of my final paper for English 598, Mapping London. We were given the freedom to work with any texts which we could use to facilitate an examination of British culture, and so I turned to an area of my own interest, fantasy literature and Tolkien.

*How is the research process different from what you expected?*

The research process spread my focus out from the primary texts with which I was working and quickly intermeshed my argument in the larger scholarly community. I was involved in the debate in a much more direct manner than I had expected I would be during undergraduate research.

*What is your favorite part of doing research?*

My favorite part of the research process was the actual writing of the final paper and the way in which I could see a single argument forming from the myriad of research strands and ideas which I had examined.

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**Concerning Hobbits: Tolkien and the Trauma of England’s 19th/20th Century Transition**

*Ryan W. Smith*
Rings) and the 20th century postwar novel (as found in the concluding chapters of The Lord of the Rings). Tolkien uses the anachronistic hobbit culture as a means through which to understand the trauma of the shift in English identity between the idealized Victorian era and the urban, industrialized, postwar 20th century, coming to terms with modernist fracture through the euphemism of the fantasy genre.

The primary contextual difference between the two works, at least in regards to their compositional history, is that The Hobbit was written during peacetime (published 1937), whereas much of The Lord of the Rings was written during World War II (published 1955). Many, for this reason, attribute the darker themes and more mature literary style of The Lord of the Rings to its situational context; however, one must not overlook Tolkien’s own words on the subject: “An author cannot of course remain wholly unaffected by his experience, but the ways in which a story-germ uses the soil of experience are extremely complex, and attempts to define the process are at best guess from evidence that is inadequate and ambiguous.” Nevertheless, he continues, “As the years go by it seems now often forgotten that to be caught in youth by 1914 was no less hideous an experience than to be involved in 1939 and the following years” (Tolkien Lord of the Rings Location 368). While this is important to note at the outset, moving forward in analysis, however, my intent is neither to singularly identify the personal traumas in Tolkien’s history nor to make claims of immediate causality between authorial experience and written production; instead, this essay will attempt to link the literary modes and content of these particular compositions to larger cultural traumas, which extend beyond the individual.

The Hobbit, which serves as the entry point for many into Tolkien’s larger Middle-earth Legendarium, functions undoubtedly as both a children’s story and a fairy tale. This early tale of Bilbo Baggins originally took place outside the more detailed mythology of Middle-earth which Tolkien had begun to draw up through his many tales. This ahistorical status of The Hobbit, unconnected to the intensely mapped and elaborated setting of Middle-earth, loosened the rules within the created universe, thus allowing for many species to feature which otherwise have no origin story within the mythos, namely, for our sake, hobbits. The Hobbit story would later be retroactively adopted into the Middle-earth context, with limited editing on Tolkien’s part, becoming a precursor then for its sequel, the larger epic saga of The Lord of the Rings. In reference to the lack of firm placement within the established fantasy-universe alone, meaning the lack of qualities which denote The Lord of the Rings as a particular brand of fantasized historical-fiction, The Hobbit can be labeled a fairy tale. In his essay, “On Fairy-Stories,” Tolkien elaborates on the particular goals of fairy tale fiction, which are as follows: recovery, escape, and consolation. The Hobbit, I argue, contains all three of these elements, thus denoting it as a proper fairy tale, while The Lord of the Rings lacks properly carried out consolation, which limits its placement within Tolkien’s strict fairy tale genre and demonstrates the larger English trauma latent within its creation.

However, before delving into the matter of consolation, mention must first be given to the concepts of recovery and escape, which are to be found in both examined works of Tolkien. Tolkien defines recovery, as “a re-gaining—regaining of a clear view” (Tolkien “On Fairy-Stories” 146), by which he means, the narrative of the secondary world allows the reader to regain a true understanding of the familiar, seeing it through a new lens. Both narratives demonstrate this fairy tale function, and, as Reilly notes, this capability is what grants fantasy a level of practical application: “It follows that Fantasy, far from being irrelevant to reality, is in fact extremely relevant to moral reality” (Reilly 146). In this fashion, the traumas of Middle-earth become reflections of the traumas of reality, especially so in regards to the larger cultural shifts occurring around the time of the works’ compositions. Likewise, both narratives demonstrate the fantasy function of escape, and it is in this particular capability that the fantasy genre might be understood as a euphemistic tool, allowing readers to approach topics of painful reality through their seemingly unconnected, and therefore, safe, secondary world settings. On the subject of the euphemistic function of fantasy, Flieger claims that The Lord of the Rings only cloaks itself in a façade of medievalism “while in specific places in the narrative sounding like—in spirit, in character, and (most important by least noticed) in tone—a surprisingly contemporary twentieth-century novel, very much in and typical of its time” (Flieger 22-3). In this manner then, The Lord of the Rings is able to confront cultural traumas precisely because it represents them with half-fantastical resemblances and not blunt realities.

Tolkien’s final function of a fairy tale—consolation—separates The Hobbit from The Lord of the Rings, for, understanding Bilbo and Frodo to be the respective protagonists of the two works, Bilbo receives a happy ending with little emotional trauma or scarring, while Frodo meets a more tragic end, despite the larger success of his quest. As Frodo explains to Sam: “I have been too deeply hurt, Sam. I tried to save the Shire, and it has been saved, but not for me.”
Tolkien elaborates on consolation:

“Almost I would venture to suggest that all complete fairy-stories must have it. At least I would say that Tragedy is the true form of Drama, its highest function; but the opposite is true of Fairy-Story. Since we do not appear to possess a word that expresses this opposite—I will call it Eucatastrophe. The eucatastrophic tale is the true form of the fairy-tale, and its highest function” (Tolkien “On Fairy-Stories” 153).

By this, Tolkien suggests that the fairy tale provides consolation through the happy ending, the eucatastrophe, during which joy is suddenly found at the most climactic and catastrophic moment during the story—a tragedy wherein the unfortunate end is threatened but not met. In this way, fairy tales mingle the structure of a tragedy with the conclusion of a comedy, thus providing the reader with consolation. The Hobbit meets this expectation of the genre; however, Frodo’s melancholy end inhibits true consolation in The Lord of the Rings and this, I argue, forces reconsideration of the text’s representation of trauma.

As a critical tool, trauma theory has of late been increasingly applied to texts in order to better understand the coping and recollection mechanism of memory in regards to traumatic experiences. And while Tolkien texts are not often read or thought of as trauma literature, one can see how they might “position their readers in ethical dilemmas analogous to those of trauma survivors” (Vickroy 1). Continuing, Vickroy explains, “Traumatic experiences can alter people’s psychological, biological, and social equilibrium to such a degree that the memory of one particular event comes to taint all other experiences, spoiling appreciation of the present” (Vickroy 11-2). Proximity to the One Ring, for example, in The Lord of the Rings and, interestingly, not The Hobbit, has this corrosive effect on the past and present ring-bearers: Bilbo, Frodo, and Gollum. Gandalf explains how this experience stunts their lives to the point that a ring-bearer “does not grow or obtain more life, he merely continues, until at last every moment is a weariness” (Tolkien Lord of the Rings 47). Having begun to undergo this traumatic unwinding by the beginning of The Lord of the Rings, Bilbo attempts to articulate his weariness: “Why I feel… sort of stretched… like butter that has been scraped over too much bread” (Tolkien Lord of the Rings 32). The bearing of the One Ring, as a moment of trauma, captures the lives of these hobbit characters, to the point that even after its destruction, Frodo “clutch[es] a white gem that hung on a chain about his neck” as if a surrogate ring, muttering to himself, “It is gone forever… and now all is dark and empty” (Tolkien Lord of the Rings 1023). This example of the ring-bearer experience with the One Ring stands merely as a singular example of the trauma that arises within The Hobbit characters between their literary inception in The Hobbit and their conclusion in the final chapters of The Lord of the Rings. However, to fully understand the implications of this claim in regards to this particular traumatized culture, we must first explore the connections Tolkien creates between hobbits and the 19th century rural English.

Yet before we draw these aforementioned connections, a word must be said about Tolkien and the subject of allegorical representation. Tolkien, in his foreword to The Lord of the Rings, is very clear that “as for any inner meaning or ‘message’, it has in the intention of the author none. It is neither allegorical nor topical” (Tolkien Lord of the Rings Location 356). Elaborating, he explains: “I cordially dislike allegory in all of its manifestations, and always have done so since I grew old and wary enough to detect its presence. I much prefer history, true or feigned, with its varied applicability to the thought and experience of the readers. I think that many confuse ‘applicability’ with ‘allegory’; but the one resides in the freedom of the reader, and the other in the purposed domination of the author” (Tolkien Lord of the Rings Location 368).

We can easily connect this “applicability” of the text to the earlier-discussed concept of recovery, through which readers can input their own traumas into the framework provided by the fantasy. With this conditional statement from the author in mind, we may then understand that the connections drawn between The Hobbit race and the 19th century rural English, as well as the connections between the postwar Shire and 20th century England, function not through allegorical means but through the dual mechanism of recovery/applicability.

Further analysis on the present subject necessitates an examination of the hobbit culture as a fantasized English ideal, drawing inspiration from traditional images of English country life. The iconic character of the hobbit can be understood as a codified representation of a particular strain of stereotyped English identity—the quaint farmer, the lovable glutton, the homey friend. As critic Sale explains, “The hobbits are not strictly human, but, like Mole and Toad in Kenneth Grahame or Pooh and Rabbit in Milne, they are based on recognizable English types” (Sale 249). Enjoying a life of simplicity, for example, on his adventure Bilbo dreams of “eggs and bacon” (Tolkien Hobbit 259) and wishes in dark moments to be back
home by his “own fireside with the lamp shining” (Tolkien Hobbit 164). They eat, drink, and are merry, tied close to their beloved land, the Shire, which Tolkien himself calls “more or less a Warwickshire village of about the period of the Diamond Jubilee” (Tolkien Letters 230). In these resemblances, Hobbit life is a uniquely English life, and Sale points out “C.S. Lewis’ reminiscences of life at Oxford with Tolkien and others are often descriptive of hobbit life” (Sale 249). But while much focus is given to their cozy comforts, Tolkien never lets hobbits fall to straight materialism, always insisting they are tough people who can “survive rough handling by grief, foe, or weather in a way that astonished those who did not know them well and looked no further than their bellies and their well-fed faces” (Tolkien Lord of the Rings 6). Behind the façade of simplicity and, perhaps, moral apathy, there waits “some courage and some wisdom, blended in measure” (Tolkien Hobbit 247).

Continuing on the subject of hobbits, Tolkien writes:

“They love peace and quiet and good tilled earth: a well-ordered and well-farmed countryside was their favorite haunt. They do not and did not understand or like machines more complicated than a forge-bellows, a water-mill, or a hand-loom, though they were skilful with tools” (Tolkien Lord of the Rings 1).

Despite their preindustrial lifestyle, hobbits still maintain a level of anachronism within Middle-earth, for they resemble 19th century Englishmen in regards to their culture and attitudes, not fitting properly with the setting that amounts to a fantasized Dark Age Europe. For example, hobbit custom dictates the use of surnames (Frodo Baggins, Samwise Gamgee, Meriadoc Brandybuck), while all other extant Middle-earth cultures follow more medieval patterns of naming (Aragorn son of Arathorn, Gimli son of Glóin). Subtle societal differences such as this alter audience perception of the various created cultures; in this case, the resemblance to modernity allows for hobbits to serve as more effective narrating characters, requiring, for example exposition from other races about the technical intricacies of Middle-earth.

And, in what I will term the Case of the Potato, potato consumption on the part of hobbits functions as another element of support in the hobbit-English correlation, for, simply put, like any proper English caricature, hobbits eat a lot of potatoes. This would not be of any particular interest to this study were it not for the fact that the presence of potatoes in Middle-earth at this period upsets the historical fiction nature of The Lord of the Rings, in which Tolkien makes the claim that he translated his Middle-earth books from the original hobbit manuscript of the Red Book of Westmarch. With this authorial conceit, Middle-earth comes to be understood as Europe in a mythical, prehistoric age; the potato, as a New World plant, should not be present in this Old World setting. Nevertheless, Tolkien chooses to include the potato as part of the hobbit identity, just as it forms a part of the traditional, 19th century English identity. One might initially assume some authorial oversight as an explanation for the presence of the potato in the Shire; however, Tolkien does provide an explanation for the presence of pipe-weed, or tobacco, another New World plant, making the absence of explanation in regards to the potato all the more conspicuous. Despite their, relatively speaking, newness in England, potatoes have been integrated so readily into English culture that Tolkien does not question their similar presence in the Shire, despite the fact that it unravels his conceit of authorship and authenticity.

Through these descriptive means and an understanding of Tolkien’s previously discussed ‘applicability,’ the culture of the hobbits comes to function as a fantasy equivalent of the culture of the agrarian 19th century English. This apparent equivalency is fitting, for the broader hobbit culture of The Lord of the Rings is based almost entirely on the expansion of the singular example of Bilbo and his individual personality in The Hobbit, which, for previously discussed reasons, we can categorize as a 20th century iteration of a fairy tale. In this particular manner of expansion from personality to culture, hobbitness again becomes intimately linked to the 19th century, the golden moment of the fairy tale, for hobbitness comes to be understood as a product of the fairy tale genre. With this conclusion, we have then a template of a 19th century English identity, and, through the literary mechanisms of applicability and recovery, as well as the euphemistic nature of fantasy, we might now examine the traumas which affected English identity between the Victorian and Postwar eras, identifying the sources behind The Lord of the Rings’ non-consolation and its resulting modernist fracture of the fairy tale genre.

The first and primary trauma of the transition between the 19th and 20th centuries is England’s rapid industrialization and consequent transfer of national identity between the rural and urban settings. Williams explains the significance of this shifting locus of identity: “England, from about the middle of the nineteenth century, had become the first society in history in which a majority of the population was urban” (Williams 9). This transformation fractured the prior ‘hobbit’ ideal of Englishness, removing the homey, homogenous, rural nature of England’s prior self-identity. In a loop
of positive feedback, urbanization and industrialization feed off of each other, linking both concepts intimately into a singular master-trauma, which afflicts both the historical England and the imagined Shire. Tolkien heavily criticizes industrialization and progress at the expense of quality of life in *The Lord of the Rings*; characters condemn Saruman, chastising him because “he has a mind of metal and wheels; and he does not care for growing things, except as far as they serve him for the moment” (Tolkien *Lord of the Rings* 473). Similarly, the hobbits reject the changes brought in “the Scouring of the Shire”:

> “Take Sandyman’s mill now. Pimple knocked it down almost as soon as he came to Bag End. Then he brought in a lot of dirty-looking Men to build a bigger one and fill it full of wheels and outlandish contraptions… Pimple’s idea was to grind more and faster, or so he said. He’s got other mills like it. But you’ve got to have grist before you can grind; and there was no more for the new mill to do than for the old” (Tolkien *Lord of the Rings* 1013).

The Shire of their memory is no more, and this loss captures the trauma of the industrial-urban shift, for no longer does the land itself resemble the land which these hobbit-English once imbued with the identity of Shire-England—home. A smoke-stained city of bricks and stone has begun to spring up around these new industrial mills, the imagery evoking the painful cultural shift from agriculture to industry. Prior to his departure on his quest, Frodo said, “I feel that as long as the Shire lies behind, safe and comfortable, I shall find wandering more bearable: I shall know that somewhere there is a firm foothold, even if my feet cannot stand there again” (Tolkien *Lord of the Rings* 62). This loss of stability tests the hobbits’ connection with the land upon their return, and one wonders if they can truly call the Shire home, for the land no longer resembles the identity they had placed upon it. The industrialized Shire is a mockery of itself, the hobbits traumatically forced to mechanize and reject thousands of years of an agrarian tradition. And, as a result of the war, it all occurred so rapidly that the hobbits do not recognize their native land after being gone only a year:

> “It was one of the saddest hours in their lives. The great chimney rose up before them; and as they drew near the old village across the Water, through rows of new mean houses along each side of the road, they saw the new mill in all its frowning and dirty ugliness: a great brick building straddling the stream, which it fouled with a steaming and stinking outflow. All along the Bywater Road every tree had been felled” (Tolkien *Lord of the Rings* 1016).

The trauma of this moment is the loss of the ideal memory, the localized identity of the culture. Frodo attempts to articulate the horrid anxiety of the moment: “This is worse than Mordor… Much worse in a way. It comes home to you, as they say; because it is home, and you remember it before it was all ruined” (Tolkien *Lord of the Rings* 1017). For Sam as well, the trauma of the moment comes in the loss of the identifiable place of memory: “The trees were the worst loss and damage… For one thing, this hurt would take long to heal, and only his great-grandchildren, he thought, would see the Shire as it ought to be” (Tolkien *Lord of the Rings* 1022). The Shireness of the location is lost, and, thus, a unique part of hobbitness is lost through the process of industrialization-urbanization. Williams correlates this rural-urban shift in 19th century English society with the transition to literary modernism in the 20th century. Narratives contrast within the two settings, due to the loss of the “knowable community” in the city, which leads to disassociation and fracture. Williams explains: “In the city, by contrast, we find not so much narrative, and especially not this weaving narrative in time, as presentation, appearance, a lively but typically disconnected flow” (Williams 2). Disconnection with prior identity awakens the trauma of this moment and results in a population unable to settle or understand the full consequence of the changing times.

This modernist fracturing extends beyond the shared cultural space of the changed landscape, affecting individual Englishmen-hobbits in the form of post-traumatic stress from the Wars. Much of 20th century English society centered on the war effort, with entire generations, for the most part, being sacrificed for the apparent good of the nation. The Wars’ sudden spurts of mass-violence shook the pacified 19th century English ideal of rural pastoralism to its foundations. Elaborating on the subject, Croft writes: “The Great War seemed particularly ironic because it contrasted so sharply with the prewar peace and innocence of early-twentieth-century England, which had not fought a major war for a century” (Croft 14). This trauma, this supreme anxiety, seeps into the fantasy sister-culture of the hobbits, which, likewise, had not fought in a battle for over two centuries. Frodo and Sam’s journey into Mordor functions for the hobbit culture as a war experience; “The desolate Great War landscape of trenches, mud, shell holes, corpses, and total deforestation is associated with Isengard, the Paths of the Dead, or Frodo’s and Sam’s journey into Mordor, rather than with the book’s actual battlefields” (Lynch 87). Indeed, Tolkien describes the lava fields of Mordor as a hellish no-man’s-land battered by artillery fire: “The whole surface of the plains of Gorgoroth was pocked with great holes, as if, while it was still a waste of soft mud, it had been smitten with a shower of bolts and huge
slingstones” (Tolkien Lord of the Rings 934). Frodo and Sam’s return to the Shire then can be understood as the journey home for two tired veterans following the end of the Great War. Sam readjusts to hobbit society soon enough; however, he always feels somewhat distanced from his fellow hobbits, requiring Frodo, for the sake of Sam’s young family, to explain to him: “You cannot be always torn in two. You will have to be one and whole, for many years. You have so much to enjoy and to be, and to do” (Tolkien Lord of the Rings 1029). Sam finds in this way a limited consolation, but Frodo receives none of this and cannot share in the victory which he sacrificed so much to earn. This lack of consolation, one of Tolkien’s chief goals of a fairy tale, on the part of the novel’s protagonist marks the greater transition between the literary modes of the two examined works. Frodo lives through the events of the War of the Ring, but like a soldier with post-traumatic stress, he can find peace neither in the Shire nor any place in Middle-earth. He laments: “The wound aches, and the memory of darkness is heavy on me. It was a year ago today... there is no real going back. Though I may come to the Shire, it will not seem the same; for I shall not be the same. I am wounded with knife, sting, and tooth, and a long burden. Where shall I find rest?” (Tolkien Lord of the Rings 1031).

Eventually Frodo leaves Middle-earth for the semi-mythical Undying Lands, hoping there to find the solace and consolation which he cannot find amongst his own kind. Frodo’s sacrifice on behalf of his people and subsequent trauma, coupled with the lack of respect which he receives upon return, mimic the further breakdown of English identity as the 20th century grew in violence. Without consolation, The Lord of the Rings no longer functions as a proper fairy tale according to Tolkien’s definition, for Frodo’s tragic continuance and suffering fractures the straight narrative and transforms the literary mode of the work to the 20th century style.

The eternal Englishness represented by the hobbit, the nostalgic image of a static 19th century ideal identity, ends with the passing of Frodo to the West, for it cannot survive the traumas brought by the transition to the new century. England has changed, and one cannot survive by clinging to a past which has faded away. In this fashion, the mythologized Third Age of Middle-earth, the fantasy era of The Hobbit and The Lord of the Rings ends with Frodo’s departure, for he, the last vestige and memory-holder of the old order cannot function in the new. Frodo must leave, Sale explains, “because he too was part of their age, the instrument of its end and the world’s living still to have more cycles and more ages. There is a bang, then, in the destruction of Mordor, and a whimper too in Frodo’s discovery that he will never be well again” (Sale 282). The Hobbit caricature of Englishness no longer describes the reality of the cultural zeitgeist, and so in the Fourth Age of Middle-earth, which continues perhaps to this day, the fairy tale-produced race of hobbits fades away into legend and memory. Lynch argues that Tolkien’s establishment of an ideological continuity with the 19th century into the 20th “can be seen as a way of ‘getting over’ the war” (Lynch 82); however, I feel this simplifies Tolkien’s relationship with the changing times. I instead propose that Tolkien acknowledges the modernist fracture of the 20th century and the trauma which English culture has undergone and that the literary shift between The Hobbit to The Lord of the Rings euphemistically captures the breakdown in identity formation between the two eras. In this manner, Tolkien intends us not to ‘get over the war’ and cling to past nostalgia, but to acknowledge the reality of change and come to terms with it, fostering memory of the bygone time while focusing our primary thoughts always towards the future. As Frodo begs of Sam, “keep alive the memory of the age that is gone, so that people will remember the Great Danger and so love their beloved land all the more” (Tolkien Lord of the Rings 1029).
References


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