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The Journal of Undergraduate Research and Creative Activities for the State of North Carolina

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Submission Process
We are pleased to present volume IX of Explorations, the Journal of Undergraduate Research and Creative Activities for the State of North Carolina. For the third year, we have both scholarly articles and creative works. Again this year, I appreciate the assistance of Ned Irvine as Visual Arts Editor and Michael Mills as Copy Editor.

This year we include sixteen papers and two creative pieces, selected from 27 submissions. Topics range from literary and musical critique to historical and political analysis to archaeological research to biochemistry and engineering to social science research. Eleven different public and private schools are represented.

It is useful each year to provide a bit of background about Explorations. In 2005, the State of North Carolina Undergraduate Research and Creativity Symposium, affectionately known as SNCURCS (pronounced “Snickers”) was first held, and educators from all colleges, universities, community colleges, and high schools were invited to participate. Now in its 10th year, SNCURCS offers a venue for undergraduates to present their research and creative efforts. Explorations was the brainchild of the 2005 meeting, and we are thankful that Michael Bassman and East Carolina University organized and published the first three volumes. In 2008, the late George Barthalamus, former Director of Undergraduate Research at NCSU and the visionary behind our state-wide undergraduate research efforts, convinced me to move Explorations to UNCW in time to produce the 2009 volume, and we have now published six volumes at UNCW. At UNCW we are fortunate to have a very successful Publishing Laboratory that developed the current look of Explorations, plus I have a great team of students who have done the layout for recent issues. This year, I am indebted to Ms. Bethany Showers, our assistant editor and a member of the UNCW Honors College Media Board; she has done an amazing job with layout and keeping me on schedule. I also thank Jennifer Horan and Carole Reynolds for day-to-day support in the Honors College office.

I am also very appreciative of the effort that the 42 ad hoc reviewers spent providing timely and thoughtful reviews of the submissions this summer. These are the folks who ensure the continued quality of Explorations. They offer very positive constructive feedback to the student authors.

So in the spirit of the excitement that fresh approaches to research and discovery bring, we offer you volume IX of Explorations.

Katherine Bruce, PhD
Humanities and Fine Arts
The Presence of Virtuosity in Irish Traditional Music

Kieran McCarthy Fell
University of North Carolina at Chapel Hill
Faculty Mentor: Brooks deWetter-Smith
University of North Carolina at Chapel Hill

ABSTRACT
In April 2013, I designed a research project to explore connections between classical flute playing and Irish traditional music. I hoped to discover if learning traditional flute and understanding its surrounding musical culture could positively affect my classical flute studies. The information I collected provided the basis for this paper, in which several parameters for the term “virtuosity” are defined and analyzed in relation to Irish traditional instrumental music. These parameters were chosen using articles from scholarly journals that examine characteristics of virtuosity beyond exceptional technical facility. Such characteristics include a performer’s emotional impact, musical creativity, and the ability to think critically about his or her music. Additional aspects of virtuosity that were considered were: recognition from others in the field of Irish traditional music; the presence of competition; the dedication necessary to be considered an authority capable of expanding the musical style; and the performance longevity as an individual or group to influence the genre for an extended period of time.

Virtuosity was first defined toward the end of the seventeenth century as an excess of natural proficiency that sets one apart from others in his or her field. A standard definition today is “great ability or skill shown by a musician, performer, etc.” This explanation implies dazzling mastery of one’s instrument and thrilling spontaneity in performance. A commonly held belief is that technical prowess is the only factor taken into account. Some elements of Irish music fit the narrow confines of this idea, while others demonstrate consistency, stability, and resilience of a musical genre or performer over time.

Such traits might be viewed as contradictory to virtuosity, if one acknowledges only the Merriam-Webster Dictionary definition, but virtuosity has been analyzed through many lenses. Upon deeper investigation, it becomes evident that Irish music possesses not only the “pyrotechnics” suggested by the basic definition, but also other characteristics that are essential to a multilayered understanding of the concept of virtuosity.

Examining diverse aspects of music and performance will help to construct a more holistic view of virtuosity. For example, the basic description above may be expanded to

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1 “Hup” is often used to indicate an upcoming transition from the current tune into another. Other players either are familiar with the new tune and join in after the first few notes, or don’t, and wait for the next tune or set.
2 Marc Pincherle. “Virtuosity,”
include personal style and “meaning-making.” Vernon A. Howard presents the idea that virtuosic performances are interpretive realizations. They do not merely reproduce previous renditions of a work but require individual creativity and convey emotion. He asserts that a performer must have the ability to think critically about music. The performer should understand the background and tradition within the genre, and should be able to explain how and why he or she produces music in a particular manner. Howard also establishes that to be considered a virtuoso, a performer or group needs recognition from an audience “comprised not only of…spectators, but also critics, colleagues, and institutions that judge the quality of performances and performers in the relevant domain.”

Like Howard, author Marc Pincherle considers competition and virtuosity to be natural companions. He also poses the idea that virtuosi are influential to the musical tradition in which they perform, stating, “Music is indebted to virtuosi and improvisation.” He believes that the title “virtuoso” carries a responsibility to advance and expand a musical genre, requiring that the musician so titled be considered an authority in his or her field. This position is attained with dedication and time. Piano virtuoso Jeremy Denk addresses the need for both when he discusses attention to detail and commitment in players who are considered virtuosi.

Classical voice professor Louise Toppin names “staying power” as a necessary characteristic of virtuosity. She defines this as a career of a performer or group with consistent performing engagements over an extended period of time. Each of these criteria for virtuosity will be assessed to determine its relationship to Irish traditional instrumental music, also referred to as “ITM” or “trad.”

Before exploring ITM in relation to the parameters for virtuosity outlined above, it would be beneficial to have some insight into its essential components. For example, ITM and Irish dance are closely linked. This means that steady rhythm is crucial.

Having good dancers to play for was vital for the band’s lift and rhythm… ‘We looked out for one good group of set dancers…and we played to [them] all evening…As long as they kept dancing, we kept playing.’

Another indispensable element is ornamentation.

The traditional tune itself operates only as a melodic outline…it is incomplete. The degree of variation and ornamentation that occurs in…performance is its defining characteristic. The execution…is heavily dependent on the skill and…imagination of the player…In this way each time a player plays a tune…it will differ very subtly from the last time…

As a mere framework for an individual performer’s interpretation, a tune would be unornamented only when played by a beginner. It is much simpler to learn the basic melody and add variations as the player improves than to try to include such elements immediately.

There are several ways to incorporate ornamentations in trad. Triplets may replace a quarter note or eighth notes, trills may be added, or a dotted quarter note may be interrupted with triple tonguing. Other variations involve slight melodic alterations, such as playing in thirds to the other musicians or using quintessentially Irish ornaments: the cut, tap, roll, and cran. A cut starts on the main melody note, goes up a step, then quickly returns to the main note. A tap is the opposite of a cut; starting on the main note, it quickly goes down a step before returning. A roll...
is cut-then-tap in quick succession. A cran warbles, varying the quality of the main note. Technically, it is a series of 2 or 3 cuts that result in 5- or 7-note crans, respectively. It takes practice to incorporate these ornaments organically, and their use is a mark of a capable trad musician. The number and type selected for any given tune is an indication of the musician’s individual style.

Some critics of virtuosity cling to the idea that it refers solely to technique, and that music performed by a virtuoso will be subjected entirely to his or her whim. They argue that the mark of a true musician lies in allowing the composer’s essence to speak, rather than impressing an audience with technical fireworks or presenting an individual interpretation. In trad, however, the common tunes originate predominantly from dance music and airs of seventeenth and eighteenth century Ireland. Therefore, many tunes are not associated with a specific composer. Perhaps in such cases, a critic of virtuosity could accept true musicianship as the ability to allow the music’s essence to speak. Irish traditional music has a freedom that resonates with the desire to feel all-encompassing joy, but the airs possess an achingly compelling depth that speaks to the human capacity for longing, heartbeat, and loss. Trad musicians convey these contrasting emotions every time they play. To apply Howard’s term, they are “meaning-makers” with the ability to evoke a response, both from an audience and from their musical collaborators.

Trad music has a circuit of fleadhananna, which is Irish for festivals (singular: fleadh). These are competitions set up by Comhaltas Ceoltóirí Éireann, an organization founded to preserve and promote Irish culture. Players and groups perform for Comhaltas-certified judges and an audience comprised of family members, peers, and spectators. During my independent research project in summer 2013, I attended the County Limerick fleadh to observe an event for solo flute players between the ages of 12 and 15. After each had played a set, the two judges discussed privately to choose first, second, and third place. They explained the criteria for placement to the players and the audience before announcing the winners. The requirement that stood out most to me was the development of individual style. The judges stated that by age 12, a competing musician should have an emergent personal flair that is evident to a seasoned listener. The presence of individual creativity in a competitive context adheres to two of Howard’s requirements for virtuosity.

Each winner would receive a medal and proceed to compete at the provincial level in the Munster Fleadh. The final competition of the year is the Fleadh Cheoil na hÉireann (All-Ireland Music Festival). The winner of this competition is awarded a trophy, but more significantly, he or she gains recognition within the ITM community. Until recently, anonymity was an established and accepted characteristic of Irish music, resulting from its history as an aural tradition passed down through generations of amateur instrumentalists. Performer anonymity has diminished, however, with the rise of competitive fleadhananna, as well as the increased movement of players towards professionalism. This began around 1959 with a group called Ceoltóirí Chualann. Established by Sean Ó Riada, this group brought together professional trad players to perform in a semi-formal context for attentive listeners. This differed from trad’s previous function as music for céilí, or social dances at individuals’ homes, where the focus was predominantly on the activity of dancing. (See Images 1 and

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15 Apthorp, “The Virtuoso and the Public.”
16 O’Connor, Bringing It All Back Home: The Influence of Irish Music, 5.
17 Grianán, The Maid of Eirin, Track 1 – Beechgrove/Silver Spear/Hand Me Down the Tackle.
18 Eileen Ivers, Crossing the Bridge, Track 11 – The Dear Irish Boy.
19 Howard, “Virtuosity as a Performance Concept.”
20 For more information about Comhaltas, visit its website at http://comhaltas.ie/about/
21 (Usually) three tunes played as a group, seguing directly from one to the next.
22 For more information on the Fleadh Cheoil na hÉireann, visit the 2014 website at: http://www.fleadhcheoil.ie/
23 O’Connor, Bringing It All Back Home: The Influence of Irish Music, 28.
Céilí bands align neatly with this requirement. They have provided music for over one hundred years, and some individual groups have even been in existence for that span of time. The Kilfenora Céilí Band, for example, was founded in 1907 and still plays for dances today, though its membership has admittedly altered. The immense appeal and endurance of such an ensemble is easily understandable. The music exudes an energy that "gives your feet a jolt," even during a listening-only performance. I attended one such performance: a stage show (See Image 5) similar to Ó Riada’s Ceoltóiri Chualann and the "supergroups" it inspired in the 1960s and 70s, such as the Chieftains, Planxty, and the Bothy Band. Although professional dancers did share the stage for some sets, exhibiting the close relationship between dance and ITM, the Kilfenora’s ability to captivate an audience demonstrates that Irish traditional music can also stand alone.

The willingness of the Kilfenora Céilí Band and the “supergroups” to expand into a realm of performance beyond their established niche in ITM adheres to Pincherle’s requirement for a virtuosic player or group to contribute to a musical style in a way that advances the genre. The members of the group Planxty were notably adept at such contributions. They integrated instruments that had not previously been used in trad, such as bouzouki, mandolin, and guitar. They also incorporated asymmetric rhythms native to the Balkans region of Europe. Similar contributions are evident in the work of contemporary fiddler Eileen Ivers. This Irish-American fiddler player with a background in trad released a CD in 1999 called Crossing the Bridge. The musical collaboration interfaced trad tunes with music from other cultures. The new influences brought in by both Planxty and Eileen Ivers expanded Irish music
Brian, my first trad flute teacher, began learning tin whistle when he was young and later picked up the flute, which he played competitively at feadhanna. He studied Irish language and geography at University and now has a full-time non-musical job. Though he is not a professional flute player, he teaches flute on the weekends and plays frequently “for the craic” at sessions with family, friends, and other members of the community. When I conversed with people in the area and mentioned that I was taking Irish flute lessons from him, musicians and non-musicians alike knew his name and nodded their approval at his skill.

My second teacher, Aoife, has been recognized by Conal Ó Gráda as one of a handful of flutists in the Irish tradition whose playing is influential in contemporary performance. She is a professional musician who teaches flute at university and performs regularly in both formal and informal settings. She has a PhD in Ethnomusicology, contributes articles to research publications, and presents her research both nationally and internationally. She is also the recipient of three All-Ireland titles at the previously mentioned Fleadh Cheoil na hÉireann.

It was fascinating to reflect on my lessons with both teachers, especially since many things I needed to learn were basic elements of trad that would not have required explanation for an Irish student. For example, the difference between a jig and a reel would be ingrained knowledge resulting from the environment surrounding a student’s upbringing. For me, as a classically trained flute player, bringing. For me, as a classically trained flute player, the area and mentioned that I was taking Irish flute lessons from him, musicians and non-musicians alike knew his name and nodded their approval at his skill.

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style ("good rhythm and drive to it") to demonstrate other types of playing, including "East Clay-ur: kind of 'sleepy' music" and a slide, a tune type that "ye’re ne’er going to hear in Clay-ur; we just don’t play ‘em."

Aoife laughingly seconded Brian’s statement in one of our lessons, saying “It’s true, they really can’t play them at all...and you can quote me on that! They’re really a Kerry, Cork thing... good players, like Brian, they’d be well able to do them but it isn’t very natural, they’d have to really work at it.” These statements demonstrate both teachers’ knowledge of trad’s history, such as the regionalization of tune styles. The influence of the céilí bands and the types of dances people wanted to participate in resulted in regional preferences for tune types that are now associated with specific areas of Ireland.

Another trad musician with an exceptional grasp of ITM’s background is Louise Mulcahy. I met her and heard her perform in May 2014 when she launched her debut solo recording *Tuning the Road*, on which she plays flute, whistles, and the *uilleann* pipe. Louise introduced each set at the CD launch by explaining how she had encountered the individual tunes. Some she “absorbed” from her family members, which reinforces ITM’s history as an aural culture. In other cases, she discovered versions of tunes through specific research, such as listening to archival recordings at culture centers maintained by Comhaltas.

The sleeve notes of *Tuning the Road* are also a wealth of information. For each track, Louise outlines historic and contemporary musicians who influenced her style, the relevant personal history of those musicians, and background information about the tunes with which they are now associated. The notes also include ringing praise from trad flute greats Matt Molloy and Fintan Vallely. Vallely writes of Louise’s skillful technique and emotional effect as a player, as well as her “considered choice” in musical selections and the organization and grouping of the tracks on the CD. He continues with, Such close attention to stylistic nuance as well as technique is...everywhere in [Louise’s] playing...there is...a substantial feel generated by her conscious ‘sound’ – by her decisions regarding repertoire, technique and accompaniment...And there is nothing random or gratuitous in these choices, as the ample sleeve notes attest.

Without ever using “virtuosity” or “virtuoso” to describe Louise, Vallely has touched upon several aspects outlined in this paper. Listening to Brian, Aoife, and Louise in sessions, lessons, and performance, makes it clear that each has developed a personal style of ornamentation and variation that is evident in any setting. Each also possesses an individual creativity and emotional impact as a performer within the Irish tradition, connecting to Howard’s idea that virtuosic performances are interpretive realizations and the musicians themselves are meaning-makers. Brian, Aoife, and Louise have honed their skills for years in competitions and performances in a variety of settings, which adheres to Pincherle’s view that virtuosity and competition are intertwined. Their talents are recognized by other members of the relevant community, meeting another of Howard’s standards for virtuosity. Also, each musician has an extensive understanding of both the practical execution and the history of ITM, and capably explains these elements. This demonstrates the ability to think critically about trad music, as well as the conscious attention to detail that Jeremy Denk emphasizes as a key element of virtuosity. The example of trad accordion player Sharon Shannon is a similar demonstration of this focus and commitment.

The dedication of all of these musicians to trad is evident through their teaching and their participation in sessions. Such involvement moves trad forward by spreading it to new and eager audiences, expanding and influencing the genre as Pincherle believes virtuosi have an obligation to do.
Kilfenora Céili Band, Planxty, and Eileen Ivers also influenced Irish traditional music with their innovative ideas, which were acknowledged and integrated into trad because of the authority and career endurance of each performer/group.

The roots of Irish instrumental dance tunes and airs may lie in the seventeenth and eighteenth centuries, but the musical tradition is by no means stagnant. Its openness to new influences, inherent element of competition, and technical challenges to interpreters and performers embrace one conception of virtuosity, while its longevity and loyalty to its background reflect another. This is music that is meant to breathe and dance and live, music that embraces the extremes of emotion in its deceptively simple sets of notes. The virtuosity of a tradition that so distinctly embodies both the importance of change and the value of fidelity to heritage would be difficult to deny.

44 A type of jig in a 12/8 time signature, with twelve beats to the measure, and the eighth note getting the beat. As Aoife explained to me, they have a lot more space in them (between notes) than a normal jig in 6/8 time. They originate from the Sliabh Luachra region of southwestern Ireland, encompassing counties Kerry, Limerick, and Cork. Like the jig and the reel, the slide is a type of dance, done to the specific style of tune.

45 A type of bagpipe with air supplied by a bellows held under and worked by the elbow. The melody is played on a chanter that has a two-octave range and uses fingerings that are mostly the same as those for keyless flute. Regulators and drones are also part of the instrument, and can be used to accompany the melody.

46 Possibly the best-known trad flute player ever. He may be most closely associated with The Chieftains. Visit http://www.kcorbettdesign.com/molloy/?page_id=680 for further information.

47 “Fintan Vallely is a musician, writer, lecturer and researcher on Traditional music. He has taught flute at the Willie Clancy summer school in Co. Clare since 1986…A commentator on Traditional music, he has been writing about it since 1990, and lecturing on it at the National University of Ireland, Maynooth, University of Ulster, Trinity College Dublin, Dundalk Institute of Technology and in the USA. He studied ethnomusicology at Queens University Belfast. For further information, visit http://imusic.ie/”

48 Fintan Vallely on Louise Mulcahy on the sleeve notes of her CD: Louise Mulcahy, Tuning the Road.

49 Howard, “Virtuosity as a Performance Concept,” 43.

50 Pincherle, “Virtuosity.”

51 Howard, “Virtuosity as a Performance Concept.” 49.

52 Jeremy Denk, https://www.youtube.com/watch?v=mTHqWwzL78.

53 Curtis, Notes from the Heart: A Celebration of Traditional Irish Music, 112.

54 Pincherle, “Virtuosity.”

55 O’Connor, Bringing It All Back Home: The Influence of Irish Music, 5.
Image 1: A céilí in progress at the cultural center Cois na hAbhna in Ennis, Co. Clare. Image by author. Participants’ names unknown.

Image 2: The céilí band plays for the dancers at Cois na hAbhna. Image by author. Band members unknown.

Image 3: A traditional Irish session at the Rowan Tree Café in Ennis, Co. Clare. Image by author. Musicians unknown.
Image 4: Musicians at an Irish traditional session. Image by Holger von Rüden, with permission (original in color). Center musicians Siobhan Peoples and Murty Ryan (fiddle, left; and accordion, right), with permission. Bouzouki player at far left and accordion player at far right, unknown.

Image 5: A stage show by the summer 2013 group in residence at the Brú Ború branch of Comhaltas in Cashel, Co. Tipperary. Image by author. Dancers and musicians unknown.

Image 6: A silver Western classical flute, top, and Irish traditional flute, made from African blackwood, below. Image by author.
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Desertion in the Confederate Army: A Disease that Crippled Dixie

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ABSTRACT
As the Civil War progressed, desertion amongst Confederate soldiers infected the Confederate Army like a poisonous cancer. Although North Carolina mustered more troops to fight for the Confederacy than any other Confederate state, North Carolina also had one of the highest rates of desertion. In this paper, I examine the causes behind Confederate desertion of North Carolina soldiers. One main factor that motivated North Carolina soldiers to desert was desperate letters written by wives, sisters, and mothers begging their loved ones to stop fighting and come home amidst food shortages and other hardships. A second main factor was Southern elites’ broken promises to look after soldiers’ families by refusing to grow more food crops instead of the more profitable cotton. Lastly, the inability of the leaders of the Confederate Army and President Davis to take substantive measures to punish deserters or prevent others from deserting early in the war allowed desertion to spread with deadly effect as the war continued. While rigorously scrutinizing numerous primary and secondary documents, I argue that appeals from family and friends at home, disdain for Confederate nationalism, Union occupation of large swaths of territory, and the failure of southern elites to keep their promises all drove Confederate soldiers from North Carolina to desert.

During the Civil War, the South was significantly undermanned and lacked the industry and natural resources of the North. Disease and a shortage of medical knowledge and facilities reduced the number of troops in both armies, but the development that began to concern the Confederacy’s leaders the most was desertion. From 1861 to 1865, around 23,000 North Carolina soldiers deserted, but about 8,000 of these men later returned to their posts.¹

Given the high numbers of desertion of North Carolina soldiers, this paper will primarily focus on Confederate desertion in North Carolina. Confederate soldiers, who were mostly poor farmers, first began to desert after the passage of the Conscription Act of 1862. Historian Francis B. Simkins opined that desertion was “the most disgraceful chapter in the history of the [Civil War].”²

Many parts of the South, including most of eastern North Carolina and Tennessee, were

under Union occupation for much of the war. The presence of Union troops severely undermined morale and isolated those areas from the rest of the Confederacy. The Union Army’s use of oath swearing demoralized Confederates but allowed them to secure protection for their families and homes. Wives and sisters wrote desperate letters begging their loved ones to stop fighting and come home amidst food shortages and other hardships. Southern elites also reneged on their promises to look after soldiers’ families by refusing to grow more food crops instead of the more profitable cotton; furthermore, many of the rich extorted basic necessities and their doing so exacerbated already tough economic conditions. Desertion continued to spread throughout the Confederate Army as the high command did not take substantive measures to punish deserters or prevent others from deserting early in the war. Appeals from family and friends at home, disdain for Confederate nationalism, Union occupation of large swaths of territory, and the failure of southern elites to keep their promises all drove Confederate soldiers from North Carolina to desert.

Desertion began to appear in the Confederate Army in the first few months of the war. A “Wanted for Desertion” notice was posted in the Raleigh Standard on January 22, 1862 for twenty-three-year-old Thomas Pleasant Myers. Private Myers left Camp Magnum in Raleigh on December 25, 1861 and was soon classified as a deserter. According to Brenda McKean, “A volunteer who failed to show for his medical exam and training camp was considered a deserter,” thus desertions began before conscription and continued throughout the war. Confederate law considered desertion as the abandonment of military service without approval and with no intention to return. The following are some of the many examples of desertion committed by Confederate troops: quitting one regiment to join another; absence without leave; straggling – falling out of line of the march, or immediately before or during battle with intent to return; skulking – avoiding military service by fraud or other illegal actions; self-mutilation; malingering at the expiration of a furlough, during furloughs, or exemptions; and collusion with medical boards for exemption or with subordinate military officers for assignment to easy duties.

Many soldiers who enlisted amid the excitement during the beginning of the war in 1861 believed they could go home after they completed one year of duty. In April 1862, the Confederate Congress passed the first of two conscription acts, which required men between the ages of eighteen to thirty-five, except men with critical professions and other approved exemptions, to enlist in the Confederate Army for three years’ service or for the remainder of the war. In an attempt to address fears of slave insurrections caused by the Emancipation Proclamation, with so many white Southerners away fighting, the Confederate Congress passed a second conscription act in October 1862. An exemption included in that act that many poor whites came to abhor was called the “twenty Negro law” in which one white male was exempted from conscription for every twenty slaves on a plantation. This excerpt of a letter to North Carolina Governor Zebulon B. Vance from Private O. Goddin reveals the anger poor whites had against the exemption to the draft given to whites on plantations:

Please pardon the liberty which a poor soldier takes in thus addressing you as when he volunteered he left a wife with four children to go fight for his country. He cheerfully made the sacrifices thinking that the Govt. would protect his family, and keep them from starvation. In this he has been disappointed for the Govt. has made a distinction between the rich man (who had something to fight for) and the poor man who fights for that which he will never have. The [Confederacy’s] exemption of the owners of 20 Negroes & the allowing of substitutes clearly proves it.

3 Brenda Chambers McKeen, Blood and War at my Doorstep: North Carolina Civilians
4 Ibid.
5 Bardolph, “Inconstant Rebels,” 189.
Healthy and active men who have furnished substitutes are grinding the poor by speculation while their substitutes have been discharged after a month’s service as being too old or as invalids…Now Govr. do tell me how we poor soldiers who are fighting for the rich man’s Negro can support our families at $11 per month? How can the poor live? I dread to see the summer as I am fearful there will be much suffering now…

The majority of Confederate soldiers owned no slaves, so the “twenty Negro law” became extremely unpopular across North Carolina and the Confederacy. The large number of Confederates who avoided conscription in North Carolina reveals that efforts to enforce conscription fell largely on deaf ears.

In addition to the Conscription Acts, the Confederate Congress in 1863 passed two additional laws that deeply angered southern whites: the tax-in-kind and impressment acts. The tax-in-kind law represented a tithe to the government that required farmers to give one-tenth of all their produce to Confederate officials. The impressment act gave specific committees the right to seize livestock, slaves, provisions, and wagons for the Confederate Army and to determine the price of recompense. Many North Carolinians who had no stake in slavery, especially those who lived in the mountains, considered these acts as infringements on their freedoms and found ways to resist. Gen. Simon Bolivar Buckner observed that “fully half of the East Tennessee and North Carolina troops from the mountain districts are not to be relied upon.”

The loyalty of the Home Guard and local militias could never be taken for granted. In a letter to his brother written from his unit in Henderson County, North Carolina, on June 15, 1863, J.A.W. Revis discussed the extent of desertion by soldiers from these mountain regions:

…the men is runing away an coming home nerly every day the Country is fool of them I supose ther is somthing like ment in tran sel vaney I supose that thier is 8300 men [Transylvania County, NC] run away from the armey now I dont think that war will last mutch longer boys. I want to see you the worst good god omity may the time soon role on when the men may return home to ther native lands ther to dwell in peace untel the the mity hand of god Coles forthem.

If J.A.W. Revis’s number is correct, there were 8,300 deserters living in Transylvania County by the summer of 1863. His letter also reveals the attitude favoring peace that many soldiers, especially from North Carolina, developed by that stage of the war. Some ways men employed to avoid serving in the Confederate Army included: cutting off fingers, scaling skin to produce bad sores, feigning diseases, alleging impotence, and claiming to feel periodically like the female sex.

The greatest concentration of pro-Union citizens was found in the mountain regions, where only 11.3 percent of people owned slaves. There are numerous accounts of gangs of deserters who preyed upon the civilian population in North Carolina, and they targeted the wealthy in particular. McKean gives a detailed account of some of the most well known gangs in North Carolina:

Whites and coloreds combined to form gangs intent on robbing the countryside. The Lowry gang from Robeson County stole from their wealthy neighbors and distributed it to the poor. Several gangs used Fort Hamby in Wilkesboro as their base to commit depredations. It was reported that eighty-five deserters from Wilkes and adjoining counties gathered at Fort Hamby. The leaders of this gang, Wade and Lockwood, were deserters from U.S. General Stoneman’s cavalry. The Wilkesboro Journal-Patriot reported these

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6 McKean, Blood and War at My Doorstep, vol. 1, 380.
10 Barrett, The Civil War, 185.
11 McKean, Blood and War at my Doorstep, vol. 1, 363.
men to have the best army rifles. Deserters near Brunswick County fled to the Green Swamp in wartime... The Dove Swamp and the Great Dismal Swamp in the East hid both runaway slaves and men escaping conscription or those who had deserted.\textsuperscript{12}

One of the most powerful drivers of desertion amongst Confederate troops was the desperate appeal from home by loved ones and friends. One of the most blunt entreaties for desertion is portrayed in Charlotte E. Grimes’ autobiography in which she describes the change in attitude by a Confederate officer, “It was said that Capt. Tom Settle, who was a great secessionist in the beginning, told [the soldiers’] wives if they wished the war to stop, to make their husbands desert and come home.”\textsuperscript{13} Many women wrote Confederate officials, including President Jefferson Davis himself, to plead for their husbands to stay at home. The following letter was written by Martha Coletrane of Randolph County to the governor of North Carolina and is a heartbreaking plea:

Dear Sir this is a greate undertaking for me as i never wrote to a man of authority before [.] necessity requires it of me as we are nonslave holders in this section of the State [.] i hope you and our legislature will look to it and have justice done to our people as well as the slaveholders [.] i can tel you the condition of my family and you can judg for your self what its condition woul be if my husband is called from home [.] we hav eight children and the oldest is not forteen years old and an old aged mother to support, which makes eleven in our family and without my husband we are a desolate and ruined family for extortion runs so hie here [.] we cannot support and clothe our family without the help of my husban [.] i hope you will look to the justice of this section of the state and i trust you will hold the rane [reins] in your own hands and not let the confederate congress have full sway over your State [.] i appeal to you to look to the white cultivators as strictly as congress has to the slaveholders and i think they men from 35 to 45 be hel[d] as reserves at hom to support ther families if they are calld from home [.] it is bound to leave a thoasn [thousand]families in a starving condition in our country [.] we trust in god and look to you for some help for our poor children [.] so no more.\textsuperscript{14}

Many soldiers were poor yeomen farmers, and their presence at home was vital to their families’ survival. Katherine A. Giuffre discovered through research that soldiers whose absence most affected the stability of their families were more likely to desert than those whose families were less dependent. Giuffre also determined that soldiers who were heads of households were more likely to desert than those who were not. This assertion is backed by the increased rates of desertion around harvest times in June, July, and September.\textsuperscript{15}

The shortage of food was most often mentioned in soldiers’ letters home; minimal rations were distributed to soldiers for long lengths of time. Private Virgil Cavin wrote that near-starvation tested his determination and drove others to desert:

I dont think I can stay here and Starve wee dont get half a nuff to eat...I am going to stay here more than tow or three weeks I will go some way or other I cant Stay here this way. I cant Stay here and starve the way I have to do I get a pint of meal a day I cant Stay here this way is a croud of us a going to come home. I hate to Stay here and Starve and I hate to go to the yanks I havnt got much chance the wach [they watch] us So close that wee hant no chance...[but] the average from 8 to 10 men every night the cross the lines.\textsuperscript{16}

Considering the South’s lack of industry and the Union blockade, the Confederacy struggled severely to adequately feed, clothe, and arm its troops. In a letter from Cary Whitaker

\begin{itemize}
\item \textsuperscript{12} Ibid., 397.
\item \textsuperscript{13} Grimes-Bryan Papers (#16), East Carolina Manuscript Collection, J. Y. Joyner Library, East Carolina University, Greenville, North Carolina, USA.
\item \textsuperscript{14} McKean, Blood and War at my Doorstep, vol. 1, 365.
\item \textsuperscript{15} Katherine A. Giuffre, “First in Flight: Desertion as Politics in the North Carolina Confederate Army,” Social Science History 21, no. 2 (1997), 245-263.
\item \textsuperscript{16} Bardolph, “Inconstant Rebels,” 175.
\end{itemize}
to his brother, the former reveals that the lack of food and supplies directly caused soldiers to defect to the Union:

I think the people as well as the Government ought to make extra efforts to feed and clothe the soldiers, for if our soldiers were well clothed and fed I don't believe there would be one tenth of the desertions then. If the Yankees were fed and clothed as we are they wouldn't have an army a month, while if our army received their treatment, we would seldom have a deserter. Though I have a pretty good character for veracity at home, my friends would hardly believe me if I were to tell them of the destitution and suffering I have seen in the army—when in the Valley of Va., the snow on the ground, I have seen soldiers with their pants worn off up to their hips, and nothing but an old pair of drawers on, worn out and exposing the person in many places—and still were I to go to Halifax [NC] and point out this in the most glowing colors I would hardly get a dozen pairs of pants for the very army which is now keeping the enemy from their homes and firesides...\[17\]

Civilians at home did not fare any better, and these Southerners dealt with inflation and extortion of basic goods. An example of a starving wife desperate for her husband to come home is detailed in the following letter by Mary Cooper:

I have always been proud of you, and since your connection with the Confederate army I have been prouder than ever before. I would not have you do anything wrong for the world, but before God, Edward, unless you come home we must die. Last night I was aroused by little Eddie’s crying. I called, What’s the matter, Eddie? and he said, Oh, Mama, I’m so hungry. And Lucy, Edward, your darling Lucy, she never complains, but she is growing thinner and thinner, and Edward, unless you come home we must die.\[18\]

By 1863, the war had taken its toll on the spirits of most Confederate soldiers, and they began to question the senseless bloodshed after the devastating battles at Gettysburg and Vicksburg. In a letter to his wife, Tarheel soldier John Futch wrote:

I can only assure you we are living the worst life ever lived. Our rations are short and our duty hard. I had one mes [s] of beans and squashes but I had to pay 1 dollar for them [...] I haven’t had no money in more a month. I am comin [g] home the first chance I can get [...] I think that this war will end before long for I think that the yankees will whip us before long.\[19\]

In addition to desperate appeals from letters from home, there were other driving forces behind the desertion of Confederate troops.

One problem that plagued the Confederacy throughout the entire war was that the concept of nationalism was based on protecting one’s home and family, and did not usually involve a great sense of loyalty to the Confederate government in Richmond. Peter S. Bearman argues that many Confederate soldiers deserted because their identity as Southerners was eroded by an “emergent localism,” or their tendency to be more loyal to states and regions, nourished and organized within the Confederate army. Bearman also notes the view of many historians that suggest rancorous battles among the elite over state rights weakened Southern nationalism.\[20\] Governors Thomas O. Moore of Louisiana, Joseph E. Brown of Georgia, and Zebulon B. Vance of North Carolina all resisted Confederate efforts to conscript their states’ male populations and impress supplies for the Confederate Army.\[21\] Governor Vance tried to muster all the adult males he could into the Home Guard and state militia to round up deserters, but there simply were not enough men to find and apprehend all

\[17\] McKeen, Blood and War at my Doorstep, vol. 1, 395.
\[21\] Mark A. Weitz, More Damning Than Slaughter: Desertion in the Confederate Army, (Lincoln: University of Nebraska Press, 2005), 112.
these individuals. Soldiers from all over the South largely reacted negatively to the idea of conscription and reflected a scorn for the Confederacy and its officials. Norm Harrold of Ashe County, North Carolina, bluntly told President Jefferson Davis, “And now bastard President of a political abortion, farewell. ‘Scalp hunter,’ relic, pole, and chivalrous Confederates in crime, good-bye. Except it be in the army of the Union, you will not again see this conscript.”

The Union used oath swearing to allow Confederate civilians and soldiers held in captivity to effectively abandon the Confederate cause. Oath swearing was widespread in the western states of Tennessee, Missouri, Arkansas, Louisiana, Mississippi, and northern Alabama. Union occupation of large parts of the Confederacy weakened the connection civilians felt to Richmond and caused some loved ones to entreat soldiers to come home. Mark A. Weitz explains the reason that many Confederate civilians and soldiers swore an oath of allegiance to the Union: “People unwilling to wait for the outcome, or looking at their situation and concluding that the rule of war in their little corner of the Confederacy had prevailed, took the final step to formalize the Confederacy’s defeat.”

In addition to devastating effects caused by Union oath swearing, the Confederate government also failed to establish and enforce a uniform punishment for desertion. From December 1861 until 1865, the Confederacy executed only 229 men for desertion (204 were killed by firing squad while 25 were hanged). North Carolinians made up more than half of those executed. In one instance, five Confederate soldiers were killed who, according to James A. Lowry, “deserted our army and joined the Yankees” outside of New Bern in 1864. Both national and state Confederate officials, including Robert E. Lee, offered pardons to deserters who returned to their units, but this did little to stem the tide.

With the ever-increasing number of deserters in the state, North Carolina officials had to dedicate men to round up such individuals. These men became known as the Home Guard. There were three main regions of the state where the Home Guards encountered the most resistance from deserters: Washington, Bertie, and other eastern counties; Randolph, Moore, and Chatham counties in the Piedmont; and most of the upper mountain counties, including Madison County’s Shelton Laurel Valley. McKean quotes the historian Yates who discovered, “More than 800 deserters were reported pilaging farmers of Randolph County and defying the local peace officers.” Before the Home Guard came into existence, the state militia was primarily responsible for defending North Carolinians. The North Carolina militia, however, was poorly trained and could not adequately distribute food or protect civilians from Union raids. Evidence of the ineptitude of many militia groups is revealed in a woman’s journal. “…[W]hen Burnside’s army approached New Bern, the militia took the cavalry’s horses and fled to Kinston without stopping whereby forty horses rode to their death.”

The militia was limited to mostly old men and disabled soldiers, and conscription of young men made it extremely difficult for the state to fill militia ranks. An excerpt from a contemporary letter reveals that the militia was outnumbered in Henderson County North Carolina, “…there is more deserters than there is malishey hear but some of them has gone an givve up to go back.” Not only was the state militia ill-trained and ill-equipped, there is evidence of mistreatment of both loyal civilians and relatives of deserters even by members of the militia. Missions nominally involving the hunting of deserters often involved personal disputes that led to violence. Furthermore, the militia and home guard were sometimes

22 Ibid., 108.
23 Ibid., 121.
24 James Addison Lowrie Collection (#983), East Carolina Manuscript Collection, J. Y. Joyner Library, East Carolina University, Greenville, North Carolina, USA.
26 Ibid.
27 Ibid., 883.
unreliable and stole from loyal citizens. An officer of the Fifty-sixth North Carolina militia admitted there was “indiscriminate plunder of property belonging to the deserters’ families, (such as wearing apparel and watches) and depredations on property of good citizens.”

McKean also provides chilling accounts of the militia and deserters terrifying the civilian population:

Mrs. Unus Riddle, a Tory, was robbed, whipped, and hung until almost dead, by secesh troops because she refused to tell of the hiding places. Sally Moore, age seventy, was whipped. The mother of an infant was tied to a tree. Her infant was put in the cabin doorway while the soldiers told her the baby would be left to die in the snow unless she would reveal her husband’s whereabouts. In Yadkin County, the deaths of two magistrates, murdered by deserters, caused other magistrates to fear for their lives. People complained that deserters had more friends than the militia and could get timely information of every movement to arrest them...

Throughout the war, militia and Home Guard units proved largely ineffective and committed atrocities that angered many civilians, further undermining support and leading to desertion.

After mid-1863, many Confederate and state officials, along with citizens and soldiers in the field, determined that the main cause of desertion by North Carolina troops was the peace movement, led by W.W. Holden, and the melancholy it created at home. As editor of the largest newspaper in the state, the North Carolina Standard, Holden argued that North Carolina should negotiate a swift peace and begin reconstruction. Holden also called for changes in conscription and tax laws, changes that attracted support from the poor, non-slaveholding classes.

William Holden derided the Confederate government, for “it had lost its original character and had been perverted to despotic purposes against her own rights and the rights and liberties of her citizens.” Many criticized Holden because he seemed overly eager to reach peace with the Union and accused him of being motivated by political ambitions. A North Carolina private described Holden’s role in desertions among Tarheel troops, “There has been a good many N. Carolinians shot in this army for Desertion old traitor Holden is Responsible for the most of it….” The Fayetteville Observer criticized those who attended peace meetings by accusing many of desertion:

We have reason to believe that in at least one case a meeting was in great part composed of the immediate relations and friends of a number of deserters who are prowling about the woods in that neighborhood, and that its main object was to countenance the dastardly conduct of those deserters. Again we have heard that the prime movers of some of the meetings are men between 40 and 45, who are thus muddying the waters for the purpose of devising some mode of screening themselves from obedience to their country’s call.

Rulings made by North Carolina Supreme Court Chief Justice Richmond Pearson undermined the constitutionality of the conscription laws as well as the means of enforcement. This excerpt from a recent Our State blog posting reveals the effect Chief Justice Pearson had on the levels of desertion in that time period: “Increasingly, North Carolinians turned to the courts to combat the perceived draconian actions of Confederate conscription officials within the state…. Chief Justice Pearson saw the court as the protector of individual freedoms within the state, and as a result, he issued opinions going against the actions of the Confederate conscription officials.” North Carolina Governor Vance engaged in an intense argument with the Confederate government in Richmond over...
North Carolina’s courts, while defending his soldiers’ contributions to the Confederate war effort in light of the increasing amount of North Carolina soldiers deserting from Robert E. Lee’s Army of Northern Virginia. For these reasons, the peace movement convinced thousands of North Carolina troops and civilians to abandon the Confederate cause.

Another impetus for desertion was the fact that Southern elites reneged on their promise to take care of soldiers’ families. Many profiteers committed extortion by selling basic necessities at extremely high prices, which drove numerous families into near-starvation. Some scholars cite evidence from 1862 that the Southern planters broke their promise to the largely yeoman, non-slaveholding class by the planters’ refusal to plant more food crops instead of the more profitable cotton. Mark A. Weitz describes the anger most whites felt towards the Confederacy’s elites: “[The poorer citizens] had gone to war and ‘risked death for the altar of their country’ while an entire class of men used their wealth to hire substitutes and remain at home.”

The conscription laws, impressment, and tax-in-kind acts also supported the idea that the war was a “rich man’s war, poor man’s fight.” Weitz went on to claim that, “To hear that the elites not only withheld assistance but actually took advantage of the hardships and shortages of the war undermined and ultimately severed any sense of loyalty to the Confederacy, its cause, and its army.” In a society that was deeply stratified, the success of the South depended on a harmonious relationship between poor yeomen farmers and wealthy planters but much to the chagrin of the leaders of the Confederacy, that did not materialize.

In examining the literature on desertion amongst Confederate troops during the Civil War, there is a noticeable lack of secondary scholarship on the topic of cowardice. Chris Walsh opines that stories of courage were more commonly recorded than those of cowardice, “It is not only because courage is more ‘gratifying’ than cowardice that it draws our attention; there is also a consensus that during the Civil War courage was much more common than cowardice.” Walsh also argues that cowardice and courage seem to have a kind of synergistic relationship, to the point that the former causes the latter. Walsh provides the example of Union soldier Jonathan Stowe’s memory of charging, “forward with a rush lest your pride taunt you of cowardice.”

While it is true that cowardice was a factor in soldiers staying to fight or fleeing from the battlefield, there is not enough evidence to suggest that cowardice was a significant factor in desertions amongst Confederate soldiers because it was not written about.

In conclusion, the causes of desertion of Confederate troops from North Carolina during the Civil War are complex and interrelated. Desperate letters from home had the greatest impact on persuading some men to abandon their units. A weakened sense of Confederate nationalism prevented many Confederate soldiers from feeling devotion to authorities in Richmond. Union occupation of large parts of the Confederacy and the use of oath swearing also struck blows to the hearts and minds of many civilians who were under Union control for much of the war. Furthermore, the existence of a strong peace movement in North Carolina led by the vocal W.W. Holden weakened troop and civilian morale and encouraged many desertions among Tarheel troops. The problem of desertion tormented the Confederacy’s leaders from the very beginning of the war and proved to be a significant factor that caused the South to lose the Civil War.

35 “First Wednesdays – “It is important to have uniformity in the decisions of our judges…” North Carolina Civil War 150, November 6, 2013, http://civilwar150nc.wordpress.com/2013/11/06/first-wednesdays-it-is-important-to-have-uniformity-in-the-decisions-of-our-judges/ (accessed April 15, 2014).
36 Weitz, More Damning Than Slaughter, 126.
37 Ibid., 284-285.
39 Ibid.
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Secondary


“First Wednesdays – ‘It is important to have uniformity in the decisions of our judges…’” North Carolina Civil War 150, November 6, 2013. http://civilwar150nc.wordpress.com/2013/11/06/first-wednesdays-it-is-important-to-have-uniformity-in-the-decisions-of-our-judges/ (accessed March 15, 2014).


Diachronic Trends in Latin’s Basic Color Vocabulary

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ABSTRACT
The Latin language contains a number of synonymous terms in its basic color categories. The goal of this essay is to trace the diachronic trends of such terms; to discover which term, if any, is the favored term for a color category; and to determine whether it became established as such in sequence with the Universal Evolution (UE) model. I examine the frequencies of all potentially-basic color terms in the extant texts of five authors chosen to represent a span of about six hundred years: Plautus, Cato the Elder, Cicero, Seneca, and Saint Jerome. My initial hypothesis was that niger was displacing ater as the basic Black term; a similar shift was occurring as candidus displaced albus as the default White term; and other shifts between Red and Yellow terms are uncertain. The hypothesis that niger was displacing ater proved to be accurate; niger increased from occurring only incidentally in Plautus (third century BCE) to being the dominant Black term in Seneca (first century CE), although it did not completely displace ater until late antiquity. In Plautus, candidus and albus formed an equal percentage of total color vocabulary, and displayed only slightly divergent trends, which may reflect the use of albus for “matte white” and candidus for “shiny white.” Ruber was the favored Red term, but it was not displacing other Red terms, nor were the other Red terms displacing each other. The frequency of the intersective term purpureus “purple” suggests that it became established around the same time that Latin’s Red words became established. There was not enough data from the authors in this study to determine trends for Latin’s Yellow terms. Viridis was well-represented as a Green term throughout the time period surveyed. Caeruleus appeared very infrequently compared to viridis, implying that Latin was transitioning between evolutionary stages IV<sub>G/Bu</sub> and IV in the five-stage UE model presented in the World Color Survey.
1. Introduction: Relativism, Universalism, and Latin

Prior to 1969, the most prevalent hypotheses for language evolution were those of Sapir and Whorf, the key principles of which are linguistic relativity and linguistic determinism. According to the theory of linguistic determinism, experiences map onto words, which influence future experiences—or, in terms of color, the experience (or optical perception) of a color influences the linguistic perception of the color (by association with a particular word), and this color language then influences future color experiences. From this principle the hypothesis of linguistic relativity follows, namely that the languages of different cultures should differ greatly from one another because of their different experiential stimuli. Brent Berlin and Paul Kay’s 1969 (B-K) hypothesis that basic color terms evolve in a sequential, partially-fixed order offered strong opposition to the relativists—the Universal Evolution (UE) hypothesis suggested universal evolution of color terms across cultures. Although this hypothesis was controversial, it found empirical support in the 2009 World Color Survey, which gathered data from 110 minor and tribal languages and which stated the revised UE hypothesis as follows:

I. There exists a small set of perceptual landmarks (that we can now identify with the Hering primary colors: black, white, red, yellow, green, blue) which individually or in combination form the basis of the denotation of most of the major color terms of most of the languages of world.

II. Languages are frequently observed to gain basic color terms in a partially fixed order. Languages are infrequently or never observed to lose [sic] basic color terms.

In recent times, the opposition between the universalists and the relativists has become less extreme. C. P. Biggam writes,

Relativism was never totally eclipsed and, from the late 1980s, many researchers decided that, while certain aspects of colour looked universal, others differed from society to society. The more extreme forms of the two theories were not compatible but it became increasingly clear that the milder forms were.

With the revised UE hypothesis came a revised evolutionary scheme that allowed multiple trajectories for evolution and a reduction to five stages (as opposed to the seven in B-K). Based on the data collected from the five authors in this study, Latin appears to be at Stage IV G/Bu, which is to say it is a Stage IV color system in the Green/Blue trajectory. As a language in such a stage, Latin should possess basic terms for Black (Bk), White (W), Red (R), Yellow (Y), and Green/Blue (G and Bu respectively). As seen in Figure 1, the frequency of basic color categories supports the hypothesis that Latin followed the UE model. Categories that became established earlier in the language’s evolution (e.g. Black...

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Figure 1. Distribution of basic color categories in the five sample authors. Higher frequency represents earlier establishment of the basic color term(s) belonging to that category than categories with lower frequency.

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1 Brown and Lenneberg 1954: 461.
4 WCS: 11. The partially-fixed order of the 1969 B-K hypothesis was: Black (Bk)/White (W); Red (R); Yellow (Y) or Green (G); Green or Yellow (whichever was not acquired previously); Blue (Bu); Brown (Br); Purple (Pu), Pink (P), Orange (O), and/or Grey (Gy) in any order. See Berlin and Kay 1969 (hereafter BK): 4.
5 A forward-slash denotes a fuzzy set, where the terms contained in the set have varying degrees of association with it.
Locating Latin’s basic color terms (BCTs) would be a simple matter if they mapped perfectly onto the BCTs of one of its daughter languages, or those of English, or of any modern language which would offer a key to understanding the intricacies of Latin’s color vocabulary. Unfortunately for the Latin scholar, however, the only language onto which Latin’s BCTs map perfectly is Latin. Nevertheless, the universality of focal colors offers a starting point for identifying the position of Latin’s BCTs in color space.6

2. Methods

2.0 Terminology

Before progressing further, it will be beneficial to set out definitions for some terms that will appear repeatedly throughout this essay. These are as follows:

**Color term**: any word that denotes color;

**Basic (also primary) color term (BCT)**: the most elementary word for a Hering primary color or intersective color (e.g. red, pink);

**Secondary color term**: any color term which is not primary, including words derived from natural objects or dyes (e.g. scarlet, rose-madder);

**Intersective color**: any color outside of the six Hering primaries, (e.g. purple, grey);

**Focal color**: the color considered the archetype for a basic color term;

**Primary meaning**: the denotation of a color;

**Secondary/extended meaning**: the connotation of a color;

**Data referent**: the object to which the data (i.e. the color terms and, when applicable, their referents) refers (e.g. Seneca for the phrase *color rubicundus*);

**Referent**: the object to which a term refers (e.g. the noun color in the phrase *color rubicundus*);

**Total color vocabulary (TCV)**: the sum of the occurrences of all forms of the Latin color terms in Table I.

### 2.1 Locating Latin’s Basic Color Terms

| Latin (Stage IV 
<table>
<thead>
<tr>
<th>(G/Bl)</th>
<th>Latin’s BCTs and synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>White (W)</td>
<td>albus/alb* candidus/cand*</td>
</tr>
<tr>
<td>Black (Bk)</td>
<td>ater/atr* niger/nigre*</td>
</tr>
<tr>
<td>Red/Yellow (R)</td>
<td>ruber/rub* russet/ruil* russus/ross* rutilus/rut*</td>
</tr>
<tr>
<td>Yellow (Y)</td>
<td>flavus/flu* fulvus/fulv* luteus/lut*</td>
</tr>
<tr>
<td>Purple (Pu)</td>
<td>purpureus/purpur*</td>
</tr>
<tr>
<td>Green/Blue (G/Bl)</td>
<td>(G) viridis/vir*</td>
</tr>
</tbody>
</table>

Table 1. Latin’s basic color terms (BCTs), including synonymous terms, placed into the Berlin-Kay continuum. Word stems are indicated by the stem followed by an asterisk (i.e. stem*).

Locating Latin’s basic color terms (BCTs) would be a simple matter if they mapped perfectly onto the BCTs of one of its daughter languages, or those of English, or of any modern language which would offer a key to understanding the intricacies of Latin’s color vocabulary. Unfortunately for the Latin scholar, however, the only language onto which Latin’s BCTs map perfectly is Latin. Nevertheless, the universality of focal colors offers a starting point for identifying the position of Latin’s BCTs in color space.7

As seen from Table 1, the Latin language has a number of color terms that can fit into the UE color categories, including four (“black,” “white,” “red,” and “yellow”) with at least one synonym. It also possesses single terms for “green,” “blue,” and “purple.” But are we, armed with only these basic categories, capable of teasing out the riddle of what the Romans meant when they wrote of colors?

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6 WCS: 27.
7 For the universality of focal colors, see Kay 2005; Regier et. al. 2005.
And what of the question of which colors are primary, and which are either secondary colors, or not colors at all?

In addition to their theory of the universal evolution of basic color terms, Berlin and Kay offer four criteria for judging whether a color term is basic, with four additional criteria used for doubtful terms. The four key criteria are (i) that it is monolexemic, meaning its signification (i.e. the color to which it corresponds) is not predictable from the meaning of its parts; (ii) its signification is not included in that of another color term; (iii) its usage must not be restricted to a narrow class of objects; and (iv) it is psychologically salient for informants. Determining the psychological salience of Latin's color terms is a difficult task, due to the most unfortunate lack of natively Latin-speaking informants. However, when working with sufficiently large bodies of texts, the frequency with which a term appears offers an acceptable substitute for living informants who can communicate to the researcher the salience of a word. Thus, these four criteria (the first three especially) are pertinent for Latin's color vocabulary, with additional criteria applied as needed.

When trying to understand the meaning of any of these words, it is certainly easy enough to walk over to the Oxford Latin Dictionary as if into a candy shop and come back with a handful of definitions, neatly packaged into separate senses, to be devoured one by one. However, this oversimplifying approach often erases a word's nuances, which profit more from a savory blend of complementary meanings and definitions. This is especially true with color, where even the name of a color can mean something more than its denotative meaning. Few would argue that the statement "red was suffused in his face" (as in Sen. Ep. 11.1) could have meaning other than the literal fact that a man's face changed its color to a shade of red. It is certainly possible that a statement such as "X object (with color A) changed in color to B" may have only denotative meaning, but it is equally possible that it will have connotative meaning that should also be taken into account when evaluating its usage of color.

In an effort to avoid the oversimplification of such connotations, I have avoided the subjective task of separating out the primary color uses of individual words from their extended uses when compiling and analyzing the statistical data presented in this essay.

2.2 Data Collection

To collect the data for this study, I used the time-honored practice of word-counting. This was the technique used by William Gladstone in his earlier study of Homeric Greek's color vocabulary, and the method so scathingly condemned by Gladstone's critic, Grant Allen. Allen voices his chief complaint with the method:

I look in vain through the pages of Geiger, of Magnus, and of Mr. Gladstone, for any indication that pictures, sculpture, pottery, or other art products have been taken into consideration at all. Every one of these students seems to have sat down in his library, consulting the frail linguistic authority of the Vedas, the Homeric poems, and the Hebrew prophets; but never to have tested the truth of the philological conclusion by reference to museums and art collections.

However, an approach such as that proposed by Allen is no less problematic and yields no more objective results than the practice of word-counting. The same subjectivity that plagues the distinction of a "green twig" that is green in color from a "green twig" that is fresh and growing is present in a modern scholar's attribution of ancient color.

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8 Berlin and Kay 1969 (hereafter BK): 6. All of the color terms in this study (Table I) meet criteria (i) and (ii), with the exceptions of caeruleus and purpureus.
9 In particular, criterion (vi) "color terms that are also the name of an object characteristically having that color are suspect, for example, gold, silver, and ash." Ibid.
10 Gladstone 1858; Allen 1879.
11 Allen 1879: 220. This method is not without current supporters; see Mark Bradley 2009: 30-32.
terms to cultural artifacts. We are not ancient Romans, and our native language is not Latin; to lay down rigidly precise judgments on these issues requires the imposition of our own modern sensibilities, which influence the interpretations we make. Indeed, matching color words to colored objects increases the risk of subjectivity because of the interaction between two different domains; limiting the scope of an investigation to the words themselves and their meanings lessens the risk of additional confusion. Thus, in the case of ancient languages, word-counting remains a sufficiently effective methodology.

The tools for such an endeavor have thankfully advanced since the nineteenth century, and my task was made much easier by the Library of Latin Texts (Series A) database, which I searched for all forms of 504 color terms. I then evaluated the results to determine if they were:

(a) color words (C): e.g. color rubicundus = “red color” (Sen. Dial. 5.30.1);

(b) not color words (NC): these include chiefly color words that are proper names (e.g. Rubrum Mare = Red Sea) and words that refer to a pigment without any particular reference to the color it possesses (e.g. atramentum = black ink); or

(c) color words with extended meanings (C+): e.g. Sen. Ep. 11.1 suffusus est rubor = “red (i.e. a blush) was suffused [in the face of a young man].”

NC words have been omitted from the data presented in this essay. C and C+ words were tabulated together for reasons upon which I have already commented above.

### 2.3 Authors Represented

In the present study, a random sample of five authors spanning a period of roughly 600 years served as data referents for determining any diachronic trends in Latin’s use of basic color terms. Table II highlights some key information on each author, including when and where they lived and some basic statistics on their word usage. In order to avoid the distorting influence of meter and poetic metaphor on a writer’s diction, I examined almost-exclusively prose authors (Plautus being the exception). Plautus’ writing does contain verse; however, its influence on word choice and expression is negligible due to the fact that Plautus used his Greek models more freely than did his near-contemporary

<table>
<thead>
<tr>
<th>Author</th>
<th>Born</th>
<th>Died</th>
<th>Born in</th>
<th>( T_{color} )</th>
<th>( T_{sum} )</th>
<th>% Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plautus</td>
<td>c. 254 BCE</td>
<td>184 BCE</td>
<td>Sarsina (Umbria)</td>
<td>53</td>
<td>167,826</td>
<td>0.03%</td>
</tr>
<tr>
<td>Cato</td>
<td>234 BCE</td>
<td>149 BCE</td>
<td>Tusculum (Latium)</td>
<td>40</td>
<td>19,919</td>
<td>0.20%</td>
</tr>
<tr>
<td>Cicero</td>
<td>106 BCE</td>
<td>43 BCE</td>
<td>Arpinum (Latium)</td>
<td>84</td>
<td>1,100,597</td>
<td>0.03%</td>
</tr>
<tr>
<td>Seneca</td>
<td>c. 4 BCE</td>
<td>65 CE</td>
<td>Cordoba (Hispania)</td>
<td>100</td>
<td>301,750</td>
<td>0.03%</td>
</tr>
<tr>
<td>St. Jerome</td>
<td>347 CE</td>
<td>420 CE</td>
<td>Stridon (Dalmatia)</td>
<td>221</td>
<td>666,544</td>
<td>0.03%</td>
</tr>
</tbody>
</table>

Table II. The sample authors. Plautus, Cato, Cicero, Seneca, 1 and St. Jerome2 are the authors used as data referents in the analysis of diachronic trends in Latin’s BCT usage. \( T_{color} \) = total number of BCTs; \( T_{sum} \) = total number of words; % Color = the percentage amount of BCTs in an author’s vocabulary.

Enninus, and as a result, Plautine verse bears a closer resemblance to natural speech.13

### 3. Data and analysis

#### 3.1 Black and White

Latin has two terms each for Black and White. The Black terms are *ater* (stem *atr*+) and *niger/nigr*+; the White terms are *albus/alb*+ and *candidus/cand*+. In Plautus, *ater/atr*+ is clearly the favored term, with a difference of 20.8 percentage points. In Jerome, this difference decreases to −7.2 percentage

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12 LLT (Series A) published by Brepols, accessed 6/24/13 through 8/1/13 and 2/22/14 through 3/13/14.

13 Fortson 2008: 2, 6. For a more detailed commentary, 32.
Table III describes Latin’s Black/White terms and illustrates their relationships with each other. Although the Dictionnaire Étymologique de la Langue Latine (hereafter DELL) notes that there is some confusion between matte and shiny uses of albus, candidus is without a doubt the term for “shiny white” because it is applied to such referents as fire and metals.16 “Shiny black,” on the other hand, is not so clearly defined. It is important to note that while albus can only be opposite ater (and vice versa) and candidus can only be opposite niger, niger can be opposite either albus or candidus. This double relationship is evidence for niger being the preferred BCT becoming primary, but the same principle applies to synonymous terms through a cumulative effect: for instance, at n (Plautus), niger occurs once, while ater occurs twelve times, indicating that in Plautus, niger is the secondary term. At n + 2 (Cicero), ater occurs nine times, and niger eight. Because Cicero is writing somewhat more than a century after Plautus, this inter-author variability could also be indicative of a diachronic change. However, this conjecture is not sufficient to explain the variability in the usage of Latin’s Black and White terms.

A possible explanation for the existence of such variability between multiple terms is that different terms imply different luminosity or shininess.15 Niger and candidus are the shiny terms, ater and albus the matte ones.

Table III describes Latin’s Black/White terms and illustrates their relationships with each other.

![Figure 2. Distribution of achromatic (Black and White) terms. A dashed line indicates a negative diachronic trend, while a solid line indicates a positive trend.](image)

<table>
<thead>
<tr>
<th>Matte</th>
<th>Shiny</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>albus</strong></td>
<td><strong>candidus</strong></td>
</tr>
<tr>
<td><strong>niger</strong></td>
<td><strong>niger</strong></td>
</tr>
<tr>
<td><strong>ater</strong></td>
<td><strong>ater</strong></td>
</tr>
<tr>
<td><strong>albus</strong></td>
<td><strong>albus</strong></td>
</tr>
<tr>
<td><strong>niger</strong></td>
<td><strong>niger</strong></td>
</tr>
</tbody>
</table>

**Table III.** Descriptions of Bk/W terms and their relationships with each other. Dictionnaire Étymologique de la Langue Latine, s.v. albus, albus, candidus, ater, and niger.
for Black, and its relative stability (when compared to the extreme shift in *ater’s* usage; refer to Figure 2) implies that although it could be used as a term for “shiny black,” it could also be used to describe black things in general. *Ater*, on the other hand, was used more often in an extended sense to indicate moral character or refer to death, a meaning picked up by its derivative *atrox*. It is possible that *ater’s* usage involved so much more extended meaning than color salience that after *atrox* came into usage, *ater* lost its prevalence in literature. However, *atrox* was not included in this study, and data from other authors and statistics for *atrox* are necessary to prove or disprove such a hypothesis. In all five authors used as data referents, Black/White terms account for 42.2% of the total color vocabulary (TCV).

### 3.2 Warm Colors: Red and Yellow

As a Stage IV$_{G/Bu}$ language, Latin possesses terms for Red and Yellow, with many terms spanning red and yellow areas of the spectrum. However, based on the authors represented here, the only clear favorite term is a Red one (*ruber*), and, there is no clear favorite for Yellow (although this is likely a result of the small sample size). Moreover, there are a great number of synonyms for Red, occurring in much lesser frequencies and exhibiting no tendency for one to replace the other. Red and Yellow terms also display considerable overlap in the extent of the colors they encode, with red terms frequently extending into the yellow range, and vice versa. Although Red and Yellow are separate categories in a Stage IV$_{G/Bu}$ language, I address both here because they are Warm colors.

In Plautus, Red terms (*ruber/rub*, *rufus/ruf*, *russus/russ*, and *rutilus/rut*) have a very small presence, consisting of only 13.2% of his TCV. This ratio is remarkable given that 54.7% of Plautus’ TCV consists of Black/White terms, leaving the remaining 32.1% to be occupied by “yellow,” “green,” “blue,” and “purple”—colors that should not have appeared in such a proportion until later authors. Usage of Red terms consists of 17.5% of Cato’s TCV, 9.5% of Cicero’s, 28.0% of Seneca’s, and 13.1% of Jerome’s.

In all authors, *ruber* is the favored term for Red (although tenuously so in Plautus and Jerome, refer to Figure 3). Moreover, its salience is undisputed in Cato, Cicero, and Seneca, whose use of ruber and words from this stem accounts for 15.0%, 8.3%, and

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17 For instance, see Edgeworth 1985, “Luteus: Pink or Yellow?” He concludes that restricting *luteus*’ meaning to Yellow is oversimplifying the color it encodes.

18 Their use of the remaining Red terms is less than 2.5%.
27.0% of their TCVs respectively. Ruber is somewhat less established in Plautus: it accounts for 5.7% of his TCV, while rufus and rutilus each account for 3.8% (russus does not appear at all). The confusion between ruber and other terms in Jerome may be a result of the fact that his data comes from a translation project, in which he may have used Latin vocabulary to reflect that of the source texts. In the case of Plautus, the confusion may come from the Old Latin in which Plautus wrote—while Latin was around 400 years old by the time Plautus was writing, refinement of the Latin color vocabulary was a continuing process that was never truly completed. As such, it is not inconceivable that at this earlier point, ruber was simply another Red synonym. However, in the writing of Plautus’ near-contemporary Cato, the frequency of ruber doubled, indicating that at this time, the use of ruber was a matter of authorial preference. Although it is undeniable that ruber is the dominant term when looking at the sample authors as a whole, it is also clear that there is much interchangeability between Red synonyms without one of the less-used terms displacing another. Moreover, rub* and russ* both derive from the Latin ruber, which offers an explanation for the frequency of their use alongside rub* (especially in Jerome, where rub* accounts for 6.3% of his TCV, while rub* accounts for 6.8%). Rutilus, which has a lesser presence (appearing only in Plautus and Cato, 3.8% and 2.5% of TCV, respectively) is from another stem cognate with Sanskrit arunáh and arusáh, which may account for its smaller presence.

In contrast to Red, Yellow has little presence in these authors: 3.8% of TCV in Plautus, 2.5% in Cato, 2.4% in Cicero, 11.0% in Seneca, and 1.4% in Jerome. Both flavus and fulvus have a great number of narrow applications (Table IV; see also Figure 4 for the distribution of all three terms), which makes it difficult to determine whether they are basic. Both terms appear in the sample authors predominantly in reference to hair or fur in the sense of “blond;” however, a glance at the entries for flavus and fulvus in the Oxford Latin Dictionary reveals that flavus has a strong connection with hair, while fulvus does not. The derivation from the same root as the Greek χαλκός (which also applies to hair) strengthens this connection further.

Eric Laughton offers a detailed analysis of several instances of flavus, arguing that they prove flavus to mean “blond” whenever applied to a person. Included in the occurrences he analyzes are the two instances (both found in Seneca) which I tabulated under the heading “complexion,” and while he

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19 DELL, s.v. ruber, rufus, russus, rutilus. Ruber itself derives from the same root as the Greek ἐρεύθω and Arabic ṣūđa.
20 DELL s.v. flavus. It also shares the same root as the Baltic želti.
21 Flavus Pudor” 1948 and “Flavus Again” 1950.
must perform some semantic gymnastics to reach his conclusion, the fact that the ambiguity is sufficient to allow such a discussion further supports the connection between *flavus* and hair.\(^\text{22}\) From the fact that the meaning of *flavus* is tied near-exclusively to hair, it follows that *flavus* is not a BCT. Figure 5 shows the distribution of Yellow terms with *flavus* excluded.

When *flavus* is excluded from the data, *fulvus* appears to be the most common Yellow term in these authors, and because it does not have a connection to hair (as *flavus* does), it holds better standing as being a BCT. The writings of the authors represented here are not sufficient to establish a clear trend in the usage of *fulvus*. Etymological evidence indicates that it should not be as prominent as *luteus* (Latin’s third Yellow term, derived from the name of a plant producing a yellow dye) in Latin writing as a whole, because *fulvus* is of Germanic derivation while *luteus* shares a root with the Greek λύθρον.\(^\text{23}\) The influence Greece had upon the language and culture of Rome may very well have contributed to *luteus* becoming the favorite primary Yellow term, especially considering the fact that *flavus*, though a secondary term, also has a Greek counterpart. However, in the authors surveyed, *luteus* shows no particular trend and is absent in Cato, Cicero, and Jerome. Additional data are necessary to determine if there is a trend, or if the use of *luteus* (or any Red/Yellow word) is a matter of authorial preference or even regional differences in word usage.\(^\text{24}\)

In all five authors used as data referents, Red terms account for 15.9% of the TCV, and Yellow terms, 3.8%.

### 3.3 Purple: An Intersective Term

Latin’s Purple term, *purpureus* (stem *purpur*\(^*\)), is the next term (after Red terms) that appears in great frequency. While it seems unusual that this term would appear before the Hering primaries had resolved, it is quite common for intersective colors to appear earlier.\(^\text{25}\) *Purpur*\(^*\) accounts for a substantial amount of the TCV of the sample authors—23.5% (refer to Table V for the comparison of the amount of *purpur*\(^*\) words to other color categories). In the Old Latin writing of Plautus, *purpureus* already accounts for 22.6% of his color vocabulary, and with the exceptions of Cato (5.0%) and Seneca (17.0%), this figure does not change by more than approximately five percentage points. These statistics suggest that *purpur*\(^*\) words appeared as the result of some sort of

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22 Laughton 1950: 110.
23 DELL, s.v. *flavus*, *fulvus*, and *lutum*.
24 Refer back to Table II for the birthplace of each author.
25 WCS: 7.
Table V. Comparison of the amount (in percent of TCV) of Bk/W words, R/Y words, and G/Bu words to words formed on the purpur* stem in each author.

<table>
<thead>
<tr>
<th></th>
<th>Plautus</th>
<th>Cato</th>
<th>Cicero</th>
<th>Seneca</th>
<th>St. Jerome</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bk/W</td>
<td>54.7%</td>
<td>62.5%</td>
<td>50.0%</td>
<td>25.0%</td>
<td>40.3%</td>
<td>46.5%</td>
</tr>
<tr>
<td>R/Y</td>
<td>17.0%</td>
<td>20.0%</td>
<td>11.9%</td>
<td>39.0%</td>
<td>14.5%</td>
<td>20.5%</td>
</tr>
<tr>
<td>Pu</td>
<td>22.6%</td>
<td>5.0%</td>
<td>26.2%</td>
<td>17.0%</td>
<td>29.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>G/Bu</td>
<td>5.7%</td>
<td>12.5%</td>
<td>11.9%</td>
<td>19.0%</td>
<td>16.3%</td>
<td>13.1%</td>
</tr>
</tbody>
</table>

external stimulus that remained more-or-less constant over time. Furthermore, the origin of the word is debatable, and the agent of its acquisition, ambiguous. There are two chief possibilities:

1. Purpur* appeared as a loan from Greek; the agent is cultural exchange.
2. Purpur* appeared independently from Greek; the agent is class-consciousness.

DELL supports both possibilities: “Emprunt ancien et oral au gr. πορφύρα, traité comme un mot purement latin.”

To begin, it is necessary to examine purpureus’ status as a color term. It does meet the first two B-K criteria; it is both monolexemic and its signification is not included in that of another color term. However, although it is not restricted to a narrow class of objects (i.e. the third B-K criterion) in the same way flavus and fulvus are, it nevertheless has very specific extended meanings due to the rarity and cost of the purpura dye—purpur* words frequently refer to people or material goods exclusive to the upper class. A particularly notable example is the derivative purpuratus, referring to high-ranking officials (Pl. Mos. 288). These and other extended uses form the majority of uses of purpur* words. In addition to the extended meaning that explicitly indicates wealth or luxury, purpureus/purpur* is frequently connected more directly to objects reminiscent of the purple dye (Cato Orig. 7.8).

From the unique extended usages displayed by purpur* words and the term’s close connection to the dye from which it was derived, it follows that purpureus should not be a BCT. However, if the emphasis on class in Roman society could lead to a synonymy between “purple” and “elite,” it is possible that this class-consciousness precipitated the early appearance of a Purple term. Berlin and Kay observe that in color systems possessing only terms for Black, White, and Red, the Red term includes “all reds, oranges, most yellows, browns, pinks, and purples (including violet).” Between the association of the color with elite status and the coincidence of that color with Red, it is unsurprising that purpur* words figure so prominently in Latin’s color vocabulary. Moreover, their tendency to appear in frequencies either greater than or roughly equal to Green/Blue terms supports the interpretation that the purpur* stem appeared closer to Red than to Green/Blue.

The significant cultural exchange between Greece and Rome must not be omitted from the discussion of purple due to the relationship of purpura to πορφύρα. Even though some Greek social practices and customs were considered effeminate by Romans, the elite prized Greek culture, including its art and literature. Biggamm notes that when
establishing relative dating for a color system, it is “often the case that, when the gradual development of a colour system, category by category, appears to be lexically or cognitively disrupted...the explanation may be found in recent traumatic events such as foreign conquest...or some other form of social stress.” Roman contact with Greece may very well have been an instance of such a social stress, leading to the early adoption of purpura in Latin. However, the five authors surveyed here are not a large enough sample to determine a relative chronology of the evolution of Latin’s BCTs overlaid with Rome’s interactions with Greece.

In all five authors used as data referents, purpur* terms account for 23.5% of the TCV.

3.4. Cool Colors: Green/Blue

Viridis is Latin’s only basic Green term, and it accounts for 3.8% of Plautus’ color vocabulary, 12.5% of Cato’s, 7.1% of Cicero’s, 11.0% of Seneca’s, and 16.3% of Jerome’s. This word experiences substantial usage as a term that does not refer purely to color—for instance, it may also have connotative meanings such as indication of ripeness, tenderness, or freshness; reference to new plant growth; or metonymy for plants or plant products. For example, things that Cato describes as viridis include olives to be pickled (Agr. 7.4), nuts (Agr. 17.2), foliage (Agr. 30), grass (to be fed to livestock; Agr. 54.5), and reeds (Agr. 160).

Because viridis does tend to have a greater number of secondary meanings, Bradley suggests that the established definition of viridis ought to be “verdant” (indicating primacy as a “plant” term) and not “green” (which implies primacy as a color term). Such a distinction seems to be supported by the data presented in this essay. However, Plautus and Seneca offer some uses of viridis that question the logic of such a reversal in the primacy of definitions. In Men. 828, Plautus describes eyes that are green (oculos uirere) and a countenance that is green in color (uiridis colos) when writing of a madman. Plautus also describes the eyes of the ailing Cappadox (in Cur. 230) as herbeus “grass-colored,” which indicates that in Old Latin,
the color green was closely linked to vegetation, and may even have had as its primary function the description of plant life (with color as a secondary meaning). This much is consistent with Bradley’s hypothesis. However, in Seneca’s discussion of the rainbow (Nat. 1.3.12), he describes the color of one series of bands as virides—a use that can hardly be thought of as primarily referring to plant life, unless in the sense of “plant-colored” (in which case the Plautine use of herbeus should more logically be expected). Seneca also uses virentia as a substantive for the color green in Dial. 5.9.2 when discussing colors that are pleasing for eyes to see. Moreover, as David Wharton notes, in a third of the total instances of viridis in Pliny, the term has non-botanical referents and describes animals, gems, pigments, etc. in a purely abstract manner. Both Seneca and Pliny are far removed in time from Plautus, so it may be that viridis became used purely as a color term only later in the development of the language. However, because Seneca uses the same stem in reference to vision, Plautus’ use of viridis in reference to eyes suggests that even in Old Latin, the extended meanings of viridis (freshness, plant growth, and so on) were not so dominant that they overrode the color meaning of the term, and thus that the color meaning was far from secondary to the word’s definition.

Appearing in conjunction with viridis is caeruleus; however, caerul* terms are not as established as vir* terms, either in frequency or in meaning. (See Figure 6) Caeruleus does not appear in Cato or Jerome. Plautus’ usage of caeruleus consists of 1.9% of his TCV, and Cicero’s, 4.8%. Seneca’s use of caeruleus amounts to 8.0% of his TCV, but this number is deceptive because in his discussion of rainbows, he uses caeruleus as a Cool term in opposition to Red/Yellow terms in a way that is more consistent with the light/dark contrast indicated by ater/niger and albus/candidus. If these instances are excluded from the results, caeruleus accounts for 5.0% of Seneca’s color vocabulary, which is more consistent with the ratio in Cicero (4.8%). The low frequency of the word, combined with its derivation from an object, suggest that this is Latin’s youngest BCT (among the Hering primaries).

The derivation of caeruleus is from caelum “sky” and the –eus ending, and it originated in poetry before it gained widespread use as a color term. This development is coherent with Mills F. Edgerton’s question:

To what extent is the apperception of a color conditioned by the existence of a ready-made label in the vocabulary of the language of the subject, and to what extent do other factors lead the individual to take note of a color which as yet lacks a name in his language so that he is led to supply a label for future use?

The initial term for Blue had a “ready-made label”—caelum, plus the adjective ending

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Table VI. Applications of caeruleus. Non-zero values are in boldface. The application with the greatest number of usages is in a dashed box.

<table>
<thead>
<tr>
<th>Plautus</th>
<th>Cato</th>
<th>Cicero</th>
<th>Seneca</th>
<th>St. Jerome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Sky</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ocean/bodies of water</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>In quotation</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>B/W or Warm/Cool contrast</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

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32 WCS: 27.
33 DELL, s.v. caerulus.
—eus. However, as seen in Table VI, caeruleus is used to refer to the sky only twice, with the most frequent referent for caerul* terms being the ocean and other bodies of water, and the remainder of the instances refer to non-sky objects. Furthermore, as Bradley argues, the particular hue encoded by caeruleus was probably a dark blue (and not sky-colored); the distribution of caeruleus’ referents in the sample authors supports this interpretation.35 These observations and the data presented by these authors both underscore Renato Oniga’s observation that as caeruleus gains status as a BCT, it loses its etymological connection to the sky and becomes a basic color term.36 This transferal of meaning emphasizes the issue of labeling colors for future use; in the case of caeruleus, future use extends out of the initial domain (caelum) and into other domains embodying hues that are separating from Green to become Blue. Thus, in theory, caeruleus should not meet the criterion for being monolexemic (because of its etymology), but in practice, it is not only essentially monolexemic, but also a BCT by virtue of the fact that its applications are not limited to the sky.37

In all five authors used as data referents, Green terms account for 12.0 percent of the TCV; Blue terms, 2.6%.

4. Conclusion

From the data presented here, it appears that the evolution of Latin’s basic color terms is generally consistent with the order proposed by the revised UE hypothesis. Latin is certainly a Stage IV/G/Bu language, and it is most likely in the midst of a transition from Stage IV to Stage V. It possesses what seem to be separate terms for green and blue, but the distinction between them is still somewhat unresolved. The overlap between the green and blue foci of each term, combined with the rarity of caeruleus when compared to the sum of other BCTs in Latin’s color system, supports the hypothesis that Latin is transitioning from Stage IV (where Green and Blue are still indistinct) to Stage V (where there are separate and distinct Green and Blue terms).

The picture of the evolution of Latin’s BCTs is, to a certain extent, complicated by the use of connotative word meanings (as in the case of viridis) and words with limited applications (most notably flavus). Another factor that constrains modern understanding of the evolution of Latin’s basic color vocabulary is the limited data available for Latin earlier than Plautus. However, in spite of these complications, a number of conclusions are clear. As predicted, niger/nigr* is displacing ater/atr* as the BCT for “black/dark” and albus and candidus, each of which is used to indicate a state of luminance, display diverging trends but without replacing one another. Ruber has by far the highest frequency of the Red terms, but other Red terms do not seem to be displacing it or each other. Flavus is certainly a secondary Yellow term, although there is insufficient data in this study to determine trends for fulvus and luteus. In this study, they appear in frequencies even less than caeruleus, but this result is most likely due to a lack of data, because caeruleus develops later and is well-attested even in antiquity as a rare word.38 Viridis is a BCT, albeit one with a plethora of extended meanings which can cause some confusion as to its color meaning. Caeruleus, as noted above, is a BCT, but a relatively recent one. In addition to the Hering primaries, Latin has an intersective term, purpureus, that most likely appeared alongside Red—an unsurprising circumstance, given that Purple is included in the domain of Red in early-stage color systems, and that the color was probably evocative of class-consciousness and cultural contact with Greece.

The study offered by this essay is not meant to be exhaustive, nor are five authors, spanning multiple genres of writing, truly sufficient to make sweeping declarations regarding the evolution of color language in Latin. By the future addition of data from other authors, it will be possible to understand more fully Latin’s color terms, their meanings, and

35 Bradley 2009: 10. Even the quotations in Cicero (Div. 1.41 and Fin. 5.18) refer to the sea (and hence a darker blue than the sky, or the sky when it is darker or more saturated than the pale blue that characterizes the archetypal English “sky-blue”).
37 BK: 6
38 Gel. 2.26.18.
Bibliography


ABSTRACT

In recent years, Evangelical Protestantism and Christian Fundamentalism have received a great deal of attention concerning their influence and impact on American society and culture over the last fifty years. Because of that, the impact and influence of Mainline Protestantism has frequently been overlooked. This essay examines both Evangelical and Mainline Protestant churches’ reactions and statements to three movements from the mid-twentieth century to the present: the Civil Rights Movement, the Feminist Movement, and the Gay Rights Movement. In doing so, I argue that Mainline Protestant churches have actually had a greater, though more subtle, impact on American society and culture than previously thought.

Since Christianity’s beginnings, various sects have existed, all vying for the hearts and minds of humanity. While the Roman Catholic and Eastern Orthodox traditions remain largely homogenous, Protestantism has been historically divided. From its very origins it fragmented into various denominations whose views, while largely similar, differ on varying matters of doctrine and dogma. The first evident “split” occurred in 1529 when Martin Luther and Ulrich Zwingli, two reformers, were unable to agree on a set of theological issues, thus creating two separate reformed churches.1 During the remainder of the century, various Protestant groups emerged with opposing views. The Church of England represented one of these Protestant groups, which ensured that many English speaking Christians would embrace Protestantism in some form. Various sects came to America beginning in the seventeenth century, especially dissenters of the Anglican Church such as the Puritans and Baptists. During the next century other groups followed, bringing myriad versions of Protestantism as well as Catholicism to America, all contentiously practicing side by side.

It is from this background that two branches of Protestantism developed in twentieth century America – Mainline and Evangelical. The sharp divide between the two arose with the beginnings of Fundamentalism in the late nineteenth century. Evangelical churches

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embraced Fundamentalism and sought to preserve what they considered true Christian teachings. Mainline Protestant churches generally accepted Liberal Theology, a Christian theology open to modern reason as well as personal, intellectual, philosophical, and existential reflection. These Mainline churches claimed that while their teachings were updated, they were nonetheless true. Moreover, they argued that Fundamentalism’s emphasis on literalism was now archaic. The two sides were also separated by Darwin’s theory of evolution, as Mainline churches were more likely to accept evolution than Evangelical churches.

Since the mid-twentieth century, the impact and influence of Evangelical Protestantism on American society and politics have been clearly visible. If one considers Christianity in the United States in the mid-twentieth century, one can quickly think of conservative names, movements, and political stances: Billy Graham, pro-life movements, and opposition to gay marriage. But what about the Mainline churches? Mainline churches actively participated in movements such as the Social Gospel and the Civil Rights Movement. Further, after the success of these movements, the Evangelicals often joined, or at least consented to, the goals of the movements, revealing the Mainline’s subtle, but clear influence.

Evangelical Protestantism represents the larger of the two traditions and has received the majority of attention and credit in shaping recent American society and culture. However, in the current essay, I argue that Mainline Protestantism’s influence has not only been overlooked, but that its contribution to American civil rights reforms has had a greater, though more subtle, impact on the development of American society from the mid-twentieth century to the present. To do so, this essay addresses three crucial movements within the twentieth century – the Civil Rights Movement, the Feminist Movement, and the Gay Rights Movement – and examines the involvement and responses of Mainline and Evangelical churches. By examining the statements and reactions from both Mainline and Evangelical Protestants, I demonstrate the lasting and current influence of the Mainline churches in matters of social justice and civil rights in America, by working within their churches to foster equality and by engaging in reform movements outside their churches.

**Background Information**

Mainline Protestantism includes most Methodists, Presbyterians, Lutherans, and Episcopalians, as well as other small denominations such as the United Church of Christ. In his book, *The Public Church*, Martin Marty describes the Mainline as having “known fewer difficulties than have others with the public order, but greater problems with being the church, with remaining intact as a center of loyalty to Christ.” Mainline churches have appealed to individuals who embrace the “priesthood of the believer,” but have weakened the churches’ focus on the Triune God as revealed in Jesus, meaning they have been less concerned with converting others to Christ. At the beginning of the twentieth century, Mainline Protestants were characterized by their acceptance or openness to Liberal Theology, critical study of the Bible, the theory of evolution, and an emphasis on a social application of the Gospel.

According to Paul Rasor, “liberal theology tries to articulate a framework within which one can be deeply religious and fully modern at the same time.” Adolf von Harnack was a German Liberal theologian who wrote many works, including *What is Christianity?* Characteristic of Liberal Theology, he wrote “that the earth in its course stood still; that a she-ass spoke; that a storm was quieted by a...
word, we do not believe, and we shall never again believe.” In other words, miracles were denied as impossible and (in the words of the Enlightenment philosophers) unreasonable. Liberal Theology sometimes questioned the divinity of Jesus, the accuracy of the New Testament Gospels, and elements that seemed to be supernatural, such as the physical resurrection of Jesus and his physical Second Coming. Those who supported Liberal Theology also promoted critical study of the Bible, as with any other work of literature. This involved research and examination to see how the current texts were originally written and by whom, how they were passed down, and how they may have been edited and redacted. From a liberal perspective, evolution was less of a problem because the Mainline churches tended to view the Genesis creation narratives as simple stories that the ancient Hebrew people told to help them understand who they were in relation to God. These stories were merely theological narratives, not scientific ones. Moreover, it seemed possible that God was the guiding force behind evolution, fostering biological progression and development.

Mainline Protestantism also advocated a social application of the Gospel. The Social Gospel movement during the American Progressive Era constituted a reformation of society, one entreat to live out the teachings of Jesus regarding the unprivileged and employing American society as a means to execute the will of God. Instead of just trying to save the souls of the dispossessed, the adherents of the Social Gospel hoped to uplift such individuals through political or physical means.

In response to these Mainline beliefs, Evangelicals contended that the truths of the Gospel were being lost to the modernizing trends of Liberal Protestantism. The word “Evangelical,” comes from the Greek word “ευαγγέλιον” or “euangélion,” which translates into English as “Gospel” or “Good News.” The term must be qualified. In areas outside the United States, “Evangelical” is often used interchangeably with and more often than that of “Protestant,” without any of the connotations or meanings that “Evangelical” holds within the United States. American Evangelical denominations include most Baptists and Nondenominational, along with some Lutherans and small portions of other denominations.

Marty describes modern Evangelicals as “[having] less problem with being the church in the sense of a called out and set apart body. But they have had more difficulties with public consciousness, with discerning how they are called to serve God beyond the specialized field of saving souls out of the world.” According to Marty, then, Evangelicals have succeeded at being a spiritual community, but have been less successful outside of their focal mission – “soul-saving.” Today’s American Evangelicals were heavily influenced by the Fundamentalist movement of the early twentieth century and this is what helped create the two distinct sides of Protestantism in America. Through the influence of Fundamentalism and cultural conservatism, Evangelicals were characterized by opposition to Liberal Theology, critical study of the Bible, the theory of evolution, and a social application of the Gospel.

Evangelicals rejected Liberal Theology. They saw the Liberal theologians as eliminating the “fundamental” truths of Christianity and simply retaining a moral philosophy. Fundamentalist scholars enumerated the most important Christian doctrines and these were often (but not always) what the Liberal theologians had been calling into question. These included “(1) the inerrancy of Scripture, (2) the Virgin Birth of Christ, (3) his substitutionary atonement, (4) his bodily resurrection, and (5) the authenticity of the miracles.”

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9 Peterson, A Concise History of Christianity, 327.
11 George Marsden, Understanding Fundamentalism and Evangelicalism, 2.
13 Marty, The Public Church, 3.
14 Peterson, A Concise History of Christianity, 326-328.
this rejection of Liberal Theology and acceptance of Fundamentalism, the inerrancy of scripture often proved to be the most essential tenet of their faith. The Fundamentalists considered the “higher criticism” of the Bible as antithetical to their convictions and asserted that those who searched for errors and called for such radical examinations of the Bible were obviously losing faith and could influence other Christians to challenge God’s Word. Evangelicals saw Darwin’s theory of evolution as a false teaching culminating in atheism. Evolution, they argued, was fundamentally different from the Christian understanding of science, nature, and creation, with no chance of reconciliation. Finally, the Evangelicals rejected the social implementation of the Gospel and emphasized personal salvation over societal change. The Evangelicals agreed that Jesus loved people and wanted his followers to love other people, but then stated that the greatest expression of that love is to share the truth about God as revealed in Jesus in order to provide individuals an opportunity to accept God’s grace and avoid the fires of Hell.

Examination of Reform Movements

Civil Rights Movement

By the 1960s, the Civil Rights Movement was beginning to build momentum and draw both support and opposition from Americans of every background including Christians. Many leaders of the movement were ministers, but some of the harshest criticisms came from the pulpit. Many factors came into play as to how Christians reacted to the movement, including whether one was a Mainline or Evangelical Protestant.

Mainline Protestant churches drew upon a heritage of social activism. When the Civil Rights Movement started in earnest, Mainliners were ready to go. The Christian Century, the leading magazine of Mainline Christianity, published several articles endorsing the movement. While it cannot be assumed that all Mainline Protestants supported the views in the magazine, it can be inferred that the majority of them did because the publication reflected their interests and beliefs. Also, The Christian Century influenced the Mainline understanding of the events and issues. As early as 1960, the magazine embraced the movement. An editorial concerning the sit-in protests wrote, “We expect the turmoil to spread, but we do not expect this nonviolent resistance movement to be defeated. When its work is done we will have a better America.” They recognized that social justice might engender trouble, violence, and chaos, but they believed in what the Civil Rights Movement stood for and they saw something worth fighting for (through civil disobedience, of course).

Not only were Mainline churches supportive in morale, but they also participated in the movement. A group of fifty-three Episcopal clergy and laymen traveled to Washington, D.C., during October 1963 to support the passage of Civil Rights legislation. While it could have been expected that the group would be made up of all northerners, the group also included representatives from southern states. The Reverend Arthur Walmsley, a participant on this venture, spoke and gave reason for their gathering: “From the standpoint of Christian conscience, it is scandalous that it is necessary to require legislation to give part of the people what all should have.”

The Lutheran Church in America proposed a resolution at its Biennial Convention in 1964 that expressed ardent support for civil rights and spoke harshly against those who discriminated, even saying that those who used a biblical justification for discrimination had a distorted view of God and Scripture. They resolved that “the church must oppose any law or governmental practice which under the guise of rightful authority perverts justice.”

15 Marsden, Fundamentalism and American Culture, 117; other lists included the physical, imminent return of Christ, see Peterson, A Concise History of Christianity, 328.
16 Marsden, Fundamentalism and American Culture, 112.
17 Marsden, Understanding Fundamentalism and Evangelicalism, 37.
18 Peterson, A Concise History of Christianity, 329.
The Lutherans believed strongly that discrimination against fellow humans went against the law and love of God. Therefore, civil disobedience was acceptable and even exemplary if it ended discrimination. The clergy of the Episcopal Church proved quite active. According to the Diocesan Press Service, an Episcopal priest was arrested on April 24, 1964, in Chester, Pennsylvania, for leading and participating in a demonstration. He had even attempted to prevent an officer from hitting an African American participant by putting himself in between the two. Presiding Bishop Lichetenberger expressed solidarity and support for the priest and the movement.22

Evangelical churches responded to the Civil Rights Movement with less enthusiasm. Some in fact chose to ignore the issue. Evangelical denominations tended to avoid social activism as a regular practice and instead they focused on mission work at home and abroad. As their name suggests, they felt called to evangelize and to spread Christianity to the world and to those closer to home. The Southern Baptist Convention (SBC) issued a resolution dealing with race relations in 1944.23 It stated:

That this Convention would urge the pastors and churches affiliated with the Convention, and all our Baptist people, to cultivate and maintain the finest Christian spirit and attitude toward the Negro race, and to do everything possible for the welfare of the race, both economic and religious and for the defense and protection of all the civil rights of the race. 24

This statement guided the SBC’s stance on race relations throughout the Civil Rights Movement, as it was often reaffirmed by the SBC at subsequent Conventions.25 The Baptist Press, the newspaper for the SBC, published several articles dealing with the Civil Rights Movement. An early article quoted the president of Mercer University, a Baptist institution, as calling for the enforcement of civil rights legislation in southern states. The reasoning for this was based mostly on his assumption that if the southern states refused to act, further and stricter legislation regarding integration would be implemented by the US Government.26 That had to be avoided.

Wayne Dehoney, president of the SBC in 1964, argued that the SBC and its members should accept and follow the civil rights legislation because God had instructed humanity to follow laws, as long as they did not violate God’s laws or one’s conscience. At first it seemed that this was all he had to say, as if the law should simply be obeyed from a completely legal standpoint. However, he finished by saying that the gospel must continue to work on the hearts of humanity to “eradicate the prejudice that spawns racial discrimination.”27

The Church of God responded to the Civil Rights Movement and legislation with a resolution which declared that constitutional rights should be recognized. However, the resolution did not call on Christians to advocate for such rights.28 The Church of God recognized that all people are equal and should have equality, but there was no call for action or participation. The Church of God appeared to have good intentions, but for the most part it remained out of the fray. Similarly in 1965,
the SBC issued a resolution concerning civil rights. An amendment was added that stated that the members of the Convention “deplore the open and premeditated violation of civil laws, the destruction of property, the shedding of human blood, or the taking of life as a means of influencing legislation or changing the social and cultural patterns.” Southern Baptists considered the demonstrations to be progenitors of social chaos and disruption, things with which they did not want to be associated.

In general, the Mainline Protestant Churches proved more vocal, supportive, and participatory in the Civil Rights movement than their Evangelical counterparts. While supportive in intentions, Evangelical churches rarely provided their members with any practical means to help bring about the equality they professed to support. While Mainline denominations gave express permission and direction to engage in the movement because of their understanding of God and the Bible, the Evangelical churches were not so direct in their calls for equality and they generally did not advocate participation. It must be recalled that the Fundamentalist/ Evangelical influence had the greatest influence in the South and the majority of Mainline Churches were elsewhere. Thus the South, Civil Rights, and religion were interwoven. Mainline Protestants were less affected by Southern attitudes towards minorities, although that did not mean that Southern culture was free of prejudice.

In 1995, the SBC issued a resolution apologizing for its past endorsement of slavery, noting that “Southern Baptists [had] failed, in many cases, to support, and in some cases opposed, legitimate initiatives to secure the civil rights of African-Americans.” While this is commendable, over thirty years passed between the 1964 Civil Rights Act and this resolution. The SBC realized it had not done enough and that the culture had gone on without it. The Mainline denominations’ fight for equality had become the fight of the nation. Given that, the Evangelicals acknowledged that they had been wrong and resolved not to let their prejudices influence their view of God and humanity again.

**Feminist Movement**

Just as African Americans had demanded that their rights and proper status in American society should be upheld, women too began to call for equality in the 1960s. Women wanted to change the way society, including their churches, viewed and treated them. Most denominations at the time did not ordain female clergy and these churches had long taught that women were to be submissive to their husbands. Some women felt that Christianity and full gender equality were incompatible. Others saw the Bible as perfectly suited for feminism, especially in the life and ministry of Jesus. The churches had to make a choice: they could oppose, support, or ignore the Feminist Movement.

While many Mainline denominations were considered progressive, at the beginning of the 1950s most did not ordain female ministers. Several Biblical passages assert the authority of men in both familial and religious matters and even expressly forbid women to teach men. As early as the 1850s some United Church of Christ churches began ordaining women to serve as clergy. As a denomination following Congregationalist

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31 Southern Baptist Convention, “Resolution on Racial Reconciliation on the 150th anniversary of the Southern Baptist Convention.”


34 See 1 Timothy 2:1-12; Ephesians 5:22-23.
polarity, the UCC churches could decide on the issue independently of each other. A century later, the Methodist Church began to ordain women in 1956. The Lutheran Church in America began doing so in 1970 and the Episcopal Church in 1976, although a group of Episcopal women had been ordained unofficially a few years prior. The effect of the Women’s Right’s Movement is evident – most Mainline churches were not calling for change prior to the movement, but rather responded to it.

By the 1980s, Mainline denominations were actively working towards eliminating sexism from their churches and fully incorporating women into leadership positions. The United Methodist Church elected its first female bishop in 1980. Not only had the church decided that women could be spiritual leaders of churches, but they could be part of the hierarchy of the Church as well. In 1972, less than one percent of clergy in the Methodist Church were women, but by 2004 they made up nineteen percent of the clergy, a significant increase. The Methodists had obviously taken measures to turn what was once an exclusively male position and open it up to women who felt called to ministry. In 2006, Episcopalians elected the first female presiding bishop, revealing that their entire community of believers could be led by a female. Once the ordination question passed, Mainliners were more willing to call for equality outside of their churches. For example, in 1982 the Episcopal Church called “upon the Congress of the United States once again to enact the Equal Rights Amendment [a proposed constitutional amendment to grant women full equal rights with men] and submit it to the legislatures of the several states for ratification.”

In the 1960s, Evangelical churches also did not allow women to be ministers, usually citing scripture as justification. For Evangelicals, the ordination question proved much more difficult to overcome than it was for Mainline churches. Evangelicals placed great emphasis on the authority of the Bible, declaring it infallible. If scripture said that women were not to serve in leadership roles, they would choose to obey even if their decision was unpopular. In 1973, the SBC issued a resolution concerning the role of women saying that its members reaffirm God’s explicit Word that (1) man was not made for the woman, but the woman for the man; (2) that the woman is the glory of man; (3) that as woman would not have existed without man, henceforth, neither would man have existed without the woman, they are dependent one upon the other–to the glory of God.

The SBC made it clear that it was sticking to its Biblical understanding of gender and gender roles and that it had no intention of changing its structures to go against the understanding it held of Scripture. The SBC


maintains its position on the ordination of women for pastoral roles to this day, arguing that it should remain true to scripture and not allow the broader culture to influence its decisions. Thus Fundamentalist theology of the inerrancy and infallibility of Scripture maintains its high place in Evangelical churches, even regarding the role of women. Finally, the SBC resolved in 1980 that, “reaffirming the biblical role which stresses the equal worth but not always the sameness of function of women, does not endorse the Equal Rights Amendment.”

Not all Evangelical traditions prohibited female ministers. Another Evangelical denomination, the Oneness Pentecostal Church, promoted female pastors from their very beginnings, as twenty-nine percent of all of their ministers were female in 1919-1920. It too believed in the infallibility of the Bible, but it also emphasized the power of the Holy Spirit to overcome barriers such as discrimination. However, this denomination represented less than three percent of Evangelicals as of 2007. Given that, its decision cannot be viewed as representative of most Evangelicals.

Mainline Protestants and Evangelicals once again differed in their approach to a civil rights matter – this time the rights of women. Mainline Protestant churches were greatly affected by the feminist movement. Both the Lutheran and Episcopal Church began to ordain women during the Women's Rights Movement (although the Methodist Church had begun female ordination of ministers before that time). They supported the passage of an Equal Rights Amendment, along with fifty-six percent of the country in 1982. Evangelicals on the other hand were not as heavily affected by the Feminist movement and few Evangelical churches welcomed women to the ministry. They were against the ordination of women pastors and also the Equal Rights Amendment because of their commitment to Scriptural authority. The Feminist Movement caused Mainliners to realize that they needed reform and that the time for women in pastoral roles had come. Mainline denominations opened the doors to equality and moved forward to greater Christian unity. The SBC and Evangelicals remained less affected by the broader culture and reacted against it, reiterating their beliefs about women even when they were not popular.

Gay Rights Movement

Following in the wake of the Civil Rights and Feminist Movements, the Gay Rights movement emerged by the late 1970s. Homosexuals had been discriminated against for decades and now they too began openly voicing their demand for full equality and acceptance in American society. In recent years, they have successfully protested and fought for legislation to allow them the same rights as heterosexuals, such as the right to marry and equal opportunity employment legislation. This has created a problem for some religious groups as, in the opinion of some, the Bible expressly prohibited homosexual behavior. How have Protestant churches responded to yet another group demanding its civil rights? While this is still an ongoing issue, the response has usually been determined by whether the denomination is Mainline Protestant or Evangelical.

Mainline denominations did not ordain homosexuals before the Gay Rights Movement.

See Leviticus 18:22; Romans 1:26-27; 1 Corinthians 6:9-11.
nor did they immediately begin to do so when the movement emerged in the 1970s. Still, Mainline churches have made attempts to be open to all members regardless of sexual orientation. In 1976, the Episcopal Church declared that “homosexual persons are children of God who have a full and equal claim with all other persons upon the love, acceptance, and pastoral concern and care of the Church” and “homosexual persons are entitled to equal protection of the laws with all other citizens, and calls upon our society to see that such protection is provided in actuality.”50 While this did not immediately prompt sweeping changes and reform in the Episcopal Church, it does illustrate that the church was open to gays and lesbians and was taking steps to respect them.

Mainline Churches try to accept homosexuals, even if they are unsure about the homosexual orientation itself. In 1993, an article in the Christian Century argued that legislation banning gays from serving in the military was discriminatory and a civil rights issue, predicting that in several years this issue would be resolved and make those who sought to exclude gays “look uncivil and immature.”51 In 1994, the Episcopal Church issued a resolution calling on local, state, and federal government bodies to give same-sex couples similar benefits as those enjoyed by married heterosexual couples.52 While this did not necessarily represent a call for homosexual marriage rights, it did signify a call for equality under the law. In a survey completed in 2007, the Pew Forum found that fifty-six percent of Mainline Protestants felt that homosexuality should be accepted by U.S. society, while only fifty percent of all Americans felt that homosexuality should be accepted.53 This evidence revealed that Mainline Protestants have generally been more accepting and open to homosexuals than the general American public has.

By 1979, interest was building as to whether Mainline churches should ordain homosexuals to ministerial roles. Once again, a conflict over ordination began to divide the churches. In 1979, the Episcopal Church issued a resolution after looking into the possibility of ordaining gays and lesbians. The Episcopalians resolved to “re-affirm the traditional teaching of the Church…[that] it is not appropriate for this Church to ordain a practicing homosexual.” The Presbyterian Church likewise agreed, but asserted that “Heterosexism, the oppression of this sexual minority, is not compatible with Christian faithfulness.”55 Mainline churches tended to walk this tightrope, balancing a traditional view of human sexuality with an acceptance of the individual.

Years passed with no major developments in any of the denominations until changes swept through in 2009. First in July of that year, the Episcopal Church voted to allow homosexuals to be ordained into ministerial roles, replacing a 2006 resolution that “urged Episcopal leaders not to elect gay bishops.”56

Just a month later the Evangelical Lutheran Church in America (ELCA, a Mainline denomination despite the Evangelical in its name) followed in the Episcopal Church’s lead and also allowed for the ordination of

homosexuals. Less than two years following the ELCA’s assembly’s vote, the Presbyterian Church (U.S.A.) voted to permit homosexual ministers as well, “opening doors to qualified clergy and lay leaders without regard to sexual orientation.” Thus, in an extraordinarily brief period of time, three large Mainline denominations embraced gay clergy. Despite being the first major Mainline denomination to ordain women to ministry roles, the United Methodist Church, the largest of the Mainline churches, still does not allow homosexuals to be ordained, saying, “homosexuality is incompatible with Christian teaching.”

At the beginning of the Gay Rights Movement, the response of Evangelical churches was similar to those of Mainline churches. In the same way that both groups were unsure how to address the issues raised by the Feminist Movement, they were similarly unprepared to deal with gay rights. Unlike Mainline denominations, which tended to oppose the homosexual lifestyle while embracing the individual, Evangelicals often used sharp and decisive language. The SBC issued a resolution in 1980 stating its belief that “there is a concerted effort by ‘Gay Activists’ and liberal humanistic politicians to pass ordinances which, under the deceptive guise of human rights, have the effect of giving public approval to the homosexual lifestyle, making it equally acceptable to the biblical heterosexual family life style.” In addition to viewing homosexuality as a spiritual problem, Southern Baptists also considered it a threat to society in general and urged secular leaders to prevent its acceptance. They denied that the Gay Rights Movement was fighting for civil liberties and supported the military’s exclusion of gays arguing that it would be detrimental to morale, unit cohesion, good order, discipline, and mission accomplishment...[and] [h]omosexuality in the military would endanger the life and health of military personnel by the increased exposure to sexually transmitted diseases and by enhanced danger of tainted blood in battlefield conditions.

According to the 2007 Pew Forum survey, only twenty-six percent of Evangelicals believe homosexuality should be accepted by society, while fifty percent of all Americans support acceptance of homosexuality. This shows that Evangelicals are significantly more opposed to the homosexual lifestyle in comparison to Americans in general.

Finally, when it comes to the ordination of homosexuals, Evangelicals have rarely considered the matter. The only SBC resolution that dealt with the subject was passed in 1976 and prohibition of the ordination of gays was a side note in the resolution. There has been no other resolution that has even mentioned homosexual ordination following this resolution. These obstacles were and still are too large for Evangelicals to foreseeably reconcile homosexuality and ministry.

While the Civil Rights Movement and the Women’s Rights Movement divided the Mainliners and Evangelicals, the Gay Rights Movement has created even deeper divisions between the two. Even from the Gay Rights Movement’s beginnings, Mainline churches were supportive of homosexuals and pushed for equal rights, even if Mainliners did not agree with gays and lesbians’ sexual lifestyles. Evangelicals, on the other hand,
expressed their convictions of the sinful nature of homosexuals and the negative influence of homosexuality on American society. Currently, the position taken by Mainline churches is seemingly in line with the prevailing view of the nation, with the repeal of “Don’t Ask, Don’t Tell” and the increasing number of states allowing same-sex marriage. Also, as the data from the Pew Survey have shown, Mainline church members go beyond the average American in their acceptance of homosexuality.  

Conclusion

Although recent historical studies have emphasized the key role played by Evangelicals in the rise of political and social conservatism in the United States, when it comes to matters of civil rights and social justice – be they based on race, gender, or sexual orientation – Mainline churches have played a significant role and continue to do so. During the Civil Rights Movement, Mainline churches impacted American culture more than Evangelicals because they rallied support for the movement and actively participated in it, even allowing for the breaking of laws if they could help another person. Mainliners called for the government to enact legislation and actively supported the laws after they were passed. The Mainline churches did not wait for the populace to become more accepting of civil rights, but instead preceded the American people in calling for the equality of African Americans. Although Mainline churches largely implemented changes after the Feminist Movement began, most Mainline Protestants embraced the gifts and callings of its women and supported the Equal Rights Amendment and the rights of all women, while Evangelicals fought against such changes and sought to prevent the ERA from passing. During the Gay Rights Movement, Mainline churches did not always agree with homosexuality, but they have led the charge for reforms outside of the church and within. Most Mainline denominations eventually ordained homosexuals, which has demonstrated their commitment to equality. Many of the Mainline Protestants’ current views on homosexuality are more in line with what seems to be the prevailing mood of the nation. Mainliners likely will continue to support gay rights into the foreseeable future, but Evangelicals are unlikely to change their stance due to their commitment to the literal interpretation of scripture.

From the mid-twentieth century to the present, the views that the Mainline churches have promoted dealing with civil rights and social justice have become those of the majority in America. By promoting these ideals, Mainliners have worked to create a better, more accepting America. Through all of this, Mainline Protestantism has remained an active force in American society, lively and committed to serving God, their members, and the world.

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The Devils of Cultural Conflict in Louise Erdrich’s “Saint Marie”

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ABSTRACT
In this paper, I examine Louise Erdrich's short story “Saint Marie (1934)” excerpted from her novel Love Medicine. The narrative, told from the perspective of Marie Lazarre, a young woman of mixed Chippewa Native American and “white” Anglo-American heritage, details the events of her time at the Sacred Heart Convent under the strict tutelage of Sister Leopolda where Marie undergoes severe physical and emotional abuse at the hand of the seemingly sadistic nun. I argue that Marie's central conflict with Sister Leopolda, seen through a post-colonial lens, represents the conflict between the Anglo-American (Christian) colonizers' and the Native American, or colonized, ways of life. This is demonstrated by an intermingling of Chippewa and European motifs and symbols, including fairy tale motifs, allusions to Christian practice and iconography, and Chippewa folklore. Specifically, I will show how Marie's embodiment of double consciousness in this story demonstrates this tension between cultures by the contrast and comparison of imagery alluding to the perversion of Christian sacraments and Algonquian legends of Windigo possession.

Louise Erdrich’s short story “Saint Marie (1934),” from her novel Love Medicine, begins with young Marie Lazarre, a girl of mixed Chippewa Native American and “white” Anglo-American heritage, making her way up the hill to the Sacred Heart Convent where she has decided to become a nun. Because of her mixed background, Marie experiences an internal struggle as she attempts to define her individual and cultural identity, resulting in a longing for a sense of cultural belonging. In an attempt to compensate for this need, Marie casts aside her Chippewa life and embraces her “white” traits, reasoning that, “[the nuns] were not any lighter than me...because I didn’t have that much Indian blood” (Erdrich 3439). To gain acceptance into the community she deems superior—shown by her bestial description of her Chippewa family members who are so anxious to get into town that “we would have walked in on our hands and knees” (3439) — Marie decides to become a nun, as she admires the Sacred Heart’s Sister Leopolda, an older, severe Anglo-American woman. Marie states, “I wanted something like [Sister Leopolda] wore. Flowing black cotton. Her face was strapped in white bandages, and a sharp crest of starched white cardboard hung over her forehead like a glaring beak.
If possible, I wanted a bigger, longer, whiter beak than hers” (Erdrich 3442).

As the story progresses, a conflict ensues between Marie and Sister Leopolda which represents an important tension between cultures. Marie shifts from acting in a manner that postcolonial critics define as mimicry, or “imitating the dress, behavior, speech, and lifestyle of the colonizers” to a much more conflicted attitude towards Sister Leopolda. This change signifies her eventual embodiment of double consciousness, which according to Lois Tyson, is “a consciousness or a way of perceiving the world which is divided between two antagonistic cultures: that of the colonizer and that of the indigenous community” (Tyson 421-7). In this way, the central conflict with Sister Leopolda can be seen through a postcolonial lens as a conflict between the Anglo-American (Christian) colonizer and the Native, or colonized, ways of life. This tension is demonstrated by an intermingling of Chippewa and European motifs and symbols, including fairy tale motifs, allusions to Christian practice and iconography, and Chippewa folklore.

With this blending and contrasting of cultural and religious principles, it makes sense that Marie’s narrative would include a fusion of elements from both her Chippewa Native American and Anglo-American backgrounds. This point is stressed by Karla Sanders in her article “A Healthy Balance”:

Erdrich’s effort to offer seemingly dichotomous ideas or planes simultaneously does not mean that her fiction is without purpose or is contradictory. Instead, this inclusiveness, this multiplicity, depicts the complex nature of what it means to be both an American and a Native American, to be schooled in both Catholicism and tribal beliefs. (130)

Consequently, in many ways, Marie’s narrative is much like a distorted Cinderella tale. Searching for her true identity, the heroine enters slave-like conditions of the taskmaster mother figure. She is made to enter through the back door, sleep behind the stove, and is fed “cornmeal mush” (Erdrich 3444). She exhibits many of the conflicted psychological responses of an abused child who is promised love one moment then beaten another:1 “I wanted Sister Leopolda’s heart. And here was the thing: sometimes I wanted her heart in love and admiration. Sometimes. And sometimes I wanted her heart to roast on a black stick” (3441). In line with the fairy tale imagery, Marie even attempts to push Sister Leopolda in a Gretel-esque manner head-long into the stove in a fit of rage. As the symbolic representation of colonized consciousness, Marie’s love/hate relationship with Sister Leopolda mimics the love/hate relationship of the colonized “daughter” and the colonizer “parent.” Part of Marie resents the imposed authority and righteousness of Sister Leopolda, another part feels inferior, and yet another part recognizes that they are similar in their ambitiousness.3

The Christian symbolism in the story, representing the “colonized” part of Marie’s consciousness, is expected in a story of a convent girl. However, this story motif is unexpectedly perverted in order to subvert the traditional moral claims of Christianity. Firstly, Marie’s extravagant dream of becoming sainted exists for all the wrong reasons, as her stubbornness and blind ambition appear stronger than her Christian faith. At the beginning of the text, her lacking conviction is demonstrated through the ancillary nature of her mention of the Church, as if it is an afterthought compared to the excitement of coming into town: “I had the mail-order Catholic soul you get in a girl raised out in the bush, whose only thought is getting into town. For Sunday Mass is the only time my father brought his children in except for school…we

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1 In the beginning of the story, Sister Leopolda claims the difference between the devil and herself is that, “He wants you. I give you love” (Erdrich 3441). However, these soothing remarks come after beating Marie over the head with a pole and locking her in a closet. Similarly, Sister Leopolda calls Marie “dear one” with tears in her eyes after holding her down on the ground with her foot and scalding her with boiling water (3444).

2 This incident likens to the 1812 Hansel & Gretel fairytale published by Jacob and Wilhelm Grimm (also known as the “Brothers Grimm”) in which Hansel and his sister Gretel get lost in the woods after their parents abandon them due to fear of starvation. They happen upon a witch’s house, disguised as a house made of candy, whereupon they are trapped and almost eaten. However, Gretel tricks the witch into leaping into the oven and pushes her inside, shutting the door and burning her to death (“Hansel and Gretel”).

3 This relationship is further exemplified in Erdrich’s Tracks, as Marie is revealed to be Sister Leopolda’s unacknowledged daughter (Winter 48).
just craved going to the store….And of course we went to church” (Erdrich 3439). Instead of a fervent love of God, her daydreams are consumed by an image of herself reborn as a golden statue of the Virgin Mary with “ruby lips,” “diamond tipped” nipples, and toenails of “little pink ocean shells, which [the nuns] would have to stoop down off their high horse to kiss” (3439). This idolatrous vision is a perversion of traditional Catholic images of sanctity and glorification and appears in stark contrast to the simple lives of the nuns of the Sacred Heart Convent who do not “get along elsewhere” (Erdrich 3440).

In addition, throughout the text there are several allusions to the holy sacraments, made unholy in their application. Marie compares her “lure” to faith to the “bush Indians who stole the holy black hat of a Jesuit and swallowed little scraps of it to cure their fevers” (Erdrich 3440). However, in this dark parody of a holy communion, instead of receiving the healing power of Christ, the Native Americans discover the hat contains smallpox. This metaphor is representative of Marie’s eventual disillusionment with the Church; she states that she “had confidence” that “the black hem of [Sister Leopolda’s] garment would help me rise,” but later discovers that the Sister’s influence leads her further into a place of doubt rather than a place of accomplished transcendence (3440).

Marie’s initiation in the Christian faith can also be interpreted as a blasphemous baptism. Sister Leopolda tricks Marie into lying on the floor to retrieve a cup lost underneath the stove, holds her still by stepping on the girl’s neck, and repeatedly pours boiling water over Marie’s back. Instead of the traditional community welcoming ceremony of baptism, Marie is welcomed by abuse at the hands of the Anglo-American Sister. Then, in a seemingly abrupt turn of events, the Sister rubs salve on Marie’s blistered back in an imitation of the use of anointing oils in Christian rites. In her chapter on Louise Erdrich’s Love Medicine: A Casebook, Helen Jaskoski maintains that this discrepant treatment of Marie by Sister Leopolda represents the contradictory aims of the Christian colonizer who seeks—to maintain power over colonized peoples while at the same time claiming to elevate them as “brothers [or sisters] of Christ” (28). While Sister Leopolda claims to “elevate” Marie to the level of the other nuns at the Sacred Heart Convent with this treatment, she is perverting the traditional Christian sacrament by physically abusing Marie and therefore maintaining a physical and mental hold over her.

The references to traditional Chippewa folklore in “Sister Marie” contrast and parallel the Christian allusions; the most prominent of the former is Windigo folklore, which further conveys the principal theme of consumption. According to various Algonquian legends, the Windigo is a giant, cannibalistic monster with a heart of ice, symbolic of winter starvation, that can devour whole villages. Similarly related to this myth is the culture-bound disorder called “Windigo psychosis.” According to legend, a person becomes afflicted with Windigo sickness when he or she is possessed by the monster, causing an irresistible desire to consume human flesh. Individuals who are subject to this possession demonstrate signs of gluttony, marked by an insatiable appetite for fat and

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4 Marie’s comparison of herself to the Virgin Mary is not surprising due to the similarity between the names Marie and Mary, a fact which Erdrich was no doubt aware of when choosing the name for her character.

5 From Revelation: “And there appeared a great wonder in heaven; a woman clothed with the sun, and the moon under her feet, and upon her head a crown of twelve stars….And she brought forth a man child, who was to rule all nations with a rod of iron: and her child was caught up onto God, and to his throne” (New King James Version, Rev. 12:1-2, 5).

6 Jaskoski suggests that this pose evokes the “popular representation of the Virgin Mary in which the Madonna is shown standing with her foot on the neck of a serpent representing Satan” (30).

7 The Chippewa, also known as Ojibwe, Native Americans are Anishinaabe-speaking peoples, a branch of the Algonquian language family (Barnouw 120).

8 Also called the Wendigo, Witigo, Windago, and Witiko, among other names.

9 See Waldram, Colombo, and Ross and Lichtenstein.

10 A culture-bound disorder is defined as a combination of mental and physical symptoms that are considered to be a recognizable disease only within a specific society or culture. A list of the most common culture-bound conditions can be found in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders or DSM-IV (898-901).
grease (Colombo 121). While the classification of this sickness as a “real” disease is a controversial subject, there has been enough documentation of phenomena similar to that of Windigo psychosis in Algonquian communities to attract interest and in-depth study by outside psychologists and anthropologists.

In many ways, Marie can be interpreted as being afflicted with Windigo psychosis. For one, she certainly exhibits the symptom of a ravenous appetite for fat, lusting after the priest’s cheese in the larder: “It was the cheese that got to me. When I saw it my stomach hollowed. My tongue dripped. I loved that goat-milk cheese better than anything I’d ever ate. I stared at it. The rich curve in the buttery cloth” (Erdrich 3442). Also, Sister Leopolda often refers to Marie as “cold.” Perhaps it is a devil with a heart of ice (the Windigo), not the fiery Satan of Sister Leopolda’s Christian tradition, that is the “Dark One” who Marie feels moving in and out of her heart and who the nun believes wants Marie “most of all” (3440). At one point, Marie comments that Sister Leopolda “knew as much about [the Devil] as my grandma, who called him by other names” (3440). This construal of the Windigo-as-Devil would fit, as the Dark One seems to have a special connection with Marie’s Native American heritage, coming to her in the night with “whispered conversation in the language of the bush,” telling her “things he never told anyone but Indians” (3440). In fact, the earliest known reference to the Windigo occurs in the missionary Paul le Jeun’s 1636 Relation, where he associates Windigo cannibalism with demonic possession. Furthermore, in the first English reference to the Windigo, James Isham’s Observations and Notes 1743-1749, he offers the definition “the Devil” for the Algonquian term “Whit te co” (Colombo 7-9).

Further evidence of Marie’s possession is suggested with the knowledge that one of the most common cures for Windigo possession involves pouring boiling water or tallow on or into the afflicted (Colombo 120). Marie’s scalding takes on new meaning as Leopolda calls to her from above, “‘You’re cold. There is a wicked ice forming in your blood…the beast watches me out of your eyes sometimes. Cold.’…[Marie] heard the water as it came… ‘To warm your cold ash heart,’ she said” (Erdrich 3443). The boiling water episode also parallels a number of other Windigo tales, as it is said that moving kettles foreshadow the appearance of the creature (Barnouw 120, 122). In the story, Marie hears “the urgent scrape of metal” from the top of the stove as Sister Leopolda removes the kettle, which the girl recognizes as an ill omen of the pain that is to come (Erdrich 3443). Furthermore, it also mentioned in Algonquian folklore that another method of ridding one of the monster is through severe beating (Teicher 10), not unlike Sister Leopolda’s repetitive cracking of her window-pole over the girl’s head and Marie’s statement that “[the Dark One] was afraid of her sharp pole” (3441).

Interestingly, another symptom commonly associated with Windigo sickness, a paradoxical physical gauntness or anorexia along with the starved cannibalistic hunger (Teicher 6), is ascribed, not to Marie, but to the skeletal and spiritually cannibalistic Sister Leopolda:

Her fingers were like a bundle of broom straws, so thin and dry, but the strength of them was unnatural. I couldn’t have tugged loose if she was leading me into rooms of white-hot coal. Her strength was a kind of perverse miracle, for she got it from fasting herself thin. Because of this hunger practice her lips were a wounded brown and her skin deadly pale. Her eye sockets were two deep lash less hollows in a taut skull. (Erdrich 3442)

Although Sister Leopolda repeatedly calls Marie “cold,” the nun is also described in the narrative as having eyes that are “cold” (3443). The Sister’s spiritual cannibalism manifests itself in her mania for total control of the children she teaches, especially in the case of Marie. Marie also relates Sister Leopolda’s hold on her in terms of a possession, similar to that of the Dark One: “I saw that she had tracked the Dark One to my heart and flushed him out into the open. So now
my heart was an empty nest where she could lurk” (3441). In this way, Sister Leopolda uses a combination of tactics, including fear and promises of love, to control and consume Marie; eventually, Marie feels that she “had no inside voice, nothing to direct [her], no darkness, no Marie” (3444). Instead of receiving the nurturing love and acceptance she desperately desires, Marie undergoes a further loss of self at the hands of the seemingly sadistic Sister Leopolda.

However, it is not until the end of the story that Marie truly experiences total alienation. The climax of Marie and Sister Leopolda’s battle for supremacy occurs when the two engage in a heated physical struggle in front of an oven where, after Marie attempts to push Leopolda into the oven in a fit of rage, the Sister retaliates and stabs Marie through the hand with a bread fork. Later, this wound is falsely labeled by the other nuns as the stigmata, or the physical manifestation of Christ’s wounds. In Marie’s smugness that Sister Leopolda has inadvertently caused her dreams of sainthood to come true, she is suddenly struck with a feeling of overwhelming pity for the Sister, seeing her “kneeling there. Leopolda with her soul like a rubber over-boot. With her face of a starved rat. With the desperate eyes drowning in the deep wells of her wrongness. There would be no one else after me. And I would leave. I saw Leopolda kneeling within the shambles of her love” (Erdrich 3447). Marie realizes in that moment that they are the same, reluctantly understanding Leopolda’s own pathetic need for love is like her own. Like the legend of the Windigo, when the ice is chipped away from the monster and “in the center, there was a regular man,” the battle in front of the furnace reduces Sister Leopolda to a “regular” human underneath the hard exterior in Marie’s eyes (Barnouw 122).

However, Marie is not comforted in this knowledge of mutual humanity. Her ensuing despair stems from her realization that in her quest to “win” she has lost her chance at the acceptance she so desperately desired. By warring with Sister Leopolda, she has actually been warring with the colonizer part of herself. Now, in her new falsified sainthood, she is even further alienated. This final recognition, combined with the contrasting European and Chippewa elements in the story, symbolize the truth that there is no real victory in the cultural conflict between colonizer and Native—only loss.
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Mary Wollstonecraft as Anti-Manic Pixie Dream Girl: Sexuality, Melancholia, and the Death Sequence in Godwin’s Memoirs

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ABSTRACT
During the nineteenth century, William Godwin’s contemporaries criticized his Memoirs of the Author of A Vindication of the Rights of Woman, a biography chronicling the life of his late wife Mary Wollstonecraft, as an insult to Wollstonecraft’s memory. Godwin’s biography, illustrating Wollstonecraft’s scandalous affairs, suicide attempts, and brutal death, caused some readers to question why Godwin would release such disreputable information. However, Godwin’s inclusion of these events in Wollstonecraft’s life serves a purpose. Eighteenth-century women’s conduct books portray the “proper lady” as a sexually subdued, weak, and subservient woman, a description that anticipates a modern trope critic that Nathan Rabin calls the “Manic Pixie Dream Girl.” Both the “proper lady” and “Manic Pixie Dream Girl” emphasize a lack of sexual power and agency, asserting that the ideal woman must strive to satisfy her male counterpart rather than pursue independent goals. Yet, by emphasizing Wollstonecraft’s sexual liberation, emotional instability, and imperfection, Godwin subverts the unattainable feminine ideal—constructed in eighteenth-century conduct books—that continues to haunt even modern interpretations.

In the 1798 Memoirs of the Author of A Vindication of the Rights of Woman, William Godwin describes the unsettling details of Mary Wollstonecraft’s life, including her suspected affair with Henry Fuseli, illegitimate child with Gilbert Imlay, suicide attempts, and agonizing death. As a result, Godwin’s biography subverts the female archetype in eighteenth-century women’s conduct books that portray the ideal woman as sexually inhibited and subservient to her husband. Godwin’s Memoirs argues that this eighteenth-century archetype suppressed socially unacceptable emotions and experiences, thus inhibiting a woman’s potential development. In spite of Godwin’s critique, the ideal woman of eighteenth-century conduct books continued to thrive in alternate uses through the nineteenth and into the twenty-first centuries; her most recent incarnation is the modern Manic Pixie Dream Girl of contemporary independent film fame. The Manic Pixie Dream Girl—a trope defined by critic Nathan Rabin—is a quirky, sexually subdued love interest meant to bring happiness to her male counterpart. In the pages that follow, I discuss the similarities between the ideal woman of eighteenth-century conduct books and the Manic Pixie Dream Girl, and then I show how Godwin’s biography
Defoe, the eighteenth-century ideal woman lacks individuality, sexual desires, and qualities that might evoke controversy, which are expectations realized in the modern Manic Pixie Dream Girl trope.

Film critic Nathan Rabin coined the term “Manic Pixie Dream Girl” (MPDG) in his 2007 review of *Elizabethtown*: “The Manic Pixie Dream Girl exists solely in the fevered imaginations of sensitive writer-directors to teach broodingly soulful young men to embrace life and its infinite mysteries and adventures.” *Elizabethtown*’s MPDG is Claire, who exhibits her complete devotion to Drew—the brooding male lead—by “keeping [him] awake and giddy during an all-night cell-phone verbal duet” and “sending him on an intricately mapped-out road trip” (Rabin 4). The model Manic Pixie Dream Girl, Claire is a stock female character whose sole purpose is to help the male protagonist find himself. Throughout the film, Claire tries to assist Drew with platitudes like “You want to be really great? Then have the courage to fail big and stick around. Make 'em wonder why you're still smiling. That's true greatness to me. But don’t listen to me, I'm a Claire.” Vaguely self-deprecating, charismatic, and concerned with helping her brooding male, Claire lacks personal identity, goals, and sexual desires.

An earlier example of the Manic Pixie Dream Girl is Holly Golightly from the film *Breakfast at Tiffany’s* (1961). According to film critics Rabin, Noel Murray, Amelie Gillette, Donna Bowman, Steven Hyden, and Leonard Pierce, in Truman Capote’s 1958 novel, Holly Golightly is a “sexually adventurous woman who jumps from man to man, living off the gifts she extorts from them, and changing casually with the seasons.” The film adaptation, unlike Capote’s novel, captures the Manic Pixie ideal. Film Holly is “a chaste party girl who shares her opinions easily, but keeps her affections to herself (and her cat).” Holly’s virginal innocence “charms writer George Peppard to such an extent that he’s able to give up the rich older woman who helps subsidize his work, and instead offer
his devotion to his erratic dream woman...” (Rabin et al.). The fictional, romantic success of Hepburn’s Holly Golightly suggests the Manic Pixie is endearing. Although the Manic Pixie Dream Girl may seem to be a harmless, fictional model, feminist critics Michelle Orange and Laurie Penny fear that she is destructive to real women.

In This is Running for Your Life, Orange devotes a chapter solely to analyzing the MPDG, which she calls “the banal absence—of stability, of ambition, of selfhood, of sexual threat, of skirts that pass midthigh” and a “fun-house reflection of millennial masculinity in crisis” (Orange 50). The Manic Pixie Dream Girl suppresses feminine power by glorifying the overly-simplistic woman meant to help the brooding male discover his identity. The trope deprives the woman of self-perpetuating motivations and reinforces compulsory, conventional femininity à la Holly Golightly. I concur with Orange that the MPDG is more than a whimsical, recurring trope and is actually a reductive model of femininity.

In her article “I Was a Manic Pixie Dream Girl,” Laurie Penny claims the ideal has practical consequences because “fiction creates real life,” and “[w]omen behave in ways that they find sanctioned in stories written by men” (Penny). If the Manic Pixie Dream Girl continues as an ideal female archetype, Penny fears young girls will be driven to enact the trope—suppressing identity, sexuality, and personal objectives.

Recently, Rabin apologized for “coining the phrase ‘Manic Pixie Dream Girl,’” saying he “created the phrase to call out cultural sexism and to make it harder for male writers to posit reductive, condescending male fantasies of ideal women as realistic characters.” Rabin challenges writers to “create better, more nuanced and multidimensional female characters” with “complicated emotions and total autonomy” (“I’m sorry for coining the phrase ‘Manic Pixie Dream Girl.’”). Rabin’s solution—that the trope should be eliminated from discourse—fails to acknowledge that discussion of the term has created awareness and criticism of such patriarchal standards of femininity. As demonstrated by the eighteenth-century proper lady, the idealization of submissive women did not begin with the Manic Pixie, and its increased prevalence in cultural discussion is not an indulgence in the trope. Indeed, one should look to and at the stereotype, its history, and its implications.

Laurie Penny suggests another answer to the question about the trope’s enduring popularity, calling for the “opening of space in the collective imagination for women who have not been permitted such space before, for women who don’t exist to please, to delight, to attract men, for women who have more on our minds” (Penny). Her solution to the Manic Pixie trope recalls Godwin’s portrayal of Wollstonecraft, which focuses on his wife’s “sexual relationships, suicide attempts, and other unorthodox life choices” (Monsam 127). However, critics of Memoirs, at the time it was published, viewed Godwin’s biography as offensive to Wollstonecraft’s memory.

Early critics of Godwin’s Memoirs questioned the writer’s motivation for portraying his wife as sexually deviant and depressed. Mitzi Myers writes,

Many who admired Wollstonecraft were also offended and, like some modern biographers, puzzled at Godwin’s motivation for such candor. [Robert] Southey expressed his disgust at Godwin’s “want of all feeling in stripping his dead wife naked,” and another friend jotted verses which conclude, “mourn’d by Godwin with a heart of stone.” (Myers 302)

Critics like Southey rejected Godwin’s account of Wollstonecraft’s personal traumas and failings. But, Godwin emphasizes Wollstonecraft’s sexuality and intimate relationships, illustrates her melancholia, and depicts her death in great detail to portray his wife as a woman who transcends the reductive and anti-feminist ideals of the eighteenth-century equivalent of the Manic Pixie Dream Girl.
The image contains a text excerpt that discusses Wollstonecraft’s intimate relationships with Henry Fuseli and Godwin, highlighting Godwin’s motivations for including these topics in his biography. The text analyzes how Godwin portrays Wollstonecraft’s relationships, emphasizing her intellectualism, sensibility, and melancholia. It also explores the nature of her relationship with Fuseli, including her self-defined identity, and the transition from platonic to romantic. The text further examines Godwin’s perspective on marriage and his treatment of Wollstonecraft’s relationship with Fuseli, contrasting with his depiction of their first meeting. The excerpt concludes with Godwin’s rational view of marriage, as described in “Political Justice,” and his analytical storytelling in the biography.
Wollstonecraft’s Melancholia

In Memoirs, William Godwin continues his seemingly unflattering portrayal of his late wife by illustrating Wollstonecraft’s battle with melancholia and her subsequent suicide attempts. Instead of perceiving this depressive state as tarnishing her reputation or as an unveiling of precious, personal issues, Godwin utilizes the melancholia to illustrate why he fell in love with Wollstonecraft; he reads her prose and is inspired by the intellectualism and sensibility she displays in her relationships with Fuseli and Imlay. Wollstonecraft’s experiences with melancholia and her ability to learn from them distinguish her from the eighteenth-century conduct books’ ideal woman and the contemporary Manic Pixie Dream Girl.

In Letters Written during a Short Residence in Sweden, Norway, and Denmark, Wollstonecraft describes the landscape as the cure for depression:

I was alone, till some involuntary sympathetic emotion...made me feel that I was still a part of a mighty whole, from which I could not sever myself—not, perhaps, for the reflection has been carried very far, by snapping the thread of an existence which loses its charms in proportion as the cruel experience of life stops or poisons the current of the heart. (17)

The “beauty of the northern summer’s evening and night” evoke in her an “involuntary sympathetic emotion,” suggesting travel and the landscape help heal her melancholic, suicidal tendencies (16). Wollstonecraft articulates that it is not other people who ultimately heal her; instead, she is saved by the absence of others, the powers of the picturesque landscape, and the pursuit of self-identification.
It is *Letters* that finally attracts Godwin to Wollstonecraft, showing his affinity for the independent, sensitive, and intelligent female.

Godwin explains that he falls in love with Wollstonecraft, not because she is virginal or manic but rather because she is melancholic. In *Memoirs*, Godwin describes Wollstonecraft’s *Letters Written during a Short Residence in Sweden, Norway, and Denmark*:

If ever there was a book calculated to make a man in love with its author, this appears to me to be the book. She speaks of her sorrows, in a way that fills us with melancholy, and dissolves us in tenderness, at the same time that she displays a genius which commands all our admiration. (95)

Godwin stresses Wollstonecraft’s sensibility, power, and intelligence—"a genius which commands all our admiration." Instead of criticizing her melancholic experience, he describes it as a commendable trait and a sign of intelligence. It is also surprising that, in *Memoirs*, Godwin does not characterize traditional expectations of eighteenth-century women as solely feminine, as medical experts of Godwin’s time believed that possessing sensibility and intellectualism resulted in male melancholia (95).

In eighteenth-century Britain, medical experts believed melancholia resulted from the "coexistence of great rational intelligence and refined sensibility"—rationality being innate to men and sensibility naturally instilled in women. Even success in the literary field was “associated with male melancholia” (Kautz 38). Godwin elaborates on Wollstonecraft’s melancholia and intelligence, expressing her power to transcend the arbitrary confines of gender and medical categorization established by physician and writer William Buchan.

Buchan, in his 1769 health guide *Domestic Medicine*, “associates melancholia with men and masculine activities, and hysteria with women and feminine activities” (38). The OED defines “hysteria” as “a functional disturbance of the nervous system...usually attended with emotional disturbances and enfeeblement or perversion of the moral and intellectual faculties” (“hysteria”). Hysteria is characterized by compromised intelligence and overwhelming sensibility; Godwin asserts that Wollstonecraft’s strength is her ability to overcome such obstacles and to attain both intelligence and sensibility.

Explaining his intentions for including Wollstonecraft’s melancholic travels in *Memoirs*, Godwin writes, “Depicting her intelligent and perceptive interactions with the landscape is one way about making her mind’s functioning visible.” He also underscores the “great emotive and mental capabilities that [Wollstonecraft] possessed” (39). By continuing to note Wollstonecraft’s intelligence and sensibility, Godwin establishes Wollstonecraft as exceeding the confines of traditional gender stereotypes.

Godwin’s candid portrayal of Mary Wollstonecraft’s melancholia and suicidal tendencies proved abusive to her reputation. According to Ildiko Csengei, “After the publication of the Memoirs, Wollstonecraft’s work was largely ignored and her name only invoked as a warning until the end of the following century. Her reputation suffered intensely from what the public saw as tasteless exposure” (492). Yet Godwin was trying to liberate Wollstonecraft; in *Memoirs*, he emphasizes intellectualism and the female capability to experience melancholia instead of hysteria to challenge the reductive perception of female intellect. Godwin’s Wollstonecraft is capable of both stereotypical feminine sensibility and male intellectualism, though admittedly, he romanticizes the notion of the empowered woman of influence and education who is still tender-hearted. Godwin also stresses Wollstonecraft’s depression to show how she overcomes such severe emotions through her observations and writings.

Throughout *Memoirs*, Godwin emphasizes Wollstonecraft’s ability to conquer obstacles. Unlike her "timid and irresolute" friend Fanny Blood, Godwin says Wollstonecraft has a “firmness of mind, an
This performance of Manic Pixie Dream Girl characteristics by a mentally-impaired woman exhibits the possible real-life consequences of the trope. As Penny asserts, the trope exists in the real world because “fiction creates real life.” Vivian’s decision to perform the role of the Manic Pixie Dream Girl demonstrates her need to be socially acceptable by resembling the feminine ideal. Just as nineteenth-century critics viewed Godwin’s portrayal of Wollstonecraft’s own struggles with mental illness as insulting, Vivian fears the same kind of critical judgment. The Manic Pixie Dream Girl trope becomes a coping mechanism to hide Vivian’s Asperger’s. As Jack reveals with this study, the mania of the Manic Pixie Dream Girl that Vivian adopts works to reinforce the traditional gender expectations that Godwin’s portrayal of Wollstonecraft attempts to subvert.

Because she rejects feminized hysteria and opts for bouts of melancholia and happiness, Wollstonecraft becomes more than a one-dimensional woman defined by her mental state; she transitions between sadness and happiness, but she does so with good reason. She suffers trauma and pain. She contemplates death, and the extended death sequence William Godwin describes in Memoirs is his final attempt at humanizing Wollstonecraft.

Wollstonecraft’s Death

Godwin’s final section of Memoirs chronicles Wollstonecraft’s prolonged death sequence after the birth of Mary Godwin—later to become Frankenstein author Mary Shelley. Angela Monsam compares Godwin’s biographical approach to Wollstonecraft to a dissection, arguing that Godwin highlights the deterioration of Wollstonecraft’s health to preserve her in an act of “literary embalming” (117).

While Godwin uses unaffected language to describe Wollstonecraft, mimicking medical analysis, he also uses this language to situate his late wife on a plane of reality where she
is not idolized or pristine. In effect, Godwin lays out Wollstonecraft’s death factually much like the open casket at a wake—open to viewers in its morbidity—to solidify her existence, to humanize her, and to dispel the idea of Wollstonecraft as a damsel in distress who can be saved by her dominant, masculine counterpart.

Observing the deterioration of Wollstonecraft’s condition after giving birth, Godwin writes, “Every muscle of the body trembled, the teeth chattered, and the bed shook under her...She told me, after it was over, that it had been a struggle between life and death, and that she had been more than once...at the point of expiring.” His observation of Wollstonecraft may seem cold and unfeeling due to the wording of “the body” and “the teeth,” instead of “[her] body” and “[her] teeth,” but Godwin’s description also emphasizes how Wollstonecraft’s mind is in competition with her body (115). In this instance, Wollstonecraft’s existence is not dependent on her body and her health.

Wollstonecraft’s body “tremble[s].” and because trembling has feminine connotations, one could consider Godwin’s description as indicative of the stereotypical feeble female. However, Godwin counters his depiction when he adds, “I intreated her to recover; I dwelt with trembled fondness on every favourable circumstance; and, as far as it was possible in so dreadful a situation, she, by her smiles and kind speeches, rewarded my affection” (116). Godwin trembles too, and he suffers as Wollstonecraft does. If trembling is feminine, Godwin projects this femininity on himself, which demonstrates his views of fluctuating gender roles.

Wollstonecraft’s extended death sequence contrasts with the Manic Pixie Dream Girl because the Manic Pixie Dream Girl does not exist outside of the troubled male’s fantasy, and she exists only as long as he desires. The male chooses to prolong the life of the Manic Pixie Dream Girl, and in Memoirs, that is the one thing Godwin cannot do—save Mary Wollstonecraft from a death caused by medical malpractice. While it is true that Godwin can not save Wollstonecraft because she is not fictional, it must also be remembered that his gruesome depiction of her death contradicts the trope of the proper lady and the Manic Pixie. The ultimate failing of the Manic Pixie Dream Girl is that she cannot live without a strong male. Evidenced by Wollstonecraft’s ability to move from one unfortunate relationship to the next and die despite Godwin’s desire for her to live, Wollstonecraft both exists without the first object of her affection and dies in the presence of her great love; severance and death act as consequences of being a real woman.

The Manic Pixie Dream Girl—a child-like, male-oriented fantasy—contrasts with Godwin’s portrayal of his late wife, Mary Wollstonecraft. His controversial choices to illustrate her life underscore these important differences, though Godwin suffered harsh criticism and backlash for these authorial decisions. As evidenced by Godwin’s love of Wollstonecraft’s melancholic writings and his acceptance of her various affairs, what most observers considered as abusive and cruel toward his dead wife, Godwin sees as liberating and progressive. Godwin discusses Mary’s relationships with Fuseli and Imlay to express her adult sexuality and to provide context for her melancholia. Then, Godwin reveals the extent of Wollstonecraft’s melancholia to reinforce her role as a depressed intellectual transcending the gender binaries of eighteenth-century medicine. Finally, Godwin refutes the idea that Wollstonecraft is his dream—that she can exist as long as he wishes. Instead, he chronicles her death in detail, noting her role in reality and his inability to rescue her.

What can be derived from the contrast between Godwin’s portrayal of Mary Wollstonecraft and the female standards idealized by eighteenth-century conduct books and the Manic Pixie Dream Girl trope is that liberation is not synonymous with the preservation of an untarnished reputation. Hiding sexual deviances, depressive states, and perhaps mortifying experiences condones unrealistic expectations of women, thus echoing...
the sentiments of eighteenth-century conduct books and modern portrayals of femininity. Encouraging a woman to be perfect deprives her of identity, as she suppresses the characteristics which distinguish her from the “proper” woman.

The Manic Pixie Dream Girl trope is without dimension; the effects of this idealization for modern women are potentially devastating. Because the similarities between the eighteenth-century proper lady and the Manic Pixie Dream Girl are so striking, the lasting quality of this ideal of the perfect, overly-simplified woman must be addressed. One does so by following Godwin’s example—examining the entirety of the individual, rather than hiding the aspects and actions that are not societally palatable or acceptable. As William Godwin adds to the complexity of his late wife, Mary Wollstonecraft, it is important to interpret the actions of others and contemplate their so-called faults to combat the over-simplification of women in both reality and fiction.

Works Cited


Bowed Seven-Stringed Instruments in the Baroque and Classical Eras: Works for Viola da Gamba and Baryton by Marin Marais and Franz Joseph Haydn

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ABSTRACT
The violin, viola, and cello of the modern orchestra are familiar to both musicians and music lovers alike, though few audience members and musicians are aware of the exciting body of repertoire that exists for instruments that were once contemporaries of those familiar orchestral instruments, namely the viola da gamba and the baryton. The viola da gamba was the foremost string instrument of the Baroque period, thanks in large part to masterworks composed for the instrument by leading composers such as Marin Marais. The baryton formed an essential part of 125 chamber works by Franz Joseph Haydn, one of the most famous composers of the Classical era. By understanding the construction and playing techniques of the viola da gamba and the baryton, as well as the lives and works of the composers who wrote for them, performers and listeners can rediscover a forgotten repertoire of musical gems that were composed for these otherwise antiquated instruments. Modern day musicians who wish to perform or study this music must have a detailed grasp of the historical context of both the lives of these composers as well as the genesis of these works composed for the viola da gamba and the baryton.

Marin Marais and the Bass Viola da Gamba

The viola da gamba is a family of instruments in various sizes and pitches, all of which are played on the lap or between the legs, depending on the size of the instrument. Often, several sizes of the instrument play together as a group called a consort. A typical consort would include anywhere from three to six players, and involve treble, tenor, and bass viola da gambas. The instrument features a fretted neck like a lute, and six or seven bowed strings. It is in fact Marin Marias who is given credit for adding the low pitched seventh string to the bass viola da gamba. Unlike a modern violin or cello, these instruments are bowed with an underhand bow grip. The viola da gamba existed before the violin and was the prevalent string from the early Renaissance era through the Baroque period, but declined in popularity in the 1700s due to the rise of the violin family (Gammie, 1989). The bass viola da gamba, which is the largest member of the family, has by far the most repertoire and is the instrument usually used for solo literature. The only survivor of the viola da gamba family found in the modern symphony orchestra is the double bass, whose body shape and
tuning are more related to the viola da gamba family than the violin family.

**A Biography of Marin Marais**

Marin Marais was born in Paris, France on May 31, 1656. He was the son of Vincent Marais and Catherine Bellanger. His father was a profitable Parisian shoemaker and his mother died during Marais’s infancy. In 1667, at age eleven, Marais entered the choir school of St. Germain-l’Auxerrois. Founded in the seventh century, St. Germain-l’Auxerrois is a Parisian church that had trained musicians for almost three hundred years by the time Marais enrolled as a student. His uncle Louis Marais, who was a vicar at the church, was mainly responsible for Marin’s enrollment. Marais was a student at the choir school from 1667 until 1672 (Gorce, Milliot, 2001).

During his time at St Germain-l’Auxerrois, Marais began his viola da gamba studies. Though Marais’s chosen instrument was the bass viola da gamba, he would become a well-known virtuoso upon all sizes of the gamba family. Marais’s first gamba teacher, François Chaperon, was the head of the choir school. Marais soon surpassed Chaperon, and was then tutored by the famous gambist Nicolas Hotman. Hotman was a Belgian composer and instrumentalist who had taught the most famous gambist of the day, Sainte-Colombe. After Marais left the choir school, it was arranged for him to study with Sainte-Colombe. Though a mysterious and reclusive figure, Sainte-Colombe was regarded as the greatest teacher of the viola da gamba in his day. Famously, Marais was dismissed after only six months of study with the master, as Sainte-Colombe believed Marais had surpassed him as a viol player (Slonimsky, Kuhn, McIntire 2001).

In 1675, at age nineteen, Marais was accepted into the Opera Orchestra of Paris. It was as a member of this ensemble that Marais met the composer and conductor of the Opera, Jean-Baptiste Lully, who was the most renowned composer and conductor in France. Lully was the music director of the Royal Court of Louis XIV, making the composer the most important figure in French musical life. Soon, Marais would become a composition student of the great composer. This position with the Opera Orchestra began Marais’s employment in the court of Louis XIV.

In 1679, Marais was appointed “viol player in ordinary to the King’s Chamber Music,” a position he held until the end of his life. By 1682, Marais had become famous throughout France, and beyond to the rest of Europe, as the greatest virtuoso of the viola da gamba. While at court, Marais’s duties included performance, composition, teaching, and conducting the opera orchestra (Gorce, Milliot, 2001). It is documented that Marais conducted Lully’s operas on several occasions, proving that he was highly respected in the musical climate.

Outside of his musical career, Marais married Catherine Damicourt in 1676. Their marriage produced nineteen children, several of whom became well-known viol players. Roland Marais and Vincent Marais are the most important of his progeny. Marais died in Paris, France on August 15, 1728 (Slonimsky, Kuhn, McIntire 2001).

**Marais’s Compositions and Notational System**

Marais was just as respected as a composer as he was as a performer. His most important published works are his five books of *Suites for viol and thoroughbass*. The books included solo pieces for a single viol, duets and trios for consorts of viols, and pieces for single viol with the composer’s realized thoroughbass. Due to the expense and time of typesetting, these books were published many years apart. The entire collection appeared over a period of thirty-nine years, with individual books being published in 1686, 1701, 1711, 1717, and 1725 (Teplow, 1986). These works are significant because they document the compositions of one of the greatest virtuosos of the viola da gamba, who happened to be taught composition by one of the greatest...
composers of his time. These works are also salient because each book contains pieces aimed at gamba players of varying levels. In each book, Marais has written movements for beginners as well as movements for very advanced gambists. Of great importance is the fact that Marais marked his music meticulously. He invented notation for expression markings as well as notation for advanced fingerings and bowings (Kinney, 1966). Each book starts with a preface that explains this notation along with any new additions to his notation system. Marais’s notational system shows the great care the composer took to clarify his ornamentation and provided the idiomatic and crucial fingerings he felt were necessary to perform his music.

It is important to note that Marais’s special notation system was specially engraved for use by a typesetter. This customized engraving and typesetting would have been both expensive and time consuming. The fact that Marais would wait years for this engraving is telling of the importance he placed on the interpretation of his music. This information from the composer gives the modern player unparalleled insight on how to appropriately perform these pieces three hundred years after their composition.

Some other important compositions by Marais are his Trios for flute, violin, and treble viol (1692), the bass viol solo La gamme (1723), his Symphonies for violin, viol, and harpsichord (1720-23), and his four operas: Alcide (1693), Ariane and Bacchus (1696), Alcione (1706), and Semele (1709).

The Suite its Relation to the Compositions of Marais

In its most general sense, the suite is an ordered set of instrumental dances intended to be performed in a single sitting. Throughout the evolution of the genre, the suite has been described by other musical terms. At best these terms help trace the evolution of the genre through function and nationality; at worst these terms serve to confuse the musicologist. These terms include sit, sett, lesson, ordre, sonata, and sinfonia (Fuller, 2001). The first three terms are helpful to understanding the genre. The title of sett denotes the genre as a set of pieces. The title of lesson shows the genre functioning for educational purposes. The title of ordre places emphasis on the sequence of pieces. The most confusing of these alternate terms is sonata, as the suite does not use the formal restrictions of sonata form. It is important to note the original French meaning of “suite”, which is “to follow” or “in succession”.

The term suite has been applied to compositions as diverse as pairs of dances from the fourteenth century, the viola da gamba works of Marais, the keyboard works of J.J. Froberger, the solo string compositions of J.S. Bach, up to current twenty-first century compositions. Since its inception, the suite has existed as both a musical genre as well as a convenient way for a composer to arrange existing pieces into groups for performance and publication.

The first use of the word suite is found in a German manuscript from 1557, to describe pairs of dances called branles. After the branle died out as a social dance, the term suite took the French meaning “the following piece”. This meaning is applicable until the eighteenth century. The historical “school” of French lute playing is often given credit for developing the suite into multi-movement instrumental compositions. This likely took place in northern France during the first decades of the 1600s (Fuller, 2001). Since much of the instrumental music composed from 1600 to 1725 was either intended for or influenced by dance, suites became the dominant genre of multi-movement instrumental compositions. Suites were both practical for use at dances and provided an outlet for composers of secular music.

The works of German composer Johann Jakob Froberger are important to acknowledge when studying the evolution of the suite. Froberger is given credit for refining the genre through his keyboard suites. The bulk of Froberger’s compositions were completed between 1630 and 1664 (Slonimsky, Kuhn,
Marais composed most of the pieces in Book III of suites for viol and thoroughbass between 1700 and 1709. He started composing and compiling music for this book while waiting for the 1701 publication of Book II. In the preface to Book III, Marais apologizes to the reader for the engraver and typesetter taking nearly two years to bring the work to fruition (Kinney, 1966).

The music found within Marais’s Suite 4 from Book III of suites provides an excellent example of Marais’s compositional style. Of greatest importance, is the fact Marais composed nineteen dance movements for this suite, making it the longest viola da gamba suite in the composer’s oeuvre. By the 1711 publication of Book III, the movements of a suite were generally standardized. Unusually, Marais offers his most expanded suite form with these nineteen movements: Prélude, Fantaisie, Allemande, Courante, Sarabande, La Folette, Gigue, 2nd Gigue, Bourée Paysanne, Gavotte, Petit Rondeau, Menuet la Chanterelle, Menuet la Trompette, Double, Rondeau, Plainte, Chaconne, Brillante, and Charivary.

Though Marais chose an unusual number of movements for this suite, the musical forms he used in the individual dances are representative of the baroque period. In these nineteen movements only binary, rondo, and through-composed forms are used. The Prélude, Fantaisie, Plainte, Chaconne, and Charivary are improvisatory in nature, do not have repeated sections, and represent the through-composed component of this suite. The Petit Rondeau, Rondeau, and Brillante are all in rondo form. The eleven other movements are in binary form. Typical of the baroque era, these binary movements modulate (change key) to the dominant at the end of the first section, begin the second section in the dominant key, and then modulate back to the original tonic key by the end of the movement. In these binary movements, Marais often elaborates the returning thematic material in the second endings of his B sections. This elaboration creates expansive endings that serve to reinforce the tonic key.
The suite also demonstrates Marais’s colorful use of harmony. One of the most striking features of his harmonic language is his use of chains of suspensions that create major seventh chord sonorities. These suspension chains create an exciting and volatile tonality. Marais uses this compositional technique in the Prélude, Courante, Sarabande, and Petite Rondeau of this suite. Another remarkable feature of Marais’ style is his mixing of major and minor dominant harmonies. The Sarabande and Plainte from this suite are excellent examples of the composer’s use of modal mixture (mixing both major and minor tonalities). Uncharacteristic for baroque composers, Marais often writes dominant to sub-dominant retrogressions. Examples of this type of retrogression are found in the Prélude, Allemande, Petit Rondeau, and Brillante movements. Marais also makes frequent use of the dissonant leading tone diminished chord. In fact, this chord can be found within every movement of this work. The use of the leading tone diminished chord leads to an overall slightly dissonant flavor to the suite.

An exact premiere performance date for the Suite 4 from Book III is not known, but it is known that these pieces were composed and performed at the French court of Louis XIV between 1700 and 1709 (Kinney, 1976). This information can be derived from Marais’s own preface to Book III. Of more importance is the public’s reaction to the publication of these suites. In his dedication of Book III, which is dedicated directly to the public, Marais expressed his humble thanks to the public for their purchase of several printings of his first two books. He also thanks his public for demanding a new set of compositions. The dedication ends with Marais’s apologies that nearly ten years had passed since his last publication. It is important to note that Marais’s works were some of the most accessible tutors for the amateur gambist. Marais directly aimed portions of all five books at this audience of student and amateur viola da gamba players. It is through these five volumes of suites that the master gambist’s fame spread across all of Europe. Amazingly, Marais did not make many concert tours outside of France, so the widespread appeal of his compositions cannot be underestimated in respect to the spread of the composer’s fame (Gorce, Milliot, 2001).

Two suites also written in the baroque period by J.S. Bach (1685-1750) and G.P. Telemann (1681-1767) stand as excellent examples of variation within suite form. Bach’s cello suite in D minor (BWV 1008) and Telemann’s viola da gamba suite in D major both adhere to the typical suite form, having the common sequence of movements found in a suite of prelude, allemande, courante, sarabande, minuets, and a gigue. Similar to Marais’s work, with the exception of the pré-ludes, all of the movements in both works are in binary form. Unlike Marais’s suite, there are no movements set in rondo form. Much like Marais’s works, most movements include a modulation to the dominant key before the second section and a modulation back to tonic key at the end of the second sections. These works are different from Marais’s suite in striking ways. Bach’s melodic material is much more developed through each movement, and Bach makes greater use of harmonic sequences. The harmonic language is less dissonant in the Telemann work. Neither work makes heavy use of the dissonant leading tone diminished chord or modal mixture in the way Marais’s work does.

The Legacy of Marin Marais

The life and compositions of Marin Marais provide major insight into the music of the French baroque. Because of his fifty years of employment at the Royal French court, the life and works of Marais are well documented. His connection to Jean-Baptiste Lully through both Marais’s own compositions as well as Marais conducting Lully’s operas is historically significant. His works provide important historical insight into the musical climate of the Royal French court. As well, Marais’s editions of his own compositions provide modern gambists with
accurate information on how to perform the composer’s works. For many musical instruments, there is a single composer or performer who elevates the artistry of that instrument to previously unknown heights. For the viola da gamba, the performer and composer is found in the same person, Marin Marais. It can be stated emphatically that Marais changed the history and evolution of viola da gamba performance. Above the compositions of his viola da gamba playing contemporaries, Marais’s works and specific notational system provide the most in-depth information on the historical gamba performance. A theoretical analysis of Suite 4 from Book III, and its comparison with works by Bach and Telemann shows how Marais’s work adheres to and deviates from the standard conventions of the baroque suite. His works for viola da gamba form a major part of the instrument’s repertoire, and any musician or concert audience will find a wealth of compositions to be enjoyed by generations of gambists and music lovers to come.

**Franz Joseph Haydn and the Baryton**

For nearly thirty years, Franz Joseph Haydn was composer and Kapellmeister to the Esterházy court. Haydn’s court position required frequent new compositions in many genres, including symphonies, chamber music, sacred music, operas, oratorios, and instrumental solos. Haydn’s duties also included daily performances, conducting, rehearsing and managing the court chamber and opera orchestras, and playing chamber music with his employer.

It was for his royal patron Prince Nikolaus Esterházy that Haydn composed 125 baryton trios. Nikolaus played the baryton, which is one of the most unusual bowed and fretted string instruments found in the classical literature. The baryton is a variant of the viola da gamba and is similar in size and tuning to the bass viola da gamba. Much like the viola da gamba, the baryton includes seven bowed gut strings and a fretted fingerboard. The baryton has ten additional wire strings that resonate sympathetically with the bowed strings. These wire strings are tuned to a D major scale with an added low A on the bottom and an additional high E at the top of the scale. The sympathetic strings can be plucked behind the neck of the instrument by the player’s left thumb, thus adding either a bass line or a harp-like melody. The addition of these sympathetic strings give the baryton the possibility of accompanying itself, or playing more than one musical line at once (Sadie, Pamplin, 2001).

Haydn’s baryton trios are scored for baryton, viola, and cello, and it is likely Haydn himself played the viola part in the first performances of these works. It is my belief that a modern culture of baryton playing exists only because of Haydn’s works for baryton. The refined classical beauty of these pieces as well as the sonorous texture created by the instrumentation has directly fueled the modern interest in baryton performance. If Haydn had not written such a wealth of high quality music for the baryton, I believe the instrument would be completely forgotten by musicians and musicologists.

**A Biography of Franz Joseph Haydn**

Franz Joseph Haydn was born in the town of Rohrau, Austria on March 31, 1732. Haydn was born into a working class family; his father Mathias Haydn was a successful wheelwright and village magistrate. Prior to her marriage, his mother Anna Maria Köller had worked as a cook in the court of Count Karl Anton Harrach. Though neither of Haydn’s parents were professional musicians, music was an important part of the household. Haydn’s father played the harp and accompanied folk tunes sung by Haydn’s mother. Music had such a strong effect in the Haydn home that all three surviving male children became professional musicians (Webster, Feder, 2001).

Joseph Haydn’s musical talent was noticeable at an early age. At age six he was sent to live with his cousin, Johann Franck, for further training. The village of Rohrau
offered little chance for musical training and living with his cousin, who was choirmaster and schoolmaster of the city of Hainburg, offered Haydn a chance for formal education. Though he lived in poverty and was often hungry, Haydn excelled in his studies in voice, harpsichord, and violin while living in the Franck household (Slonimsky, Kuhn, McIntire, 2001). During his two years in Hainburg, Haydn attracted public attention through his beautiful singing. In 1739, Haydn’s fine soprano voice gained him an audition with Georg Von Reutter, who was the music director of St. Stephen’s Cathedral in Vienna. Haydn would spend the next nine years, from 1740 to 1749, as a chorister at St. Stephen’s Cathedral. Haydn was able to continue his musical studies while at St. Stephens, though little or no music theory was offered as part of Haydn’s education. Mirroring his time in Hainburg, Haydn often complained of hunger during his years at St. Stephens.

In 1749, at age seventeen, Haydn’s voice changed and he was no longer able to sing soprano parts. As a result he was dismissed as a chorister and forced to make his living as a freelance musician. During this time period Haydn worked as a music teacher and voice instructor, performed in local pit orchestras, and most importantly worked as an assistant and accompanist to then-famous opera composer Nicola Porpora. It was from Porpora that Haydn received his first formal composition lessons (Slonimsky, Kuhn, McIntire, 2001). As well as lessons with Porpora, Haydn took it upon himself to study the counterpoint exercises of Joseph Fux and the works of Carl Philipp Emanuel Bach. Haydn’s first public success, and an increased reputation, came with the 1753 comic opera *The Limping Devil*.

Upon the recommendation of Porpora, Haydn received his first patronage, as Kapellmeister to Count Morzin. During his tenure from 1757 to 1760, Haydn’s duties included composition of chamber and symphonic works as well as leading the small court chamber orchestra. It is from this period that the composer’s first string quartets and symphonies date.

In 1761 Haydn was appointed Kapellmeister to the house of Esterházy. Haydn would stay in this position as music director to the most-wealthy court in Austria for nearly three decades. During his service to both Prince Paul Anton (until 1762) and Price Nikolaus I (1762-1790), Haydn composed the vast majority of his mature musical works. While at court Haydn adhered to an immense workload that included the constant composition of new works for keyboard, chamber groups, as well as symphonies. Haydn’s duties also included daily performances, conducting, rehearsing and managing the court chamber and opera orchestras, and playing chamber music with his employer (Webster, Feder, 2001).

From 1761 to 1779, all the compositions Haydn produced belonged strictly to the court of Esterházy. In 1779 a new contract allowed Haydn to take outside commissions and to sell to multiple publishers. The entrepreneurial Haydn used his new freedom to greatly increase both his wealth and fame. This change in Haydn’s contract prompted the composer to concentrate upon symphonic and chamber composition rather than operas. The death of Prince Nikolaus I in 1790 allowed Haydn his first opportunity for travel. No longer needed for daily Kapellmeister duties, Haydn accepted on offer from concert manager Peter Solomon to perform in England. Haydn made two successful long trips to England, the first from 1791 to 1792 and the second from 1794 to 1795. Many of the late symphonies were composed for or during Haydn’s time in England.

In 1795 Haydn returned to Austria and reclaimed his position as Kapellmeister to the Esterházy court, though he worked only part-time and with reduced duties. During this last compositional period Haydn concentrated on sacred oratorios. By 1802 declining health prevented Haydn from composing, and the great composer spent most of his time at his estate. Franz Joseph Haydn died at age seventy seven on May 31, 1809.
Haydn’s Chamber Music Compositions for Baryton

All 125 of Haydn’s baryton trios were composed early in his tenure as Kapellmeister to the Esterházy family, likely between 1765 and 1778. The trios were collected and bound in six volumes for the Prince, dated 1766, 1767, 1768, 1771, and 1778. There is some evidence that the final set of trio’s were written in 1775 and not bound until 1778. The entire set of trios falls within the *Sturm und Drang* period of Haydn’s compositional style (Clark, 2005).

Haydn’s Baryton Trio in D Major, Hob. XI: 113, offers an excellent example of the clarity of his melodic writing as well as insight to his use of form, structure, and the classical style. Like many of the baryton trios, Hob. XI: 113 is a three movement work that starts with a slow movement (Adagio), followed by a fast movement (Allegro di molto), and ends with a fast dance movement (Menuet-Allegretto). The slow movements, in this case an Adagio written in binary (two part) form, feature Haydn’s beautiful cantabile melodic writing. These singing melodies are almost always played only by the baryton. The first nine measures of the movement, which is the presentation of the first theme, is an excellent example of Haydn’s cantabile style. In the slow movements of the baryton trios the viola and cello are usually given accompanimental figures, thus making the movement similar to an accompanied operatic aria. In this particular movement Haydn makes notable use of the plucked strings of the baryton through punctuating the opening of phrases with plucked notes as seen in the first two phrases. A harp-like melody is found in the last five measures of the movement.

The Baryton Trio in D Major Hob. XI: 113 falls into the genre of chamber music and more specifically the trio. References to the term chamber music are first found in the mid-16th century. The term widely denotes a small ensemble of instruments or singers with parts played or sung one person on a part. Chamber music in the classical era was intimate music performance for either personal enjoyment, or for performance in a small hall for a limited audience (Bashford, 2001). The term trio denotes a composition for three instruments. It is an outgrowth of an older form of chamber music, the trio sonata of the Baroque period (Schwandt, 2001).

Two comparable chamber music trios can be found in the oeuvres of Luigi Tomasini and W.A. Mozart. The works of these two composers provide an apt comparison because both composers were exact contemporaries as well as personal friends of Haydn.

W.A. Mozart (1756-1791) and Haydn first met around 1784, though both composers were likely to have already been familiar with the other composer’s work and reputation. As seen through their personal letters, it is evident that both greatly respected each other. Haydn championed the ability and compositions of Mozart, and Mozart dedicated the six string quartets in Opus 33 to Haydn. It is also likely that Mozart and Haydn occasionally played string quartets together, Haydn playing the first violin part and Mozart playing the viola part (Slonimsky, Kuhn, McIntire, 2001). Mozart only wrote one string trio, Divertimento in Eb Major, K. 563, scored for violin, viola, and cello. This work, though similar in style to Hob. XI: 113, highlights several major differences in its composition. This four-movement work features highly active and independent parts for each of the three instruments. In Haydn’s work, the melodic material is centered in the baryton, while the viola and cello fill harmonic and textural roles. Mozart’s work includes much greater development of melodic ideas and less repetition than Hob. XI: 113. This is partly due to the fact that Prince Esterházy was an amateur musician, and in part due to Haydn’s clear use of melody and form. K. 563 includes more dramatic modulations to distant keys than Hob. XI: 113. This is likely due to the tuning and nature of the baryton. D major and the related keys of G major, A major, C Major, and E major, as well as their parallel minor keys are the most accessible on the baryton (Fruchtman, 2005).
Lanson W. Wells

1962). It is noted that Prince Esterházy’s ability upon the instrument dictated the form and difficulty of the music Haydn wrote for his patron.

Luigi Tomasini (1741-1808) was Haydn’s friend and coworker at the court of Esterházy. From 1756 to 1790 Tomasini was a first violinist in the Esterházy court orchestra. Several of Haydn’s violin concerti were dedicated to Tomasini, and it is very likely Tomasini gave the first performances of many of Haydn’s chamber works. A composer himself, Tomasini wrote thirty string quartets, several violin concerti and sonatas, and most importantly twenty-four baryton trios (Slonimsky, Kuhn, McIntire, 2001). These trios are written in the same instrumentation as Haydn’s trios, though several substitute the viola part with a violin part. Tomasini’s composition, baryton trio in C Major K. 19, shares many characteristics with Hob. XI: 113. Like Haydn’s work this piece is written in three movements: Allegro spiritoso, Menuetto and Trio, and Rondo. Also similar to Haydn’s work the first movement is in binary form and the baryton presents the melodic material throughout the work. A final similarity is seen in the accompanimental roles of the viola and cello. The similar structure and composition of K. 19 and Hob. XI: 113 gives credence that these works were composed specifically to suit Prince Esterházy’s tastes and abilities.

The Long Lasting Impact of Haydn’s Baryton Compositions

The beautiful singing melodies and clear classical form found in Franz Joseph Haydn’s baryton trios, coupled with the pragmatic instrument specific writing has directly affected the present renaissance of baryton performance. Since the modern publication of Haydn’s baryton works, which began in the early 1960s, the early music community has embraced these insightful and dynamic works. I believe that any musician or concert goer who wishes to explore these exciting works by Haydn must have an understanding of Haydn’s employment at the Esterházy court, as well as an understanding of the idiomatic instrument specific writing in Haydn’s baryton works. It is because of the strength, quality, and number of Haydn’s baryton compositions that modern day recordings and performances upon the baryton exist. Without these masterworks, the baryton would have become an antiquated topic for music history instead of an instrument with a growing modern tradition.

Modern Viola da Gamba and Baryton Performance and Resources

The compositions for viola da gamba by Marin Marais and the works for baryton by Joseph Haydn are some of the most important compositions ever written for their respective instruments. It is both the quality and number of these masterworks that has allowed these two instruments to survive through history, and to enjoy a renaissance of interest in modern times. Since the 1960s, the ever-growing early music community has embraced these dynamic and exciting musical works. There are many fine viola da gambists teaching and performing throughout the world, and there are several performers who have specialized in championing the baryton works of Haydn. Due to this, interest in both the viola da gamba and the baryton can only be expected to grow. Recordings by gambists such as Jordi Savall, Hille Perl, and John Hsu are recommended listening and starting points for learning. The Austria based ensemble, The Esterházy Ensemble, founded by barytonist Michael Brussing has made the only complete recording of all of Haydn’s baryton works. John Hsu has also recorded several albums of Haydn’s baryton works.

Many of these compositions are accessible to the early music community through facsimiles of original manuscripts. There are also many of these works which have been transcribed in modern editions, for performances by contemporary musicians equipped with modern instruments. Often, Marais’s works are played by the cello or the viola, modern day instruments which are the closest to the
viola da gamba. The baryton works of Haydn have been transcribed for viola, cello, trombone, and guitar ensemble.

There are several excellent resources for those who wish to learn more about the viola da gamba or the baryton. For the viola da gamba, The Viola da Gamba Society of America is on the forefront of scholarship and performance upon the viola da gamba, and provides access to the largest community of interested gambists in the world. To further performance upon the instrument, The VGSA runs the largest gamba rental programs in the world. The Viola da Gamba Society of America offers a quarterly journal, yearly gamba rentals, a week-long yearly summer festival, masterclasses, teacher and student resources, as well as classified ads for instrument sales. For the baryton, The London based International Baryton Society serves as the most important center of baryton scholarship and performance. The IBS, run by barytonist Jordan Brooker has produced an index of all contemporary baryton works, and hopes to publish a complete index of all recorded and published baryton compositions. The International Baryton Society has commissioned many new works for baryton by British composers. Its small but growing membership provides the most extensive baryton resources in the world.

Reference List


*Viola da Gamba and Baryton Societies*

The Viola da Gamba Society of America
PO Box 582628
Minneapolis, MN 55458-2628
Phone: 1-855-VIOL-415 (1-855-846-5415)
www.vdgsa.org

The International Baryton Society
Jeremy Brooker
24 Holmesdale Road
London N65TQ
United Kingdom
www.barytonsociety.com
Creative Work: Veneration

Artist: Katherine Culatta
Faculty Mentor: Robert Dunning
Affiliation: University of North Carolina at Asheville
Dimensions: 16 x 22 inches each (3 prints)
Medium: Stone Lithography

ARTIST STATEMENT: The Veneration series is a portion of a larger body of work exploring the projection of human emotion onto the natural world. Natural processes are misunderstood when humans respond emotionally to organisms that operate outside the human frame of reference, and interpret events in terms of human values. In the series, images of bird species that are culturally demonized (the blue jay, the raven, and the turkey vulture) are juxtaposed with the familiar symbol of the halo, which indicates righteousness and sanctity. The birds’ behavior and appearance are adaptations to their environment, and as such transcend human notions of ugliness and beauty.
Veneration, Katherine Culatta, 2014
Natural Sciences
and
Engineering
Vitamin B12 Deficiency and The Role It Plays in Disease Causing DNA Mutation

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ABSTRACT
A review of how vitamin B12 is used by the human body and the role it plays in DNA mutation is presented. Vitamin B12 is a compound needed for healthy function of the human body but produced downstream of the point of absorption in the digestive system, rendering it unusable. One may become B12 deficient in a variety of ways including lack of intake, disruption of B12 absorption due to disease, or disruption of cellular B12 levels by excess alcohol consumption. Deficient levels of B12 result in hypomethylation of DNA due to improper function of the methionine synthesis pathway in which B12 performs a coenzymatic function. Hypomethylation of DNA may lead to diseases including atherosclerosis, acute myocardial infarction, and a wide variety of cancers.
Vitamins are a large class of compounds necessary for life but not synthesized by the human body, and therefore need to be consumed. A specific vitamin which plays important roles in DNA synthesis is vitamin B12, also called cobalamin. The chemical structure of B12 is the most complex of any of the vitamins and is similar to hemoglobin, as shown in Figure 1. The molecule consists of a cobalt atom covalently bound to six groups in a heavily distorted pseudo octahedral geometry. Four of these groups come from a corrin ring, the fifth comes from a dimethylbenzimidazole group, and the sixth comes from a variable R group which determine the functionality of the B12 molecule. This R group can be any of the following: hydroxy, cyano, methyl, or 5’-deoxyadenosyl. Notably, when a cyano group is attached, B12 is very stable, but can not be utilized as a human vitamin until the cyano group is removed.

Vitamin B12 deficiency is a relatively widespread issue; however, its prevalence cannot be generalized to the entire population as it is vastly different across demographic groups. For example, in the United States and the United Kingdom, approximately 6% of people under the age of 60 are deficient, approximately 20% of people over the age of 60 are deficient, and 11% of all vegans are deficient. Further, 40% of Latin American children and adults, 70% of Kenyan children and Indian adults, and 80% of Indian children have B12 deficiencies. These rates are varied, but it is clear that B12 deficiency is a widespread condition in the world population.

Deficiency in B12 has clear implications in many serious medical conditions. For this reason, understanding B12 sources and mechanisms of absorption are of utmost importance. There are two main classes of vitamin B12 deficiencies: those caused by lack of intake and those caused by improper absorption. This first is seen often in populations with little to no consumption of animal products, such as vegans and vegetarians. The second is perhaps more complicated, with many possible mechanisms for improper B12 absorption which will be elucidated in the body of this review.

Vitamin B12 is a critical nutrient for the body. In this review, I will investigate the ways in which an individual may become B12 deficient.

Figure 1. Structure of Vitamin B12
deficient. With that understanding in place, I will then attempt to show that vitamin B12 deficiency is a direct cause of multiple diseases which are among the leading causes of mortality. Lastly, I will propose solutions to B12 deficiency, and therefore deadly disease.

**Causes of Vitamin B12 Deficiency**

The human body may become deficient of vitamin B12 in two main ways. First, the level of B12 consumed may not be sufficient to meet bodily needs. Second, the intake of B12 may be sufficient, but the pathways by which B12 is absorbed may be interfered with. The result of both of these is essentially the same; B12 levels in the body will be insufficient to meet the demands. However, it is important to understand the differences in these two causes because the two forms of deficiency have different solutions.

**Insufficient Intake of Vitamin B12 as a Cause of Deficiency**

The main sources of B12 are animal products such as meat and dairy.4 As these foods make up a large portion of many people’s diets, most people who meet their caloric needs also meet and exceed B12 daily minimums. Certain populations, however, either choose not to or are unable to obtain and consume animal products. Adequate consumption of B12 is a serious issue for these people.

People who practice veganism, the omission of all animal products from the diet, provide a useful source of vitamin B12 research. In the 1950s a study was published which used vegans to investigate the way in which B12 was produced by the human colon.4 In this study, water extraction solutions were made from the stool samples of vitamin B12 deficient vegans. These water extractions were then administered orally to the subject from whom they were taken. The result was a complete curing of B12 deficiency in all subjects. Furthermore, a second study investigated a population of vegans from Iran who had adequate levels of B12 in order to determine how they obtained sufficient B12 without consumption of animal products.4 It was ultimately determined that their source of B12 was unwashed vegetables they grew themselves in soil fertilized with human manure.

The previous two examples show how the human body on its own is incapable of producing useful vitamin B12.4 Although bacteria living in the colon of the human digestive system do produce significant amounts of B12, the absorption of B12 occurs in the small intestine, which is prior to the colon. This means that even though B12 is produced in human bodies, B12 cannot be absorbed and utilized in humans except through consumption of B12 containing food. For this reason, it is important that humans consume enough B12 in their foods, estimated as approximately 1 microgram per day.4

**Insufficient Utilization of B12 as a Cause of Deficiency**

Vitamin B12 deficiency may still occur even if a healthy level of B12 is consumed. Either the B12 in food is not absorbed efficiently or after it is absorbed it is not utilized properly. Examples of these two scenarios may be seen in those suffering from pernicious anemia (PA) and chronic alcoholics.

In healthy individuals, B12 is absorbed solely from the diet by a complex process of the digestive system.7 For this to occur, B12 is first bound to the salivary protein haptocorrin, which then releases B12 into the duodenum by proteolysis. The B12 then binds to the intrinsic factor, a glycoprotein, in the proximal ileum. This B12-intrinsic factor is then absorbed into the intestinal mucosal cells by receptor mediated endocytosis. Here B12 is released and subsequently bound to the carrier protein transcobalamin and released into circulation where it enters body cells again by receptor mediated endocytosis. In the cells, B12 separates from its transport protein and performs its function as a coenzyme.

In individuals with PA, a condition affecting approximately 2% of those older than 60, the gastric mucosa atrophies and both chief...
cells and parietal cells are lost. Parietal cells are the source of the intrinsic factor used in B12 absorption. Therefore, when significant parietal cell loss occurs, the body is incapable of absorbing adequate amounts of B12. This causes B12 deficiency regardless of the amount of B12 consumed through diet.

This process was quantified by a study in which radioactive cobalt isotopes were used to label B12 samples administered orally to subjects. In these subjects, fecal extractions were analyzed for levels of the isotopically labeled B12. Patients with PA had higher concentrations of labeled B12 in the stool compared to the control group. This shows that the control group absorbed more B12 than patients with PA.

B12 deficiencies may develop even if absorption levels are normal. This is the case with some long term alcoholics who exhibit symptoms of B12 deficiency. Interestingly, circulating levels of B12 are actually higher than those of normal healthy individuals. Upon further examination, it is found that B12 concentrations in liver cells are significantly lower than normal in alcoholics. This has lead to the postulation that alcoholism results in less retention of B12 by peripheral tissues, which causes B12 to accumulate in the circulating plasma. Therefore, even though plasma B12 levels are high, the amount of B12 useful to the cells of the body is very low in people who consume high volumes of alcohol.

Vitamin B12 deficiency has a multitude of causes. Insufficient intake of B12 through food is the simplest reason for B12 deficiency. If healthy levels of B12 are consumed, an individual may still become deficient though disruption of B12 absorption, as is the case with PA, or by inadequate utilization of bodily B12, as is the case in chronic alcoholics. B12 deficiency resulting from any of these causes may result in improper function of the DNA synthesis pathway.

**Mechanism of DNA Synthesis Impairment Caused by B12 Deficiency**

Vitamin B12 is crucial to the methylation of DNA. The methyl group is first provided to the reaction by 5-methyltetrahydrofolate (methyl-THF) as shown in Figure 2. B12 is a coenzyme substrate located on the enzyme methionine synthase (MS). MS catalyzes a reaction in which the methyl group on methyl-THF is transferred to the R group location of B12, forming THF and methyl-B12. This methyl-B12 then transfers the

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Figure 2. Transfer of Methyl group from Methyl-THF to Methionine
methyl group to homocysteine, creating methionine (Met) and recreating B12 as shown in Figure 2. Met then combines with adenosine triphosphate (ATP), to form the highly reactive molecule S-adenosylmethionine (SAM) as shown in Figure 3. SAM then serves as the principle methylating agent of amino acids and nucleotides, including DNA. When SAM is demethylated, the molecule becomes S-Adenosylhomocysteine. This compound ultimately breaks apart forming adenosine and reforming homocysteine to be reused in the methylating cycle.

Approximately 5-7% of the cytosines in the human body have a methyl group attached at the 5’ position by the process just explained. This methylation has been shown to be important to the regulation in the expression of many genes. Further, hypomethylation of DNA has been shown to contribute to the development of tumors in many organs.

In addition to these issues in DNA methylation which result from B12 deficiency, issues also arise in the folate metabolism pathways of the body. Although the full extent of its function is beyond the scope of this discussion, folate, or B9, is another critical vitamin to the body. Methyl-THF is one of the main sources of folate to the body, but the folate cannot be utilized until the methyl group is removed. In the absence of B12, Methyl-THF cannot be demethylated to THF, therefore causing a buildup of Methyl-THF in the plasma, and a shortage of useful Folate. This Methyl-THF is ultimately secreted and lost from the body. For this reason B12 deficiency and folate deficiency are intrinsically linked, and their symptoms often mask each other. In fact, B12 deficiency can often be treated with folate with significant success as the resultant folate deficiency is often the cause of more immediate symptoms. This, however, only treats the symptom, and not the cause, which is B12 deficiency.

Examples of Maladies Resulting from B12 Deficiency

With an understanding established of the
role B12 plays in the body, focus can now turn to the issues that result from B12 deficiency. As discussed above, B12 serves to synthesize methionine, which then combines to make SAM, which methylates cytosines in DNA. Therefore, a deficiency in B12 causes hypomethylation of the DNA. It is mostly this hypomethylation which causes health issues in B12 deficient individuals.

**Atherosclerosis**

Atherosclerosis and the complications it leads to are one of the leading causes of death in western societies. Significant study has been directed at elucidating the causes of atherosclerosis and ways to prevent it. Atherosclerosis occurs when lipid particles penetrate arterial walls, leading to accumulation of inflammatory and immune cells. Additionally, smooth muscle cells in the artery proliferate. All of this results in the hardening and thickening of the artery around the location of lipid penetration. The close relationship of lipids to this process have historically lead to suspicion that high serum lipid levels are a cause of atherosclerosis. More recently it has been proposed that hypomethylation of the DNA in the cells of the arterial intima are a main cause of the formation of atherosclerosis. This correlation between DNA hypomethylation and atherosclerosis has been clearly shown. For a time it was unclear if hypomethylation was a secondary cause of atherosclerosis, however, a recent study has used mice to demonstrate that DNA hypomethylation occurs before formation of lipid lesions in the artery. Therefore, it is very likely that hypomethylation plays an important primary role in the formation of atherosclerosis.

A common cause of mortality associated with atherosclerosis is acute myocardial infarction (AMI). This occurs when plaque builds up from atherosclerosis leads to reduced blood flow to the coronary arteries of the heart, leading to cardiac muscle death. With the relationship between hypomethylation and atherosclerosis established above, it is logical that B12 deficiency may lead to hypomethylation which can then lead to AMI. This has in fact been shown in a case study using subjects from southern asia. In this study, low levels of B12 were shown to correlate to an increased occurrence of AMI.

**Cancer**

Cancer is a major cause of death worldwide. The causes of cancer have traditionally been attributed largely to natural and man-made chemicals with carcinogenic effects, resulting in mutation of the genome causing unregulated cell growth. In 1983, DNA hypomethylation was the first discovered epigenetic cause of cancerous growth. Since then, all of the major human forms of cancer have been shown to have links to hypomethylation. In fact, this link is so strong that the extent of hypomethylation may be used as an indicator of the extent of cancer progression.

**Solutions to B12 Deficiency**

It is clear that deficient levels of vitamin B12 can have serious negative consequences. Therefore, it is a worthwhile pursuit to alleviate B12 deficiency. The specifics of this solution depend on the causes of the deficiency. For deficiency induced by lack of dietary intake, simply introducing B12 rich foods should solve this without issue. Similarly, for deficiency associated with alcohol intake, eliminating alcohol in the presence of a B12 rich diet should begin alleviating the deficiency. Although these solutions are simple in theory, there are B12 deficiencies which are difficult to resolve, such as PA discussed above. For cases such as these, supplementation with non oral B12 and folate will be necessary.

**Future Work and Conclusion**

As described above, a correlation has been established between hypomethylation of DNA and disease such as atherosclerosis and many forms of cancer. The literature is, however, incomplete in understanding fully the
mechanism by which DNA hypomethylation causes disease. Therefore, it would be beneficial for research in this area to continue. Such studies could begin by investigating the genome small animal models to identify concurrent DNA hypomethylation and disease, as has already been shown. With this link established hypotheses could be formulated and tested until likely mechanisms of disease become apparent.

Vitamin B12 is a molecule which the body is unable to produce in useful amounts yet needs for healthy function. This review investigated B12 deficiency and the adverse medical effects it causes. Deficiency may be caused by lack of dietary B12 intake, diseases affecting B12 absorption, or high volumes of alcohol intake. Lack of B12 results in hypomethylation of DNA, which, in turn, can cause atherosclerosis, myocardial infarction, and cancer. There is still research needed to be done to fully elucidate the full extent of the influence of B12 on the development of disease, but it is currently clear that B12 deficiency causes a plethora of harmful medical conditions.

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References


Sickly Sweet: The Development of a Standardized Method Testing for Lactose and Fructose Intolerance and Malabsorption

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ABSTRACT
Lactose intolerance has been a known cause of gastrointestinal distress for many years. Recently, scientists have discovered that fructose intolerance elicits many of the same symptoms as lactose intolerance. The consumption of fructose has more than doubled in the past twenty years; similarly, the instances of fructose intolerance have also increased. Fructose and lactose intolerance are measured using similar methods. While there are common practices and guidelines used when testing for fructose and lactose intolerance and malabsorptive issues, there is no official standard method including precise practices for before, during, and after the test. Therefore, in the present study a standardized form and set of recommendations were suggested by comparing methods used in previous studies. If used on a wide scale, the standard system would enable researchers to compare results of different studies. Ultimately, this would help researchers gain a better understanding of lactose and fructose intolerance and malabsorptive issues and to measure the frequency of diagnoses for each condition in order to develop improved treatments and potential cures.

Lactose intolerance has been a popular topic in the study of nutrition for many years. Many people suffer from irritable bowel syndrome (IBS) due to the sugar lactose found in dairy. Interestingly, as fructose has become more prevalent in the human diets, people have begun suffering similar malabsorptive effects.

Lactose intolerance can cause an array of painful and irritating symptoms such as gas, bloating, diarrhea, vomiting and nausea. These same symptoms have been observed in those with fructose intolerance. Because the causes of sugar malabsorption are not completely understood, there is research being conducted on the different types of sugar malabsorption and intolerance. Malabsorption refers to sugar not being properly broken down in the gastrointestinal tract and intolerance implies that the body is incapable of breaking down the sugar. Thus, researchers are interested in questions regarding the relation between the type of sugars individuals are consuming and the way the sugars are absorbed and metabolized.

Fructose consumption has more than doubled in the past 20 years due to the use of the inexpensive sweetener high fructose
corn syrup. Fructose is naturally found in fruits and some vegetables. It is also part of the simple sugar sucrose, which is a disaccharide commonly known as table sugar. Sucrose is comprised of glucose and fructose molecules, which are both monosaccharides. High fructose corn syrup contains a higher percentage of fructose than glucose. Its use is controversial as it is added to many foods as a sweetener because it is less expensive, but not necessarily healthier, than table sugar. It has been said that the increase in instances of intolerance is because it fructose is now in more foods.

While the full effect of this increase of fructose in foods is not yet known, more instances of fructose malabsorption are being diagnosed. Some attribute this malabsorption to the metabolic pathway of fructose, speculating that fructose is absorbed by facilitated diffusion or that fructose can only be absorbed with glucose. While the absorption of fructose is still being studied, it is known that the enzyme lactase breaks lactose into the simple sugars galactose and glucose in the human body.

Fructose and lactose malabsorption and intolerance can impact the life of an individual tremendously, and misdiagnosis of these conditions can also have negative implications. If a person is incorrectly diagnosed with an intolerance, the individual may eliminate the sugar from the diet unnecessarily. That is particularly concerning with lactose because restriction of lactose can lead to calcium deficiencies. A diagnosis implying the person is not intolerant when the person is can be dangerous as well since the person will continue to consume the sugar and experience discomfort.

Hydrogen breath tests are the primary tool used to measure fructose and lactose malabsorption and intolerances. The inconsistencies associated with conducting such tests have raised questions regarding the validity of the results. Testing differences also makes it difficult for scientists to compare results. For these reasons, we recommend a standard system of measurement to alleviate the ambiguity of varied extant testing systems.

The research questions for the present study were 1) what are the common characteristics of the methods and results published in the current literature, and 2) could the common features of testing be combined to create a standard method for testing? A literature review on fructose and lactose malabsorption studies was conducted. The review was conducted after analyzing published articles about fructose and lactose malabsorption and intolerance in order to build a knowledge foundation about common practices. The primary focus of the review was on the methods used for diagnosis, and the results obtained in the treatment studies. The methods used for diagnosis often affected the conclusions about the results, thus, we reviewed methods and results together.

### Literature Review

One of the most referenced studies was one by Choi et al. The objective of this study was to determine how common fructose intolerance was in the sample population and to see if lifestyle changes regarding fructose intake would have an effect on IBS experienced by the patients. The researchers questioned how effective the fructose restricted diets would be for limiting IBS. Those with positive hydrogen breath test results were deemed fructose intolerant. The patients who produced a positive breath test were then given a kit that contained information regarding a fructose restricted diet and were asked to implement the diet. After one year, patients were asked to return and repeat the same tests and surveys. In addition, the patients answered questions regarding how strictly the diet was followed according to the guidelines and how much time was spent following the guidelines.

The results showed that of the 80 participants, 31 had a positive fructose breath test. Greater than 90% of those with a positive test claimed that the test caused the usual gastrointestinal discomfort symptoms, which have been attributed to fructose intolerance. The
patients reported that the lifestyle changes had a mild to moderate effect on their lifestyle (a rating of 2.93 on a 5-point scale). The researcher concluded that there was a correlation between the lifestyle changes and the symptoms of those in the positive test group.

Da Silva Mederios, et al. reported on a pediatric population. In the pretest procedure, the children’s height and weight were measured and parents were asked to fill out a symptom form for their children. This is a potential source of bias as the parents cannot feel exactly what their children do. The children were given a hydrogen breath test which was used to determine whether or not they were an absorber of lactose or malabsorber. The night before, they were asked to eat white rice with chicken and not to eat after the meal.

Calcium deficiencies were examined in this study. While most of the studies on calcium absorption focus on adult populations, this study is one of the few that has examined a younger population. Other studies found that the calcium intake was much lower among the lactose intolerant; however, this study did not support that theory; there was no statistical difference in bone density between the two groups (absorbers and malabsorbers).

The lives of individuals could be improved by the results of the studies about fructose and lactose. For example, researchers suggest that by limiting lactose in the diet, the pain suffered by afflicted children could be reduced. Other researchers determined that fructose and lactose malabsorption can be the cause of recurrent abdominal pain and that removing the malabsorbed sugar from the diet of the patient can help alleviate the symptoms. Similar results were noted by Choi, et al. and Gomara, et al. Further, Gomara, et al. found that fructose restriction can reduce IBS in pediatric patients. In addition, there appears to be a relationship between age and the ability to absorb fructose and lactose; results suggested a positive correlation for fructose, but none for lactose.

**Review of best practices: Comparison and analysis**

Best practices from several reviewed studies were used to create a “standardized method and tool.” Inclusion criterion for the studies were 1) publication dates between 2008 and 2012 and 2) the use of a hydrogen breath test and the measurement of the sugars fructose, lactose or lactulose. Representative studies reviewed are included in Table 1. The six variables noted for each study were Primary Researcher; Publication; Year; Sugar Tested; Subjects; Pre-Test; During Test; and Results. “Primary researcher and publication year” were used to identify the study. The “sugar tested” variable noted whether the study examined fructose, lactose, lactulose or a combination of the three. The “subjects” variable identified the age group, gender, and general information about the participants in the study. The “pre-test” variable described the practices and procedures before the test. The “during test” variable detailed how the test was conducted. The “results” variable was used to list the findings of each study.

The results of the compilation can be found in Table 1. Common trends were observed and the most effective methods were determined by the researchers. We determined the most consistent methods according to the table. Then the best practices were selected to be compiled for the creation of a standardized tool.

The standardized tool can be seen in Figure 1. The standardized tool is a form with procedures that are to be followed and is to be completed by the physician or researcher. Each step of the tool was added to ensure each test produces accurate results. Additional steps were developed in order to create consistency between different test administrators. These simple preventative steps make it possible to compare test results from different medical or research sites. If the steps are properly followed and the data are accurately entered into the form, then the results across studies will be more comparable.

It was common in the studies reviewed
for the subjects to be asked to avoid high fat meals and foods containing fructose and lactose the day before testing (Table 1). The purpose of the request was to avoid results being skewed from hydrogen production from the breakdown of the meals of the previous day. For example, in the study of children in San Paulo\(^2\), the researchers requested that children eat white rice with ground chicken that had been fried or roasted as the last meal before the test. The simplicity of that meal made it easy for participants to comply and the meal is also low in fat and does not contain lactose\(^2\). The fact that all of the patients had the same last meal added to the interpretability of the study.

Therefore, in order to increase consistency and decrease stress to the patients trying to follow the dietary guidelines on the day before the test, we suggest that prepackaged meals should be provided. Three square meals and optional snacks should be given to the patient to consume on the day before the test. The meals would be prescribed by the physician and will be low fat and lactose free. There should be a list of meal options from which the patients can select meals. Then the meals will be known to the physician and the nutrient content will be easily accessible. The patient will not be required to consume the entire meal as the meals are only to ensure that the low fat, lactose free guidelines are followed.

We further suggest that compilation of fructose recipes and appendices from The Sugar Fix\(^6\) would be a great reference to provide patients for the day before the test and for a fructose free diet. The Sugar Fix by describes the negative influence fructose has on the human body\(^6\). The recipes that contain lactose or that are high fiber should be excluded or the problematic ingredient should be substituted.

We also suggest that all meals consumed should be recorded. Notes may be added regarding how much of the food was consumed, but it is not necessary. If high fat foods or foods containing lactose were consumed, the patient must come back for testing another day having followed the procedures properly. Thus, the standard form (see Figure 1) has a specific box asking if the patient has followed the dietary restrictions.

We also recommend that the patients should fast from 10:00 pm until after the testing time. The studies described in Table 1 suggested different times, such as after last meal or from midnight. We recommend 10:00 pm for its convenience for varying patient schedules. The 10:00 pm fast start allows ample fasting time, while still pinpointing a standard time for patients to stop eating.

We recommend that smoking and exercising are prohibited from bedtime until after the test has been completed. This was consistent in many of the studies because these activities affect the volume of hydrogen produced and excess hydrogen can skew the results\(^3,11,14\).

We further note that the sex of each patient should be recorded as should the height, weight and waist circumference for comparative analysis. Fasting blood glucose and iron levels should be measured as well because the tests are easy to perform and may prove useful in later studies. Recording those measures for later analysis is not time consuming and is relatively inexpensive. Trends relating iron and glucose levels to intolerance may be observed if they are regularly recorded. As shown in several of the studies\(^3,14\), the mouths of the patient should be sanitized in order to prevent the bacteria in the mouth from affecting the results. Teeth should be thoroughly brushed and antiseptic mouthwash should be generously used. The standard form provides a safeguard to ensure that this is done.

The majority of studies used solutions of fructose or lactose in water. Several studies used lactulose as a constant as it is always malabsorbed. The sugar solutions posed an issue in some studies when patients refused to drink the solution\(^4\). In order to combat that issue and to more accurately reflect the ways the sugars are found in nature, it was suggested that natural food should be used for the tests\(^13\). For example, raisins could be used to measure fructose intolerance and
milk to measure lactose intolerance. The sugar solutions are highly concentrated and do not reflect their naturally found counterparts. However, using natural foods would pose many issues such as making sure the same concentration of sugar was in each dose and the other component of the natural food may affect the results. Thus, we recommend that the sugar solution (fructose or lactose in water) continue to be used.

Several of the studies assigned sugar intake based on body mass in kilograms. The most common assignments were 0.5 g per kg of body weight for fructose and 2 g of lactose per kilogram of bodyweight. However, we disagree with this method. We recommend that a standard amount of sugar solution is administered, as this can reflect a standard serving.

Based on the review of studies, we recommend that breath hydrogen be measured every 30 minutes for three hours. An increase of 20 ppm over baseline constitutes a positive result.

Finally we recommend that all data collected should be entered into the form provided (see Figure 1). This form should be completed electronically so that it can be saved by the doctor and submitted to a database. Each patient should be given an ID number so the information is confidential. If electronic, the form can be submitted to a database where all of the results across the world can be compiled. This compilation of information will allow researchers to analyze data and observe trends. Such trends can be used to better understand malabsorption and intolerance.

This process could be facilitated by creating an app. The app would contain the meal choices, the test form and the procedure instructions. During the test the physician could enter the patient data directly into the app form which would be loaded on to an icloud database. By creating a database via the icloud all physicians would have access to the data, allowing them to compare results. Patient identities would remain confidential as each patient would be assigned an identification number known only to the physician providing analysis.

**Conclusion**

There have been significant advances in the study of sugar malabsorption and intolerance issues. While more studies have been conducted on lactose, fructose related issues are becoming more prevalent. The increased prevalence is likely due to the increase of fructose consumption. Removing sources of fructose such as fruits and vegetables could result in vitamin deficiencies and low fiber intake, just as several of the lactose studies suggested that calcium deficiencies could result in the avoidance of dairy.

A standard test and reporting system for lactose and fructose intolerance and malabsorption should be adopted. Based on our review of best practices, the test should begin with a night of fasting. A hydrogen breath test using lactulose should be conducted for continuity. The results of the test could be used as the control or baseline hydrogen values of the patient. A standard food frequency questionnaire should be distributed to gather data regarding the sources and quantities of fructose and lactose consumed. In addition, follow up hydrogen breath tests using fructose and lactose should also be conducted.

By using a standard test, it would be easier to analyze and compare the results. In addition a standard diagnosis could be created. This would make it easier to determine the sugar absorption of an individual. After a standard is set, more studies on fructose and lactose could be conducted. If the causes of sugar malabsorption and intolerance are all determined, researchers could work towards a solution to avoid the negative effects produced by the malabsorption and intolerance.

This tool will be helpful in consistently determining cases of fructose and lactose intolerance and malabsorption. By adopting a standard procedure, people will be able to more easily understand tests and the results of the test. This is especially important during this time where there has been an increase in
cases of fructose intolerance\textsuperscript{1}. The standardized method will also be beneficial to those with lactose intolerance.

In order to be successful, this system must be adopted and used on a wide scale. By having an app created for physicians and researchers to use, they could save the data to the database and access information from other patients to compare and contrast. Due to the standardized protocol, results from all studies would be possible to compare. Hopefully, this database would provide information that would lead to further studies involving the control and treatment of fructose and lactose intolerance and malabsorptive issues. The overall quality of life of those who have such issues would be improved as symptoms such as gas, bloating, diarrhea, vomiting and nausea\textsuperscript{2,3} would decrease or be alleviated altogether. By standardizing the testing procedures, scientists would be one step closer to being able to treat lactose and fructose intolerance and malabsorption.
Figure 1  Fructose and Lactose Malabsorption and Intolerance Test Sheet

Fructose and Lactose Malabsorption and Intolerance Test Sheet

Patient ID: __________________________  Patient DOB: __________________________  □ male  □ female

Height: ______ feet ______ inches  Weight: ______ pounds  Waist circumference: ______ inches

Signs and symptoms: (check all that apply)
□ Bloating  □ Constipation  □ Diarrhea  □ Gas  □ Headache  □ Indigestion
□ Nausea  □ Vomiting  □ Other (please describe)_______________________________

Has the patient smoked since waking up?  □ yes  □ no (if yes please ask the patient to return another day for testing)

Has the patient exercised since waking up?  □ yes  □ no (if yes please ask the patient to return another day for testing)

Has the patient followed the dietary guidelines?  □ yes □ no (if no please ask the patient to return another day for testing)

Please select the ID numbers of the meals consumed:_________________________

Fasting blood glucose: ____________ mg/dL  Hemoglobin: ____________ g/dL

Has the patient thoroughly brush their teeth and sanitized their mouth using antiseptic mouth wash?  □ yes □ no (if no, have the patient do so now)

Sugar being tested: □ fructose  □ lactose  □ lactulose

<table>
<thead>
<tr>
<th>Time (minutes)</th>
<th>Breath hydrogen reading ppm</th>
<th>Notes (signs and symptoms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 minutes (baseline)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 minutes</td>
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<td>30 minutes</td>
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<td>45 minutes</td>
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<td>90 minutes</td>
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<td>135 minutes</td>
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<td>150 minutes</td>
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<tr>
<td>165 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>180 minutes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If there was an increase of at least 20 ppm over the baseline the test is positive.
Did the patient have a reading with a 20 ppm increase over baseline? □ yes □ no
Will the patient be tested for or have they been tested using other sugars? Check all that apply:
Have been tested using: □ fructose  □ lactose  □ lactulose
Will be tested using: □ fructose  □ lactose  □ lactulose
Table 1

<table>
<thead>
<tr>
<th>Primary researcher, year</th>
<th>Sugar Tested</th>
<th>Subjects</th>
<th>Pre-Test</th>
<th>During Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gomara, 2009</td>
<td>fructose</td>
<td>56 (50:50 male/female) subjects with IBS, functional dyspepsia, or functional abdominal pain syndrome between 7 to 77 years</td>
<td>mixed foods with high fat content, laxatives or enemas for 24 hours post test, fast from midnight before test, completes bowel symptom survey, take large breath hydrogen</td>
<td>1g fructose (control) 15g fructose (given dose) 45g fructose (compared to previous study) Report symptoms, measure breath hydrogen (200ppm over baseline is positive)</td>
<td>20% had positive test overall; 6 positives 5g, 32% (9/28) positives on 5g, 68% (18/27) positives for 45g most frequent symptoms</td>
</tr>
<tr>
<td>Furu, 2010</td>
<td>lactose, fructose and fructose</td>
<td>200 subjects (150 females, 50 males), 5 to 90 years range, mean 39; 62IBS, 16 functional bloating, functional 2 constipation, 5 functional diarrhea, IBS diagnosed bowel disorder,</td>
<td>residence of fermentable substrates 24 hours pretest, fast overnight, Baseline breath hydrogen</td>
<td>in 200mL water; 1g fructose then 35g fructose and/or 50g lactose at least two days apart, Measure breath hydrogen every 15 minutes for at least one hour.</td>
<td>52% definite or borderline FA; 35% definite or borderline IBS; 15% both definite, &lt;5% neither</td>
</tr>
<tr>
<td>Cinkelowska, 2011</td>
<td>lactose</td>
<td>91 database subjects age 1-88 years</td>
<td>2g lactose; breath hydrogen measured at intervals for 3 hours, 260ppm over baseline symptoms is positive lactose intolerance</td>
<td>27 children (4%) abnormally high result were in study, 5 incomplete data was lost, 10 before intolerance, 10 IBS, 4 IBD and intolerance; 4 lactose deficiency</td>
<td></td>
</tr>
<tr>
<td>CFM Gipps, 2012</td>
<td>lactose or fructose</td>
<td>220 subjects (120 females; 52 males), 4-116 years, HAP (recent abdominal pain)</td>
<td>baseline breath hydrogen</td>
<td>breath test with 260ppm over baseline is positive, 2 doses of 25g fructose or lactose were taken and palate wipes were taken from each subject. Consumption of food 3 hours after test was allowed to occur after stop of symptoms from the test.</td>
<td>25/1282 (2%) completed lactose tests; 121/104 completed fructose tests (some refused to drink)</td>
</tr>
<tr>
<td>Choi, 2000</td>
<td>fructose</td>
<td>220 subjects, become 60 after exclusions; 68 males, 52 females, 20-50 years, mean 42 years, none high fat, lactose, or fructose containing foods for day before test, fast from midnight, no smoking, baseline breath hydrogen</td>
<td>no high fat, lactose, or fructose containing foods for day before test, fast from midnight, no smoking, baseline breath hydrogen</td>
<td>25g fructose in 250ml water, breath hydrogen measured every 30 minutes for 2 hours; increase of 30-35ppm for 3 doses or more tests OR 300ppm over baseline symptoms</td>
<td>20% positive tests</td>
</tr>
<tr>
<td>da Silva Medrassoc, 2012</td>
<td>lactose</td>
<td>76 subjects between 5 and 12 years</td>
<td>maximum weight and height; white rice and ground fried or roasted chicken as meal before test, fast after meal; oral hygiene conducted before test to prevent false data; baseline breath hydrogen; 2 hour food recall completed by patients</td>
<td>180 minutes with breath samples every 15 minutes (6 samples) breath after baseline was given in dose of 25g/kg body weight with 30g sugar, fructose malabsorption is positive if 300ppm over baseline increase</td>
<td>6% (4/71) showed baseline malabsorption; median consumed less than 11 calcium in all age groups</td>
</tr>
<tr>
<td>Furu, 2010</td>
<td>lactose</td>
<td>150 volunteers from India (75 south, 75 north)</td>
<td>curbs and fiber avoided in test meal before overnight fast; no smoking or caffeine, two hours prior, breath test and three months to avoid incorrect baseline, avg of four readings taken for baseline</td>
<td>25g lactose in 100mL water; breath hydrogen every 15 minutes for three hours; rises of 30ppm over baseline for two readings abnormal result</td>
<td>50/72 south (71.2%) and 44/71 north (57.1%) positive lactose malabsorption</td>
</tr>
<tr>
<td>Jain, 2011</td>
<td>fructose and lactose</td>
<td>1000 fructose subjects, 3073 lactose subjects</td>
<td>fore fiber evening meal, at least 6 hour fast, no smoking or.exercising morning of</td>
<td>5g fructose (1kg body weight up to 10g fructose in 100mL water or 9mL/kg for children less than ten years); weight reducing body weight up to 2kg; breath collected every 30 minutes for 60 minutes; positive fructose malabsorption increase of 100ppm for two consecutive readings or final reading 100ppm over fastest value before 60 minutes</td>
<td>52% fructose tests positive for malabsorption, 36.9% before tests were positive</td>
</tr>
</tbody>
</table>
Works Cited


Quantifying Precipitate Size and Distribution in Aluminum Alloy Friction Stir Welds for Aerospace Structures

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Faculty Mentor: Wesley Tayon
NASA Langley Research Center

ABSTRACT
In an effort to produce spacecraft and launch vehicles for missions outside of low Earth orbit and beyond, researchers have experimented with an innovative manufacturing process that combines friction stir welding (FSW) and spin-forming (SF). These techniques have been applied in the manufacture of a single-piece crew module, like the Orion capsule, with aluminum-lithium (Al-Li) alloy 2195 that exhibits low density and improved mechanical properties. However, abnormal grain growth (AGG) occurs within the FSW microstructure during solution heat treatment (SHT), resulting in weakened mechanical properties. To suppress AGG, researchers have investigated heat treatments known as intermediate annealing treatments (IATs) prior to the SHT. Grains and their boundaries have been evaluated previously to determine the benefits of IATs. The purpose of this study was to develop a technique to examine the effectiveness of IATs by analyzing the role that precipitate particles have in the propagation of AGG. In order to evaluate the microstructure, images of the precipitate particles were captured using a scanning electron microscope (SEM) equipped with a backscatter detector. Backscatter electron (BSE) images were analyzed to determine precipitate population, average size, and area fraction. Results for various IAT time and temperature combinations were compared in relation to effectiveness at mitigating AGG in order to develop more efficient manufacturing of aerospace structures.

Aluminum is used in many applications in the aerospace industry due to its low density and resistance to corrosion. However, pure aluminum exhibits low tensile strength [14]. To increase the strength of its mechanical properties, alloying elements are added to aluminum. In this study, aluminum-lithium (Al-Li) alloy 2195 was the targeted material due to its combination of lower density and increased strength compared to conventional non-Li aluminum alloys. Composed of primarily aluminum, alloy 2195 contains only about 1% lithium with 4% copper, 0.4% silver, and 0.4% magnesium (weight %). Every 1 wt. % of Li increases the elastic modulus by 6% and reduces the density by 3% [11]. Alloy 2195 was incorporated in the final redesign of the space shuttle external tank, which became known as the Super Lightweight External Tank. The redesign of the tank and switch from conventional Al alloy 2219 to Al-Li alloy 2195 saved 7,500 pounds of weight [13]. NASA researchers are further investigating the use of alloy 2195 on future mission structures including the Orion Multi-Purpose Crew Vehicle [2].
Current designs of launch vehicles and crew modules used in both manned travel and cargo transit into space involve multi-piece constructions that increase the amount of time and labor required for manufacturing. To simplify this process and reduce the manufacturing cost, researchers have explored a new method that combines friction stir welding (FSW) with spin-forming (SF) in order to develop a single-piece structure [3, 14]. Commercial Al-Li plate sizes are not large enough to enable fabrication of a crew module from a single plate. Friction stir welding is used strictly to join two plates to provide an adequate sized spin-forming blank. The blank is spin-formed over a mandrel to form the desired shape as illustrated in Figure 1. Compared to the current multi-piece construction, the new approach eliminates 14 welds, thereby reducing the potential for weld defects and decreasing the risk for catastrophic failure. Spin-forming is a near-net shape manufacturing technology as there is little material wasted during the process. This is considered a ‘greener’ manufacturing technique and ultimately reduces the manufacturing cost compared to the current, multi-piece manufacturing method [2].

The FSW process mechanically stirs two materials together under a forging pressure to form high-strength welded joints. A rotating FSW tool is plunged into the material at the joint between the two plates. Through rapid heating and plastic deformation, the material is softened and joined together. Unlike conventional fusion welding, no melting occurs in the FSW process. Because it is solid-state process, FSW also eliminates many of the defects associated with fusion welding techniques such as shrinkage and solidification cracking [10].

The friction stir welded blank is spin-formed to shape at hot-forming temperatures by pressing the material over a shaped mandrel. After spin-forming, the material undergoes a solution heat treatment (SHT) and immediate water quench [4]. The SHT step creates a supersaturated solution that is ideal for subsequent nucleation of strengthening precipitates. Following SHT, the material is artificially aged to the T6 temper [8]. During this process, small precipitates nucleate and coarsen to further increase the strength of the material [15].

During the SHT step, abnormal grain growth (AGG) occurs within the FSW microstructure [1]. AGG is characterized by rapid, preferential growth of individual grains that consume the recrystallized, fine-grained microstructure of the FSW. The large grains associated with AGG negatively impact the strength and ductility of the FSW region [12]. AGG has gained recent attention in aluminum friction stir welds because of the detriment in mechanical properties. AGG is tied to microstructural instability in FSW that may arise from a variety of factors including
heterogeneous distributions of crystallographic texture, grain boundary mobility and energy, grain size, and precipitate particles [5].

NASA researchers have performed laboratory studies to simulate the effect of spin-forming deformation on the FSW material. Deformation introduced by hot rolling reduces the plate thickness via compression, which is similar to the deformation that occurs during the spin-forming process. Material was hot rolled near the spin-forming temperature with a 25% thickness reduction to study the effect of thermal processing on the FSW microstructure and development of AGG. Researchers investigated heat treatments known as intermediate annealing treatments (IATs) prior to the SHT to stabilize the microstructure and promote continuous grain growth rather than AGG [3]. Previous work addressed the impact of the IAT on grain size, texture, and grain boundary distributions and found correlations between grain boundaries. Specifically, AGG occurred in regions with a greater density of low-angle grain boundaries, which are known to be less mobile than high angle boundaries [15, 2].

The objective of this study is to develop a methodology to characterize the distribution of precipitate particles and study the impact of IATs on those particles. These particles impact grain growth and may serve to pin the grain boundaries through a mechanism known as Zener drag [12, 2]. Hypothetically, the most effective pinning particles are small in size and have a uniform distribution throughout the material. Through image analysis, precipitate microstructures within the FSW region were examined to determine the effect of precipitate population, size, and area fraction on the extent of AGG following the SHT. The precipitate particles were characterized before and after the IAT in order to analyze the role of IATs in limiting AGG to improve the manufacturing of aerospace structures.

Experimental Procedures

![Table 1. Sample designations with corresponding IAT time-temperature combinations.](image)

In this study, several samples that were subjected to IATs at various degrees were evaluated. All of the samples were taken from the FSW region of a 2195 T3M4 plate with a starting thickness of approximately 1.6 inches that was reduced 25% through hot rolling. Tested samples were named according to processing periods. Specimens were then exposed to different IATs at various temperatures and times. The list of samples with their associated IAT combinations is displayed in Table 1.

In order to image the microstructure, samples were mechanically polished for both optical metallography and electron microscopy. Using an automated polisher, the samples were mechanically polished with 600, 800, and 1200 grit silicon carbide (SiC) paper for 3 to 6 minutes per grit step. After completion of the coarser grinding stage, the samples were polished using a 0.05 µm colloidal silica suspension on a felt-like polishing cloth.

Each sample was imaged in a scanning electron microscope (SEM) at the quarter-thickness, or t/4, location shown in through-thickness optical micrographs for each sample in Figure 2. This area was chosen because it exhibited the greatest net effect of the IAT on suppressing AGG. Each sample was photographed at 5 various sites at the t/4 location to provide a sufficient statistical representation.

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of each area using backscatter electron (BSE) imaging. At 1000x, the SEM revealed many aspects of the microstructure that were not visible in the optical images. The BSE detector collected electrons scattered as a function of sample composition. Due to atomic number contrast, the copper (Cu) rich precipitates were highlighted against the Al matrix and easily identified in BSE imaging. The BSE images were then analyzed using ImageJ (Image Processing and Analysis in Java) software [13]. Brightness and contrast thresholds were adjusted to better separate the precipitates from the surrounding grain structure. The SEM scale bar on the image was used to calibrate the number of pixels per micrometer to accurately measure particle size. The software then measured the number of particles (count), average particle size (average size), and area fraction of particles (% area) for each image. Each sample was examined to determine the effectiveness of this technique in analyzing the correlation between precipitates and IATs in mitigating AGG.

Results and Discussion

Susceptibility to AGG after SHT for a sample with no IAT (S1) and several other samples that were given an IAT prior to SHT is demonstrated in Figure 2. The FSW is denoted by the hourglass-shaped region in the images. More detail regarding the FSW and spin-forming process can be found in a recently published NASA report [2]. AGG was most prevalent near the advancing side of the weld, which is the boundary on the left side of the FSW. Samples F1 and 144 HR exhibit some suppression of AGG at the t/4 region but still display areas with large grains. However, sample B1 reveals significant suppression of AGG at t/4 and is consider the most successful of the IATs shown.

The various samples analyzed in this study revealed the effectiveness of inserting an intermediate annealing treatment (IAT) before the SHT. Because AGG primarily occurs during SHT, the IAT stage is necessary to produce both effective formation of the weld and continuous grain growth within the microstructure [6]. Conventionally, a greater number of precipitate particles that are smaller in size are favorable in stabilizing the Al-Li microstructure [3]. However, the evaluated samples exhibited less AGG with fewer precipitates and varying sizes and obvious changes in the precipitate distribution as a result of the IAT.

The material underwent the IAT at an ideal temperature and duration to allow for continuous grain growth in obtaining a stabilized microstructure. Samples F1, 144 HR, and B1 demonstrated the greatest suppression of AGG at the three evaluated temperatures. Each presented a varying degree of success, particularly at the t/4 location. Sample S1 was selected to represent the before IAT condition.

Using ImageJ software, the images captured with the BSE detector on an SEM at 1000x were analyzed to determine the effect of precipitate size and distribution in the mitigation of AGG. Each image was
thresholded using the maximum, minimum, brightness, and contrast functions, as shown in Figures 3 and 4. The image’s pixel size was then calibrated by identifying the known distance and unit of length (e.g. 50 µm), enabling the software to measure specific aspects of the microstructure (Figure 3).

Once the precipitate particles exhibited a clear, visible contrast to the background, the image was altered using the binary function (Figure 4). This technique illuminated the Cu-rich precipitates, separating them from the surrounding Al matrix. Though the images originally exhibited some contrast in the initial SEM image due to the varying atomic weights of the elements, a binary image was necessary for the software to identify pixels as particles (black) against the surrounding matrix (white).

The precipitates in each image were evaluated using the “Analyze Particles” function. This study utilized the summary function’s data of precipitate population, average size, and area fraction (the percentage of space the particles utilize). However, the results function has the capability to output statistics for each individual particle, providing an exhaustive study of precipitate size and distribution for future research. The data output for one image of sample B1 at the t/4 region is presented in Figure 5.

After collecting data from all 10 samples, the calculations of each sample’s precipitate count, average size, and area fraction were compared to determine any trends from sample to sample. Depending on the sample’s thermal condition, the number of precipitates ranged from approximately 100 to 900 particles in each 90 x 70 µm image. The average area of each precipitate was between 0.3 to 0.9 µm². Area fractions ranged from approximately 0.9 to 3.0 %, measuring the ratio between particles and matrix.
the microstructure. Figure 6 compares the population, size, and distribution of precipitate particles in samples S1, F1, 144 HR, and B1. Overall, the count, average size, and area fraction (% area) decreased in most samples as the temperature of the IAT increased. To test the reliability of the data, error bars represent the ranges between high and low values in each graph, measuring actual variation between samples with trends greater than the experimental error. Collected results from image analysis were also graphed along with trends of conventional theory concerning AGG and thermal treatments. Samples S1, F1, 144 HR, and B1 followed the curve toward continuous grain growth as the temperature of the IAT increased, demonstrating trends similar to conventional theory.

Although the initial analysis appeared to contradict conventional wisdom concerning precipitate population and size, the data collected measuring the count, size, and area fraction do exhibit a common trend regarding suppression of AGG. As the temperature of the IATs increased, the samples began to undergo more continuous grain growth. Through this study, a technique was successfully developed to quantify precipitate size and distribution within the microstructure.

Summary

Through a comprehensive investigation of the microstructure of Al-Li alloy 2195, FSW was examined to analyze the impact of IATs on precipitate particles and susceptibility to AGG. BSE images were captured at the t/4 regions and post-processed with ImageJ software to quantify precipitate size and distribution. Samples that had undergone different IATs at varying times and temperatures exhibited significant progress in promoting continuous grain growth. Future research should investigate other areas of the weld in a more exhaustive study.

Recovery annealing treatments such as IATs are effective in suppressing AGG. However, application of standard Zener drag concepts does not seem to explain the microstructural effect. The IAT alters the microstructure, including the precipitate particle size and distribution, which leads to improved stability during SHT. The impact of the IAT on precipitates was not quantified in prior research. Through this study, an analytical technique was developed to quantify precipitate population and distribution by measuring particle

![Figure 6. Example of data trends with respect to IAT at the t/4 region.](image-url)
count, size, and area fraction. Though a thorough correlation between precipitates and suppression of AGG has not been fully resolved, preliminary results suggest that there may be a correlation between the dissolution of precipitates during the IAT and a reduction in the extent of AGG. The most effective IAT at suppressing AGG resulted in the smallest precipitate quantity, size, and area fraction of precipitates. This correlation may be due to the reduction in particles providing a more favorable environment for competitive or continuous grain growth during SHT.

Through the technique developed, further study of the impact of IATs on precipitates may lead to greater suppression of AGG by promoting a stabilized microstructure within the FSW. Solving the problem of AGG will lead to increased strength and ductility within the FSW for structures fabricated through the spin-forming process. Future work will need to apply computational methods to standardize imaging and thresholding procedures. Precipitate distribution will also need to be compared with grain size to better understand the role of precipitate particles on AGG. [9]. Increased strength and ductility of materials fabricated through the spin-forming process will ultimately lead to greater reliability and reduced cost in the manufacturing and operation of aerospace structures.

**Acknowledgments**

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**References**


Creative Work: Vampire Luna Plant

**Artist:** Courtney Hockett  
**Faculty Mentor:** Brandon Sanderson  
**Affiliation:** University of North Carolina at Pembroke  
**Dimensions:** 9” x 12”  
**Medium:** Copper Etching, Water Color

**Artist Statement:** *Vampire Luna Plant* was created as part of a series in which North Carolinian plants and animals were studied, photographed, and lastly illustrated in the style of John James Audubon. During my studies, I closely observed local wildlife and chose to focus on the more gruesome and frightening aspects of nature. I used my research to create a new carnivorous plant species that is half common vampire bat and half “moon” plant.
Vampire Luna Plant, Courtney Hocket, 2014
Social Sciences
Even though it is home to the world’s second largest population, India’s lagging development is a reflection of its size, resources, and development policies. Though macro-level economic indicators have displayed moderate gains since the implementation of neoliberal economic policies, quality of life indicators have resisted progress at similar rates. India, however, is also home to an outlier. The subnational state of Kerala near the southern tip of the peninsula experiences ‘Very High’ Human Development Index scores, which puts it on par with many industrialized sovereign states, despite extreme poverty and stagnant economic growth. The contradictory implications of these strange bedfellows have drawn the curiosity of development researchers. Traditionally, countries were not expected to behave in this manner, but Kerala is not a country. As a result, the paradox of the Keralan developmental experience can be understood best within the context of the powerful and centralized Indian federal system. This paper will argue that the Kerala paradox is a failure of the parliamentary federalist approach of national organization in large, diverse states.

Kerala is a constituent federal state, not a constituent country. The contradictory implications of these strange bedfellows have drawn the curiosity of development researchers. Traditionally, countries were not expected to behave in this manner, but Kerala is not a country. As a result, the paradox of the Keralan developmental experience can be understood best within the context of the powerful and centralized Indian federal system. This paper will argue that the Kerala paradox is a failure of the parliamentary federalist approach of national organization in large, diverse states.

ABSTRACT
The Indian federal state of Kerala has long been noted by scholars for its seemingly contradictory pattern of development, commonly referred to as the “Kerala paradox.” The paradox refers to Kerala’s exceptionally high quality of life paired with poverty and economic stagnation across the past half-century. This paper posits that the paradox can be accurately explained via existing theories of parliamentary federalism and basic needs development without paradoxical implications. Moreover, it suggests that India’s asymmetrical, parliamentary federal system has been toxic to the progress of development in Kerala, in spite of the great strides made by the Keralans. It will be argued that the emergence and significance of Kerala’s massive remittance economy is the primary response of the educated Keralans to India’s federal failures.

Kerala and the Indian Federal System: Restriction and Response

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sovereign nation, operating under a different set of rules and restrictions than individual countries. The additional constraints of the federal system of India can explain both why Kerala has excelled in certain areas, yet faltered in others, and why the central government has struggled so greatly to replicate similar results in other states through expansions of its authority. Kerala’s successes and failures have been defined by the struggle between mutually-reinforcing, locally tailored policies and the central government’s powerful abilities to restrict the economic abilities of subnational governments, resulting in a remittance economy based on the temporary migration of labor. Beyond the federal conflict, Kerala owes much of its success to high levels of mass participation and early one-party hegemony, enhancing its ability to provide for citizens’ basic needs despite relatively limited governmental powers at the local level. Ultimately, central government interference has stunted contemporary economic growth by its emphasis on equal development, India’s vast diversity, and prohibitive tax structures.

**Literature Review**

**I. Basic Needs Theory**

Before World War II, there was little academic work by researchers on the development of third world nations (Harris 2000). With the rise of newly independent democracies in the former colonies and increase in globalization, increased interest in developmental theory led researchers to explore their transitions to modernity. The overarching normative goal of developmental theory is to increase the standard of living in underdeveloped nations both socially and economically (Birdsall 1993). The early body of work in this area came to be known as modernization theory. This theory focuses on non-industrialized countries following stages of development as did current first-world countries through an emphasis on increased industrial output and macro-level indicators. The five stages were outlined in a landmark work, The Stages of Growth: A Non-Communist Manifesto as traditional society, pre-take off, take off, drive to maturity, and finally an age of high-mass consumption, signifying modernity (Rostow 1960). This theory focused on industrial-scale actors and came to underlie the neoliberal economic theories which rose to prevalence in the 1980’s and 1990’s (Woodcock 1998). Rostow’s theory, in particular, outlines entrepreneurship and the importance of private investment in creating the basis for a modern economy, seeing increases in quality of life as a resultant benefit of industrialization and consumerism. Due to its concentration on macro-level indicators, modernization theory was criticized by dependency theorists who claimed it caused a ‘race to the bottom’ which ultimately undermines the goals of increased living standards. The benefits of living in an industrialized society are greatly jeopardized when the government is most concerned with decreasing labor regulations to curry the favor of foreign investors whose funds are critical according to modernization theory. Despite its criticism, however, dependency theory offered no alternative blueprint to which developing nations could look.

By the 1970’s many scholars felt evidence was insufficient to demonstrate wealth was ‘trickling down’ to individuals as top-down theories like Rostow’s predicted. During this period, a body of work began to emerge around the doctrine of ‘basic needs’ as a possible alternative method of development. The basic needs model focuses on meeting the developmental needs of individuals, as opposed to those of the national government and industries (Woodcock 1998). The primary concerns of the basic needs model are the promotion of education and healthcare (Streeten 1981). Gains in education are considered the most fundamental since they are observed to increase standards of living across the board, even if the educated population does not go on to work in industry. For example, the yields of farmers increase and infant mortality rates of domestic mothers decrease with each additional year of education in developing countries (Birdsall 1993).
The presence of education is therefore theorized to be mutually reinforcing with other goals of development through the increase of general efficiency. Though basic needs theory seeks to directly raise the standards of living of the average citizen, it is not primarily a welfare concept (Streeten 1981). Basic needs theory seeks to explain a means of achieving a sustainable transition to an industrialized society without causing, and to buffer, the negative effects of economic restructuring. The theory presents a primary policy focus, but does not prescribe a specific economic system of development like neo-liberal models. What is required, however, is a strong level of moderation and coordination in developmental goals (Birdsall 1993). The most promising results of the basic needs model result from advancements in primary education, with diminishing returns in secondary and tertiary levels (Psacharopoulos 1994, Ozturk 2001). The application of too much social policy without relevant economic growth can result in overeducation, ironically a problem previously thought only to plague modernized states (Mehta et al. 2010). Ultimately, basic needs theory promises both immediate standard of living increases and a means for sustainable transition to industrialization.

II. Federalism

Federations are a form of political organization characterized by the sharing of powers between distinct national and constituent governments (Elazar 1993). These governments are supposed to work both independently and in conjunction across levels to most effectively govern. Both levels should have jurisdiction in policy areas which directly affect citizens (Watts 1996). Federalism, as a concept, emerged as a means to gain collective stability with the guarantee of some local control, but has been utilized since to effectively, in theory, manage social cleavages in diverse states.

The early federalism envisioned by the founding fathers of the United States was highly philosophical and directly tied to the concept of liberalism (Verney 1995). This sort of federalism was not simply an arrangement of federal power but an integral part of a planned system of checks and balances. Internationally, the concept of federalism evolved greatly over the 19th and 20th centuries as it became recognized as a means to balance the increasing needs of states more than as a philosophy of government. Referred to as post-modern federations, these are systems seen as a means of making government more manageable in large states (Saxena 2012).

States which utilize this form of federalism are fundamentally different from those made of pre-existing territories seeking mutual benefits, like the United States and Switzerland. A branch of these artificial federal structures, such as India and Canada, are known as ‘parliamentary federations’ and suffer from their misalignment with standard federal theory (Verney 1995). This marriage of parliamentary central governing principles coupled with limited regional governance was also studied, as executive federalism, by Watts (1989). The power structures of these two states are focused on the Westminster system, developed in a unitary state, which grants disproportionate amounts of power to the lower houses of parliament. When designed in the 1860’s, this fusion of systems was considered pragmatic; there was no attempt to justify the system on a theoretic rationale (Watts 1989, 2). Overall, this kind of system is noted for its considerably higher prevalence of intergovernmental conflict (Watts 1989, 15). The addition of enhanced authority to the central government hinders the ability of constituent governments to coordinate shared and internal policy matters, often masking coercion as cooperation (Elazar 1993, 194). Although stability within the levels of government is increased by having fewer constituent provinces, parliamentary federalism was developed to attempt the unification of large regions (Watts 1989, 15). This implication is not promising for the success of these typically large, yet highly centralized federal systems.
Further complicating matters for postmodern federations are the increased asymmetries between their constituent compositions. Ronald Watts categorizes these into two groups of de facto and de jure asymmetries (Saxena 2012; Watts 2008). De facto asymmetry has affected all federations and is the result of geographic and historic factors conferring incidental benefits unequally to different constituent regions within a federation. De facto inequalities have been recognized as mostly benign, so long as the inequalities are not heavily concentrated in certain regions (Eazar 1993, 193). De jure asymmetries are distinct political advantages granted by constitutional or other legal means to specific territories. Though by no means all, many de jure asymmetries are the result of an attempt to balance existing de facto asymmetries. De jure inequalities run somewhat contrary to early federalist thought but seem to be beneficial in highly fragmented, multicultural societies (Saxena 2012, 70).

Certain traits, however, better lend themselves to successful resolution of asymmetries. Germany, identified by Watts as an example of executive federalism, provides an excellent example of a successful resolution of deep de facto and de jure asymmetries resultant from its parallel development for much of the twentieth century (Watts 1989, 7). Much of the success of German federalism can be attributed to the maintenance of strong subnational governments, through a trend of decentralization, which are better able to respond to local priorities (Benz 1999, 59). Also, Benz notes that co-operation in policy between the federal levels is strong. Fiscally, a “significant” amount of the tax revenue remains in the ‘Lander’ governments, further enabling the subnational agendas (Benz 1999, 58). None of these beneficial factors to Germany’s asymmetrical federalism are present in India’s parliamentary federalism, the absence of which has caused major problems with Kerala’s attempts at industrialization.

An examination of the Kerala situation with respect to these theories demonstrates the application of a strong basic needs approach which failed to make positive economic growth during its first four decades. Kerala experienced lower State Domestic Product (SDP) growth than its neighbors well until the end of the 1980’s, with the exception of a few years growth in the late 1960’s (Joseph 2010, 49). During the 1970’s and 80’s, in particular, Kerala suffered under a national import substitution industrialization regime which neglected the industrialization of Kerala while simultaneously crippling its historic capacity as a port, due to greatly increased trade restrictions (George 2011, 12). By the early 1990’s Kerala had achieved population literacy and longevity, yet the state remained destitute. It was not until the 1990’s, with the rise of neoliberal policies on the federal level, that Kerala could begin to capitalize domestically on its educated population without turning to the outside world for employment.

The parliamentary federal system of India shaped both Kerala’s basic needs approach through the constitutional distribution of power and its inability to respond to Kerala’s specific needs. The highly centralized nature of the Indian federal system worked against the philosophical checks and balances of early federalist doctrine, causing a lack of the necessary coordination between the levels of government. This left Keralites unable to capitalize on their advantages, resulting in an economy based heavily on the export of labor.

**Consistent, Complementary State Policies**

Relative to other Indian states, Kerala’s ability to consistently outperform the others in its rate of development, most notably in the areas of education and healthcare, is nothing short of amazing. In 1990, India’s largest state, Uttar Pradesh, had roughly 139 million people, but only 735 hospitals. Kerala, only one seventh the size and with 29 million people, was home to 2,053 hospitals (Heitzman and Worden 1996, 102). In 1991, the nation of India reached an average
male literacy rate of 64.2 and a female rate of 39.2; that same year Kerala achieved universal literacy (Chandran 1994, 514). Despite impressive policy outcomes such as these, Kerala remained remarkably poor. In 1992, were it its own country, it would have ranked as the ninth poorest on the planet (Franke and Chasin 1992). This astounding poverty would seemingly run contrary to basic needs theories, as it apparently helped generate little relevant growth.

Neoliberal economists point to the paradox of Kerala as a failure of well-intentioned, but blind, socialist policies. The promotion of social goals is portrayed as the result of a strong communist coalition utilizing effective mass mobilization to achieve popular demands. These economists have blamed the development of health and education without economic planning as the result of a misguided effort at increasing simple quality of life indicators with little respect to sustainable growth. The argument of ineptitude was supported by claims that an increase in simple literacy, with far less developmental relevance than financial literacy, created relatively little change in economic development (Prete 2013). In reality, the social agenda of Kerala was carefully crafted through three decades of unhampered communist control of the state government in a mutually-reinforcing way, focusing on numerous facets of development (Government of India 2008, 297).

The election of the communist party to the control of Kerala in 1957 was the first peaceful, competitive election of a communist party in history. Rather than change the society through revolutionary means, their focus was on developing a new concept of citizenship through “empowered self-worth to be achieved through active state intervention in critical areas of social life” (Prabhash 2010). The primary focus was to be placed on agriculture and education, followed then by industrialization (Prabhash 2010). Though it was not developed at the time, these are the core targets of the basic needs theory of development. Unable to alter regulations and policy in sectors of industry due to federal limitations, Kerala attempted to promote what change it could through easing tensions between workers and business owners.

The Kerala model, therefore, was designed in an organized fashion, rather than a careless, mob-controlled manner. From the earliest stages, policies were crafted to be “mutually reinforcing,” addressing underlying causes of social issues, rather than attempting to merely alleviate their symptoms (Franke and Chasin 1992). Land reform, among Kerala’s “most thorough and successful” programs, provides an excellent example. These policies were designed to primarily reduce the effects of tenancy and the threat of eviction. These effects are important because they were designed, as with basic needs theory, to break the cyclical poverty which these conditions engendered. A reduction in tenancy reduces the reliance on existing economic elites for shelter and enables initial accumulation of real property. These reforms led to better housing conditions leading to overall improvements in sanitation, making the policies mutually-reinforcing with Kerala’s emphasis on preventative health measures. The reduction in tenancy incentivized the incorporation of former landowners into the growing middle class and state bureaucracy as they sought jobs to replace the income previously obtained through rent. This single policy helped reduce land inequality, carryovers of the caste system, and increase public health (Franke and Chasin 1992). As such, the use of state power by the Keralite government was carefully tailored and cost effective even within the policies themselves. The failure to coordinate economic policy with developmental work is a consequence of the Indian federal system, which prevented economic planning on the part of the states.

Educational goals, in particular, were highly effective and not based on achieving simple literacy, but a four-pronged “functional literacy.” The goals of this approach are based on an ability by the population to read and write; awareness of poverty’s effects; acquisition of functional economic skills; and
recognition of equality, nationalism, and environmental conservation (Chandran 1994, 515). Functional literacy, as implemented by Kerala, was far more than simple reading lessons, but rather the teaching of skills necessary for a citizen to effectively function in a modern economy. Health care policies were no different, operating through principles of efficiency and breadth. The greatest improvements in Kerala were made by investments in preventative measures. Since their inception and to this day, public immunization programs, increased awareness of basic sanitation practices, and improved clean water conditions continue to form the backbone of Kerala’s health policy (Government of Kerala 2013). In a country where diarrheal diseases are the number one cause of child death, public health is more often than not the result of the active promotion of fundamental health and sanitation knowledge than a free, comprehensive system of universal medical care (Heitzman and Worden 1996, 16).

Despite the focus on functional literacy and continuing increases in quality of life, the increases in financial literacy failed, until the 1990’s, to produce the macro-level economic gains predicted by development literature. Even after increased rates of growth began, many factors seemed to be worsening. The educated fared the worst in this situation, with young middle class degree-holders waiting upwards of six years before finding a job (Government of India 2008, 99). In 1975, the wait was closer to three years. Job creation in itself was not the issue, as lower sector jobs have grown with the living standards of Kerala. A constant influx of migrants from neighboring Indian states, rather than Keralites, continue to fill these unwanted jobs. Young Keralites, it would seem, refuse to take jobs they see as not producing ample income, due to their already high quality of life. Instead, their needs met, the Keralan system affords them the ability to bide their time until a friend or family member can locate an ideal job. This is the pattern for four-fifths of educated youth who locate employment within Kerala (Government of India 2008, 101). In development literature, this is referred to as overeducation but has been referenced in the context of Kerala as ‘second generation problems’ (George 2011). Unemployment is, therefore, both a social and economic problem, compounded by the constitutional inability of Kerala to coordinate economic policies and the creation of a large body of fiscally literate, and rational economic actors.

Economic growth, healthcare, and education underpin three key ideas in developmental theory for their often mutually reinforcing relationships (Harris 2000, 4). The evolution and efficacy of Indian federalism and public policy can, in many ways, be demonstrated in the experiences of Kerala and the central government in these areas. If Kerala’s success in its formerly reserved powers of education and healthcare were the result of sound policy rather than culture, the implications of its success would be of great value to basic needs researchers. An analysis may also reveal whether or not the economic pitfalls of the Keralan experience resulted from a lack of policy coordination with social goals to the division of powers. Also relevant in the federal issue is the tendency of the Indian government to favor underprivileged groups. Affirmative action programs are the norm for social policies in India; federal level politics are no different, where de jure asymmetries can potentially hamper the development of a comparatively privileged state.

Central Powers and Unintended Incentives

Though the Indian constitution was ratified in 1949, its current federal structure did not appear until the 1956 States Reorganization Act. This sweeping legislation redrew the boundaries of the states into regions defined by common linguistic traits (Heitzman and Worden 1996, 455). Such organization was a classic application of post-modern federalism, as described by Saxena, as a response to numerous, and deep, ethnic and cultural tensions to promote efficient government across a large territory such as India (2012). The
federal system of India, however, also contains heavy elements of a unitary governmental system (Sowani 2012). The enumerated powers reserved for the central government far outnumber those of the states, and it assumes all residual powers as well. The central government, through its existing powers and ease of constitutional amendment, has nearly unlimited ability to interfere with the affairs of states. As a result, as opposed to containing their own identities of statehood, the states of India were designed to act more as secondary levels of administration than placeholders of regional representation (Dholakin 2006, 2).

The Indian constitution split exclusive and shared responsibilities between the national and the constituent levels in such a way that mineral, financial, and international matters were kept for the central government, with the states receiving exclusive responsibility for education, public health, and a limited reservation of taxing rights (Dholakin 2006). India’s constitution, however, is notorious for its ease of change, as has been the government’s willingness to take advantage of it and amend it on numerous occasions. In basic federalist theory, the ability to change a constitution easily is considered negative as it leads to reduced stability (Verney 84, 1995). Unsurprisingly, many of these amendments have altered the distribution of responsibilities between the central and state governments. During the late 1980’s and early 1990’s, the central government began to expand its authority in the development of public health and education (Chandran 1994, 515). Previously reserved for the states, the central government’s increase in its authority was a response to the difficulties individual states, Kerala notwithstanding, had with improving their efficiency of government.

The need for central intervention in basic development policies stems partially from the asymmetrical structures of the federal system, particularly in regard to fiscal matters. The central government retains all of the most lucrative taxing rights, none of which are concurrent, leaving states with only agricultural taxes to support themselves (Sowani 2012). This policy intentionally made the states fiscally weak, in an effort to “stall divisive forces operating in the economy” and prevents states from achieving different stages of development. Unfortunately, the central government was overzealous in its efforts to stall variable growth and limited development overall. As a result, the government succeeded in making its constituent states financially similar only by making them similarly poor. The most profitable tax fields, such as mineral rights and all non-agricultural income, are kept for the central government, increasing its abilities at the expense of regional growth. Consistent with the Indian system’s goal of reducing inequality, this tax structure removes the most beneficial de facto asymmetries from the states.

With no state able to capitalize on its local advantages, deficit spending is and has been the norm by Indian constituent governments, requiring annual payments by the central government to maintain local services. The way in which these payments are structured incentivizes states to invest in areas which will not hamper their ability to receive assistance. As of the 12th Finance Commission, the current central economic plan, these payments are based 62.5% on a state’s income with less than 7.5% determined by the state’s fiscal responsibility (Sowani 2012, 4). As an immediate result, responsible spending is not well incentivized. Neither improvements in education nor the level of healthcare factor into this distribution of funds, meaning improvements in these areas will not decrease federal ‘need.’ With the only taxable local income being agriculture, states have little incentive to promote development of non-agricultural jobs. Such methods of allocation do not incentivize state level governments to focus their already strained budgets and limited influence on increasing income they cannot tax or in areas that may compromise their future payments from the central government via a lesser calculation of ‘need’. This played out in Kerala’s focus on agriculture, an area it could tax for internal revenue. As the majority of Indian states fell behind in development,
the need for greater federal intervention in most states was clear, though such actions met much less success than Kerala managed (Heitzman and Worden 1996, 106).

The setup of the Indian federal system creates a series of incentives which could potentially explain the situation of Kerala. Kerala excelled in the areas of authority, which it either shares with the central government or exercises exclusively, yet faltered in areas where the federal government maintained control. This suggests a competent regional government thwarted by an inefficient federal system. The mismatch between central economic policy and local economic realities is further evidenced by the paradox of having both perennial unemployment as well as constantly unfilled jobs (Government of India 2008, 100). The people of Kerala are the most educated in India; the common decision of the citizens to remain unemployed is not one of an ignorant, irrational public. The jobs available in Kerala are simply unattractive relative to the education of the population, yet the local government remains unable to significantly incentivize the kinds of business most favorable to its unique conditions (Government of India 2008, 101). This mismatch between the job market and prospective employees that the education system continues to generate is a clear example of uncoordinated policy.

Central Planning and Kerala’s Fare

Over the years, the central government made extensive use of its unilateral powers over the national economy. From 1951 onwards, the government attempted to economically develop the nation by means of five year plans (MOSPI 2014, 7.2.1). Shaped by India’s Central Planning Commission, these plans continue to guide the development of national economic policy. The first six plans focused on a modernization theory known as import substitution industrialization (ISI) (George 2011, 12). This is a theory which promotes autarky to develop a self-sufficient industrial base. Across the nation, these plans were ultimately considered problematic as benefits failed to improve the living conditions of the average Indian by the mid 1980’s (MOSPI 2014, 7.3). These plans were not only a failure to most Indians, but were an enormous hindrance to development efforts in Kerala.

Despite its impressive gains in standards of living during the period, Kerala was still among the poorest states in India at the end of the ISI experiment (George 2011, 7). This is directly attributable to the complete mismatch of federal policies to Kerala’s situation. First, the ISI model focused on the expansion of basic and heavy manufacturing jobs (MOSPI 2014, 7.2.6). Kerala had almost no mineral resources to mine and its industrial base accordingly failed to develop in a meaningful way. The investments of the federal government negatively contributed to this relative to other states. While Tamil Nadu and Andhra Pradesh received roughly 7% each of the total industrialization funds, Kerala was granted a mere 2.4%. Second, agriculture, Kerala’s primary industry from natural resources, did not receive subsidies nor trade protection as did manufactured goods. Third, high tariffs and trade restrictions made Kerala’s historically beneficial port capacity more of a liability (George 2011, 12). Fourth, value freezes on the rupee severely reduced the value of remittances after conversion rates (George 2011, 12). As such, during this period where Kerala was able to make most of its gains in standard of living, it was substantially disadvantaged by the economic policies of the federal government.

During the late 1980’s and early 1990’s there was a large shift in the central government’s economic policy (MOSPI 2014, 7.2.5). Though the shift was not tailored to Kerala’s needs, the state significantly benefited from the new policies of liberalization. The combination of Kerala’s basic needs development and the increase in economic activity during this period created rapid growth. The main improvements between the liberalization of the 1990’s and the current period came through the development
of the secondary and tertiary sectors (George 2011, 8). Despite the rise in these industries, Kerala’s largest single form of income remains remittances, accounting for one fifth of the state’s income in the late 2000’s (George 2011, 15). Although this figure represents a proportional drop from the remittances received in the late 1990’s, it is still the largest single source of the state’s income. This massive influx of remittances for a single state accounts for roughly 20% of all remittances going into the country of India as a whole (George 2011, 15). The impact of remittances in Kerala cannot be understated, as they have functioned as a crutch for its overeducated population for decades.

Remittances as a Response

For all its successes in contrast to other Indian states, relative benefits provide little comfort to the poorest Keralites, who live with the hard reality of a three to six year employment hunt. While the safety net, supplemented by family contributions, is sufficient to bide time for the upper and middle classes to find the employment citizens in these classes are looking for, lacking the supplemental support lower classes are not afforded as great a domestic opportunity. Living in a region with low demand for educated labor and high supply, Keralites have responded to the international labor market as a solution to high local unemployment. Since the 1970’s, many non-resident Keralites have found consistent work in the nearby Persian Gulf (Kannan and Hari 2002, 7). The remittances sent home by these groups have played no small part in maintaining the quality of life Kerala continues to enjoy, comprising a significant portion of their income. This number reached a high point during the 1997-1998 fiscal year, when they accounted for twenty-four percent of Kerala’s income (Kannan and Hari 2002, 5).

Remittance income has uniquely beneficial effects in Kerala when compared to domestic sources, both individual and national. First, remittances dwarf the receipt of international aid, which is doled out through the central government’s planning commissions, whose distributions impact Kerala far less than the average, undeveloped states which require more need (Ratha 2013). Second, research indicates that remittance money is spent more efficiently than domestic income because it is received on the condition that it is spent on the household as a whole (Barry and Overland 2010, 1083). Since these remittances are sent between individuals within familial networks for altruistic purposes, it is simple for the sending party to discover squandered remittance funds and withhold additional payment. More often than not these funds are disproportionately represented in investments in human capital, such as the healthcare and education of children (Government of India 2008, 32). Third, remittances are known as “counter-cycle financial flows” and actually increase during periods of economic downturn in the home country (Ratha 2013). This effect in particular helps fill the void of a weakened domestic industrial base. Fourth, health standards are also positively reinforced by returning migrants who bring back non-monetary benefits, such as an increased expectation and awareness of first-world sanitation practices (Ratha 2013). These effects of remittances are, luckily for Keralites, mutually reinforcing with existing state policies, filling in crucial gaps in economic development while domestic industries gradually begin to find footing.

The successful integration of remittances into the Kerala model of development is not the universally typical results of these payments. In El Salvador, remittances also play a large part in home finances, so much that remittances have caused the prices of food to rise accordingly essentially necessitating a family member abroad. The spending of remittances in El Salvador is also less efficient, consisting of almost 80% of spending on perishable consumer goods instead of investments in human capital (Gammage 2007). Kerala has managed to avoid this trap of complete remittance dependence through the fiscal literacy of its educated citizenry.
and the availability of basic needs, food foremost among them, at fixed prices (Franke and Chasin 1992). The Kerala State Civil Supplies Corporation, which provides these goods and prices, was unsurprisingly created in 1974, at the beginning of the Kerala Gulf Diaspora, as the growth of the emigration economy is called (Government of Kerala 2014). Where neoliberal economics limited the beneficial impact of remittances in El Salvador, the liberalization of trade policies in India actually increased their potential, allowing a greater flow of currency due to decreased trade barriers (Kannan and Hari 2002, 5). Remittances are thus untaxed, and as a result bring their collective benefits entirely to the home region, rather than being spread across the nation.

Although they can hardly be described as a state policy, the impacts of remittances in Kerala have staved off the potentially negative consequences of its relative lack of economic growth. This effect may not have been planned, but the beneficial effects of remittances aligned well with the strengths and shortcomings of the Kerala system as well as its geographic position. The presence of remittances helps to mitigate the negative effects of ‘brain drain’ in several positive ways, even enabling beneficial capitalization on an otherwise negative phenomenon (Barry and Overland 2010, 1984). The temporary absence of emigrated workers from Kerala reduces the strain on the local system of fixed prices and public resources. These workers finding employment abroad incentivizes continued investment in human capital, even in the presence of a poor domestic job market. Remittance income is ‘free’ in that no local resources are truly foregone in exchange for the income, even in terms of opportunity cost, as highly educated Keralites are willing to wait for high-paying domestic job openings.

**Conclusions**

Contrary to criticisms that Kerala is paradoxical, its case applies well to existing standard models of basic needs development and federalist theory. Kerala implemented an effective basic needs program without coordination with the central government. While the successes in health and education greatly increased standards of living of Kerala’s citizens, they also created an overeducated population. Due to the state’s inability to alter economic policy in a manner favoring its overeducated population, the citizens resorted to seeking work abroad. Federally, while the economic policies ran counter to the needs of Kerala, its comparatively advanced standards of living and early positive de facto asymmetries made it of little concern to the central government. The negative impact of this situation was increased by the parliamentary federalist nature of the government, which made policy coordination nigh impossible. Had Kerala and India been able to work more closely together to implement policy, both the economic development of Kerala and the humanitarian goals of the Indian government would have been significantly furthered during their first half-century.

Unfortunately for Keralites, as well as other Indian citizens, this lack of symmetry is a product of the Indian federal system working precisely as it was designed to. The asymmetrical and unitary natures of the Indian system are the primary causes of the inability to coordinate, and both are written into its brand of federalism. These two factors hindered the states’ ability to exercise what powers they were granted. There existed an inability to coordinate because the central government had no great interest or responsibility to do so. This is an example of the contradictory nature of India’s federal system. Kerala is therefore neither a failure of basic needs development nor a suggestion that this approach is incompatible with neoliberal market concepts. Instead, the Kerala paradox is a failure of the parliamentary federal system of government.

India is simply far too large and diverse, in both its geography and people, for such a centralized system. The sheer vastness of its domain makes unitary government difficult at best and nigh impossible when
compounded by the inability of states to adequately respond to local needs. The concept of these states as lower administrative levels has backfired. While states like Kerala took the initiative to govern more as a semi-sovereign state, other regions accepted the subjugation and made far less sincere efforts at internal governance. As the central government strove to compensate for these inadequacies, it became less able, and to a certain extent less interested, in aiding the states which had demonstrated a measure of self-sufficiency.

Kerala can therefore be proclaimed as a success of the basic needs model in its own right. Once the policies of the federal government changed to those emphasizing reduced central regulation and control in the 1990s, Kerala began a two decade surge in growth. The high standard of living speaks for itself, but the recent economic growth is a vindication of the basic needs model as a wholesome model of both social and economic development. The growth, interestingly, has consisted of an incorporation of neoliberal concepts to the basic needs model. Rather than contradict basic needs development, it would appear that neoliberal theories can be incorporated into less-economic development plans in an effective manner.

The ability of a financially literate Keralan population to respond to the international labor market is a validation of the basic needs approach. The Keralite people were in a position to recognize and capitalize on remittance income two and a half decades before the worldwide remittance boom began in the late 1990s. This informal economy has only benefited from the relaxed restrictions on foreign sources of income due to neoliberal economic policies, allowing Keralites to even better compensate for the inadequacy of their federal system.

In all, Kerala’s success and struggles are the result of a contradictory federalist system. In attempting to limit regional autonomy the Indian federal system has developed a system that works against the ability of motivated states to better themselves. Meanwhile, its policies of central control have been so ineffective that states under its guidance are far below Kerala’s development levels. The parliamentary federalist approach has so thus been largely ineffective. Unable to provide for less developed states, despite making them the targets of the federal asymmetry, nor supplement the achievements of more developed states, the Indian government has effectively worked against its goals of modernization. As a result, the experience of Kerala is not a paradox of developmental theory but a vindication of existing criticisms against parliamentary federalist theory. Had the central government been more open to the basic needs approach of Kerala in terms of policy cooperation, it would have been better able to not only incorporate the needs of Kerala, but to also apply Keralan strategies to other Indian states. Ultimately, despite assertions by modernization theorists that Kerala is a developmental failure, it has been rather successful in spite of its limitations with its people having far higher standards of living than those in other areas of India despite a highly restrictive Indian federal system.
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But, I said I was Sorry: An Examination into the Interrelationship between Transgression Severity and Relationship Closeness on Apology Acceptance, Forgiveness, and Anger

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ABSTRACT
While we encounter transgressions on a daily basis, we do not know all the factors that impact apology acceptance, forgiveness, and associated anger. The purpose of this study was to examine the relations between transgression severity and relationship closeness on apology acceptance, forgiveness, and anger. It was hypothesized that there would be a main effect of severity on apology acceptance, forgiveness, and anger, as well as an interaction between offense severity and relationship type on apology acceptance. Sixty-six undergraduate students were asked to read four scenarios that varied in offense severity and transgressor/victim relationship. The scenarios described either a low severity or a high severity situation, and varied between the transgressor being either a friend or an acquaintance. The participants rated the likelihood that they would accept an apology from the transgressor, forgive the transgressor, and indicated their level of associated anger. There was a main effect of severity on all three dependent variables such that participants were angrier if the situation was more severe, and were less likely to forgive or accept apologies if the transgression was severe. Further there was a main effect of relationship type such that participants were more likely to accept apologies from friends and more likely to forgive them, yet they also felt they would be angrier at friends. There were not interactions between relationship type and severity for apology acceptance or forgiveness, but a trend towards an interaction was found for anger, such that participants noted more anger towards acquaintances compared to friends if the transgression was low in severity, but if the transgression was severe, high anger was directed to friends and acquaintances alike. There are implications of these data for interpersonal relationships and social skills training.
What happens when you do something wrong? If you show up late to work, you apologize. If you bump into someone at the store, you apologize. In that sense, apologies can seem perfunctory. However, if you crash into someone’s car and apologize, can that apology compare to the previous ones?

Apologies are used in various situations and seem to serve different purposes. For example, public apologies are utilized by politicians and celebrities and personal apologies are used on a much smaller scale. Do people apologize with an expectation of being forgiven for their transgressions? There are many variables and situations that may determine the likelihood of an apology being accepted, or the likelihood that forgiveness will occur after a transgression, and associated anger. This project examined two variables: offense severity and the type of relationship between the victim and the transgressor.

Forgiveness

Several factors play a role in the expression of forgiveness. Kirchhoff, Wagner, and Strack (2012) researched the role of verbal components, anger reduction and offence severity on apologies. In this study, the researchers analyzed whether the inclusion of more verbal elements in an apology increases the likelihood that its receiver would forgive, particularly after more severe offenses. Verbal elements in terms of this study include admitting fault, addressing emotions and naming the offense. The researchers provided the participants with scenarios varying in offense severity, followed by a questionnaire which asked under which conditions the participants would be willing to forgive the transgressor. Some participants were asked to read about a verbal confrontation with a neighbor and some read about a physical confrontation. Kirchhoff et al. found that after more severe events, more elaborate apologies were needed for the victim to forgive the transgressor. This showed that serious offenses are more difficult to forgive and therefore require a different type of an apology rather than “I’m sorry.” A more complete apology is required, including but not limited to naming the offense, addressing emotions and admitting fault. Less severe instances and more comprehensive apologies seem to increase the likelihood of forgiveness in relationships with strangers, according to this study.

Similarly, Merolla and Zhang (2011) found factors that impact forgiveness in personal relationships, rather than in acquaintance relationships as in Kirchhoff, et al.’s (2012) study. Merolla and Zhang found that certain elements impacted the type of forgiveness that victims of transgressions are willing to give. Researchers asked participants to recall an incident with someone close to them in which they forgave the offender; the participants were subsequently asked questions about that incident. Merolla and Zhang found that offender remorse and offense severity were predictive of certain types of forgiveness. Specifically, offense severity was found to negatively predict indirect forgiveness, instances where forgiveness is just understood. In other words, in high severity situations direct forgiveness, explicitly telling transgressor that they are forgiven, is expected in personal relationships.

Merolla (2008) studied forgiveness with the inclusion of relationship type. Merolla examined the difference in forgiveness in dating relationships and platonic relationships. Participants in Merolla’s study were asked to recall a time in which they forgave a close friend or a dating partner. They were then given a questionnaire that contained questions about that incident. Merolla found that the type of forgiveness differed as offenses became more severe, and differed along relationship types. As transgressions became more and more severe, dating partners changed in the type of forgiveness they were willing to give, but this pattern was not seen in the friendship relationships. In dating relationships, forgiveness was given conditionally, but in friendships, forgiveness was given indirectly. This suggests that there might be some type of interaction between relationship type, and offense severity.
on likelihood of forgiveness. Even though Merolla’s study involved different types of forgiveness, it implies that severity, victim-offender relationship, and apology acceptance are all interrelated.

Chan (2011) also examined the connection between offense severity, relationship type, and forgiveness. The participants in Chan’s study were asked to recall a transgression in which they were wronged by someone, and to thoroughly describe the incident. Then the participants rated offense severity, relationship closeness, forgiveness and other associated factors. Chan found a negative correlation between offense severity and forgiveness— that is, when offenses were more severe, it was harder to forgive them. This finding is consistent with Merolla (2008), Merolla and Zhang (2011) and Kirchhoff, et al. (2012). However, Chan notably found no significant difference on forgiveness between victim and offender relationship types; this finding is different from that of Merolla (2008) and Merolla and Zhang (2011).

Another study by Mead (2008) further explored forgiveness and relationships. Mead compared ambivalent relationships with positive friendships in terms of apologetic factors; included concession, excuse, justification, and refusal. Essentially, Mead (2008) provided the participants with a script of a hypothetical interpersonal transgression that occurred between either an acquaintance or a friend. After reading the scenario, the participants were asked to complete an inventory which measured forgiveness. The results showed that participants were indeed more willing to forgive in friendships (Mead, 2008). This provides evidence that there is some type of difference in forgiveness behavior due to relationship type, contrary to Chan’s (2011) study.

Apology Acceptance

One of the influential factors on apology acceptance was researched by Struthers, Eaton, Santelli, Uchiyama, & Shirvani (2008). They studied the impact of accidental offenses versus intentional offenses and determined their impact on forgiveness and apology acceptance. The study used a scripted situation in which the participant was negatively impacted by a confederate’s actions. The confederate alternated between intentionally destroying the participant’s property and doing it accidentally. Struthers et al. found that when there were intentional transgressions, apologies were less likely to be accepted and forgiveness was less likely than if the transgression was perceived as unintentional. In this study, Struthers et al. were able to isolate two separate factors that impacted apology acceptance— accidental transgressions and intentional transgressions.

Similarly, Bennet and Earwaker (1994) determined what factors influenced whether or not an apology was accepted. The researchers studied the severity of the offense and offender responsibility. The participants in this study were presented with various scenarios which varied in transgressor responsibility and offense severity. The participants indicated their likelihood of rejecting an apology. The results indicated that participants were more inclined to reject an apology in conditions with high severity and for conditions with high responsibility. The researchers also found that as offense severity increased, it was more likely that an apology would be rejected. Kirchhoff et al. (2012) also provided evidence that conditions of high offense severity resulted in less likelihood of apology acceptance. In addition to asking if the participants about forgiveness, the questionnaire provided to the participants also asked the participants how likely they would be to accept the apology from the transgressor. Kirchhoff et al. concluded that offense severity did have an impact on apology acceptance, providing further evidence of the interaction between apology acceptance and offense severity.

Anger

In addition to testing forgiveness and apology acceptance on offense severity and relationship type, many researchers also incorporate associated anger within the context
of their studies. For example, Kirchhoff et al. (2012) found a negative correlation between anger and forgiveness. Therefore, the study illustrated the connection between anger and apology acceptance. The researchers saw anger reduction as a precursor to apology acceptance and forgiveness; so, in other words, anger had to be reduced in order for apology acceptance and forgiveness to occur.

In Bennet and Earwaker’s (1994) study on offense severity and offender responsibility, the participants also indicated their level of anger associated with the transgression in addition to specifying their likelihood of accepting an apology. In addition to finding support for their hypotheses, Bennet and Earwaker found that there was a relation between offense severity and anger. They showed that anger ratings were higher in the high responsibility and high severity conditions than in the low responsibility and low severity conditions; additionally, they found that the victim’s anger dissipated more quickly when the offense was less severe.

Whitesell and Harter (1996) tested interpersonal context anger with children. The researchers examined the level of anger a child expressed toward their friends as opposed to their classmates after being presented with hypothetical situations. The children were asked to indicate who their best friend was in the beginning of the study, and then they were presented with a scenario using that person’s name or the name of another classmate. The results of this study showed that the children indicated higher levels of anger after an apology toward friends compared to other classmates. This indicates that relationship type may impact the level of associated anger involved in a transgression.

The Current Study

Many of the factors that influence apology acceptance, forgiveness, and anger include offense severity and offender-victim relationship. Because of the many aspects and the multifaceted quality of apologies, I wanted to study these variables to see how they were interrelated. In previous research, apology acceptance and forgiveness have been examined both as interchangeable constructs as well as different entities; both dependent variables are shown to be impacted similarly by offense severity and relationship type (Kirchhoff et al., 2012; Merolla, 2008; Bennet & Earwaker, 1994). Therefore, I decided to include both apology acceptance and forgiveness as separate dependent variables. Moreover, I was interested in both offense severity and more intimate or personal relationships and how they differed from stranger or acquaintance relationships. In the same respect, I was interested in how offense severity interacts with the offender-victim relationship type.

Therefore, the independent variables in this study were severity of offense (low-high) and offender-victim relationship (acquaintance-friend). Dependent variables were acceptance of apology, forgiveness, and anger. The hypotheses of the current study were: (H₁) There will be a main effect of severity of offense on anger, forgiveness and apology acceptance, such that participants will report higher levels of anger and lower levels of apology acceptance and forgiveness as the severity of the offense increases. (H₂) There will be an interaction between offense severity and relationship on apology acceptance. Specifically, participants will report that they are less likely to accept apologies from a friend than an acquaintance in more severe cases.

The current study differs from the previous studies in regards to study design. This study used a within-groups design and participants were provided with hypothetical situations rather than asked to recall personal instances as in the studies by Merolla (2008), Merolla and Zhang (2011), and Chan (2011). Furthermore, this study evaluated self-reported effects of offense severity and relationship with respect to apology acceptance, forgiveness, and anger together; this allowed us to examine potential interactions.
Method

Participants
Participants consisted of 66 undergraduate students (42 women, 24 men) at a small private university in the southeastern United States. The students completed the study as part of their required research credit for an Introductory Psychology course. The subjects were between the ages of 18 and 22 years old (M = 19.65, SD = .89). The participants were Caucasian (83%), African American (9%) and other (8%). The majority of the participants were sophomores in college (64%), with some freshman (15%), juniors (13%), and seniors (8%).

Materials
Offense Scenarios. There were a total of four conditions/scenarios. The scenarios used in the current study were adapted from Kirchhoff, et al. (2012); the scenarios varied by low and high severity as well as whether or not the offense was committed by a friend or an acquaintance (see Appendix A).

Dependent measures. The questions following the scenario asked the participants to rate on a scale 1-10: 1) how likely they were to accept an apology from the transgressor, 2) how likely they were to forgive the transgressor, and 3) how angry they would be following the event (see Appendix B).

Procedure
This experiment used a 2x2 within-subjects factorial design. After collecting informed consent, the participants were given a demographic sheet (asking gender, age, ethnicity, major and year in school) and the stimulus material. Participants read each of the four scenarios that varied in severity (low and high) and relationship type (acquaintance or friendship); then, after each scenario, they rated levels of anger, likelihood to forgive offender and likelihood to accept an apology from the offender. The participants were asked to work alone and quietly on the survey. After the participants finished, the surveys were collected, and the participants were read a debriefing statement.

Results

Likelihood of Apology Acceptance
Offense severity and relationship type affected the likelihood that participants would accept apologies; main effects of severity and relationship type were found. As shown in Table 1, participants were more likely to accept apologies from friends compared to acquaintances (F(1,64)=157.11, p<.0001), and were more likely to accept apologies when the transgression was less severe (F(1,64)=26.29, p<.0001). Further, there was not a significant interaction between relationship type and offense severity on likelihood acceptance.

<table>
<thead>
<tr>
<th>Severity</th>
<th>Mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>6.95(2.05)</td>
</tr>
<tr>
<td>High</td>
<td>4.48(2.17)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Mean(SD)</th>
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</thead>
<tbody>
<tr>
<td>Acquaintance</td>
<td>5.28(2.16)</td>
</tr>
<tr>
<td>Friend</td>
<td>6.14(2.06)</td>
</tr>
</tbody>
</table>

Table 1
Means and Standard Deviations for Apology Acceptance depending on Offense Severity and Relationship Type
Likelihood of Forgiveness

Likewise, offense severity and relationship type affected the likelihood that participants felt that they would forgive the offender (see Table 2). Participants were more likely to forgive the transgressor in the less severe situation (F(1,64)=29.85, p<.0001). Relationship to the offender had an impact on forgiveness as well such that participants felt that they would be more likely to forgive a friend rather than an acquaintance (F(1,64)=158.65, p<.0001). Additionally, there was not a significant interaction between relationship type and offense severity on forgiveness.

<table>
<thead>
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<th>7.08(2.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>4.35(2.14)</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Acquaintance</td>
<td>5.22(2.15)</td>
</tr>
<tr>
<td></td>
<td>Friend</td>
<td>6.22(2.04)</td>
</tr>
</tbody>
</table>

Table 2
Means and Standard Deviations for Forgiveness depending on Offense Severity and Relationship Type

Degree of Anger

Severity and relationship type also had an impact on the participants’ degree of expected anger, as shown in Table 3. Participants indicated that they would be angrier in more severe situations (F(1,63)=158.27, p<.0001) and participants indicated that they would be angrier with an acquaintance rather than a friend (F(1,63)=8.81, p=.004). Further, there was a trend towards an interaction effect of severity and relationship type, F(1,63)=3.05, p=.085, seen in Figure 1. Paired samples t-tests were used to examine this trend. In low severity transgressions, participants were angrier if the transgressor was an acquaintance compared to a friend (p<.05), but in high severity transgression, it did not matter whether

<table>
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<th>Severity</th>
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<th>6.06(2.02)</th>
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</thead>
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<tr>
<td>Relationship</td>
<td>Acquaintance</td>
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<tr>
<td></td>
<td>Friend</td>
<td>7.07(1.77)</td>
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</tbody>
</table>
the transgressor was friend or acquaintance; anger was high regardless.

**Discussion**

**Summary of Results**

This study examined the relationship between transgression severity and relationship closeness on apology acceptance, forgiveness, and anger. The data obtained provide strong support for the first hypothesis. There was a main effect of severity of offense found on anger, forgiveness, and apology acceptance. The participants reported that they would be more likely to accept an apology from the offender in the less severe condition than in the more severe condition. The participants reported that they would be more likely to forgive the offender in low severity cases. The participants reported that they would be angrier due to a high severity situation. Thus, severity was found to have an impact on all three of the dependent variables, which is consistent with the previous research.

In addition, a main effect of relationship type was found for all three dependent variables. The participants reported that they would be more likely to accept an apology from a friend than an acquaintance, and that they would be more likely to forgive a friend compared to an acquaintance. The participants reported that they would be slightly angrier if the transgressor was an acquaintance. Whitesell and Harter’s (1996) results actually concluded the opposite of this study’s findings. Whitesell and Harter found that participants were angrier when the transgressor was a friend. Whitesell and Harter’s (1996) study focused on children while the current study used college students. Also, the participants in Whitesell and Harter’s study indicated a friend in the beginning of the procedures whose name was used as an element of the study. The current study did not provide the participants with a particular “friend” or “acquaintance”. Perhaps if an actual friend was indicated, participants would report higher levels of anger in the study. These procedural differences could account for the different results suggesting that it may be important to personalize scenarios.
The second hypothesis, that there would be an interaction between offense severity and relationship for the dependent variable of apology acceptance, was not supported by this study. The participants did not report that they were less likely to accept apologies from a friend than an acquaintance in the high severity condition. Rather, the data pointed to a different interaction. Instead of an interaction found for the dependent variable of apology acceptance, there was a trend towards an interaction found for anger. Due to the trend towards an interaction that was noticed, severity and relationship alone cannot explain levels of anger. Rather, the severity and relationship must have an impact on one another especially in the acquaintance high severity and friend high severity conditions. This relationship was not expected. The previous research pointed to possibly an interaction of severity and relationship type on apology acceptance (or forgiveness when used interchangeably). Mead (2008) concluded that participants were more willing to forgive positive relationships, or friendships; but Chan (2011) concluded that there was no relationship type difference. Furthermore, Merolla (2008) found differences in likelihood to forgive based on relationship type and offense severity.

The trend for an interaction between severity and relationship type on degree of reported anger is somewhat consistent with the findings of Whitesell and Harter (1996). They reported that when friends were the transgressors in a situation, the victims reported more associated anger. In the current study, while we found that the general trend was for participants to think that they would experience more anger towards acquaintances instead of friends, in the high severity situation the difference between anger ratings for friends and anger ratings for acquaintances was similar. Thus, the results for the high severity situation are more consistent with Whitesell and Harter’s findings, suggesting that the relation between offense severity, relationship type, and associated anger is more complicated than hypothesized.

Study Implications

The findings in this study may help people understand real-world interactions. For instance, the current findings may help a transgressor understand why someone is angry and understand why an apology might not be accepted; perhaps it is due to the severity of the offense or the relationship. Additionally, this study has further implications for interpersonal relationships. Being able to predict the outcome of an offense or an apology could be helpful for people anticipating the result of telling the truth. If the likelihood that the apology will be accepted is low and the likelihood that the victim will be angry is high, then an individual should prepare him or herself for that situation.

Study Limitations

In administering the study materials to the participants, it was noticed that participant fatigue might have limited the study; some participants seemed to get tired of reading the scenarios after the second scenario. Carryover effects, a common limitation of within-subjects designs, are also a concern; the participants did read four very similar scenarios, and they were always administered in the same order. The effect of gender differences, counterbalancing, and order were not addressed. Thus, a between-groups design might have been perhaps a stronger research design. This would have limited participant fatigue as well as carryover effects. However, that design does not allow participants to compare across scenarios. Furthermore, in the current study the participants were provided with hypothetical situations. In previous research, participants were asked to provide a real life situation. Differences might occur if participants had imagined hypothetical situations, rather than recall real events with real people. These limitations need to be addressed in any further research.

Future Research

In the future, it might be interesting to further explore the interaction between offense severity and relationship type on the dependent variable of apology acceptance.
The current study discussed factors immediately following a hypothetical transgression. Interestingly, a study by Maltby, Wood, Day, Kon, Colley, & Linley (2008) examined factors that impact relationships years after a transgression. The participants involved in Maltby et al.’s study were asked to recall a very serious or an extremely serious transgression and write about it. The written statement about the transgression were sealed away and returned to the participant 30 months later. When given back their written statement, the participants were then asked to assess their residual feelings and also fill out the NEO-FFI; a personality inventory that determines measures of conscientiousness, agreeableness, neuroticism, openness to experiences, and extraversion (Costa & McCrae, 1992). The researchers found that personality factors had an impact on the relationship years later. If personality factors indicate differences in relationships years after the initial transgression, it might explain levels of associated anger in regards to the current study. Perhaps levels of associated angers could be influenced by personality factors. Examining personality factors and how they correlate with associated anger, forgiveness, and apology acceptance could be an interesting direction for further research.

Conclusion

Apologies are ubiquitous. If we step on someone’s foot, we apologize. If we call someone the wrong name, we apologize. Likewise, we forgive such offenses. Through this research we varied offense severity and relationship type, to see their impact on apology acceptance, forgiveness, and associated anger. The study provided several findings that may help our understanding of the relation between offense severity, relationship type, and anger on apologies. But there are still questions to consider in regards to this topic, and it is important to keep those in mind in future research.
**References**


Appendix A

Low Severity Scenario: Imagine that you live in a rental home with several apartments. On your floor you have a (direct neighbor or good friend of yours). You have known each other for one year and so far there have been no issues. You have always greeted each other friendly. However, with this (neighbor or friend) you had a small dispute last week. When you met incidentally in the hallway, (the neighbor or your friend) complained that you have made too much noise lately. In this dispute (the neighbor or your friend) affronted you. Doing that, they also grabbed your arm. When asked, they let go. Since the incident your (neighbor or friend) has apologized for their behavior.

High Severity Scenario: Imagine that you live in a rental home with several apartments. On your floor you have a (direct neighbor or a good friend of yours). You have known each other for one year and so far there have been no issues. You have always greeted each other friendly. However, with this (neighbor or friend) you had an intense and escalated conflict last week. When you met incidentally in the hallway, (the neighbor or your friend) complained that you have made too much noise lately. In this dispute (the neighbor or your friend) yelled and meanly affronted you. Doing that, they also harshly grabbed your arm and pushed you. When asked, they did not let go and grabbed even tighter. Since the incident your (neighbor or friend) has apologized for their behavior.

Appendix B

How likely are you to accept the apology from this person?

1  2  3  4  5  6  7  8  9  10
Not Likely at all                        Extremely Likely

How likely are you to forgive this person?

1  2  3  4  5  6  7  8  9  10
Not Likely at all                        Extremely Likely

How angry would you feel after this incident?

1  2  3  4  5  6  7  8  9  10
Not Angry at all                        Extremely Angry
The Role of Religious Values: Young Christians’ Opinions towards Tattoos

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Abstract
Since the 1960s tattooing has become increasingly popular in mainstream American society (Rubin, 1988; Schildkrout, 2004). Explanations for this phenomenon include expressing individuality and gaining acceptance into a subculture (Blanchard, 1991; Gagne & Orend, 2009). Although research has demonstrated that spirituality can influence tattooing practices (Caplan, 2000; Swartz, 2006), few studies explore the intersection between Christian beliefs and tattoos (Scheinfeld, 2007). My research focused on the relationship between tattooing practices and the changing values of 18 to 30 year old active Christians in Greenville, NC. For this study, an active Christian was defined as a person who participates in his or her faith community at least three times per month. A class project during a previous semester facilitated the proposal development, including a literature review of tattoos and Christianity and the design of the data collection instrument, asking questions on personal faith, Bible verse interpretations, tattoo stereotypes, tattoo symbolism, and opinions about tattoos. Data were collected using a semi-structured interview instrument which asked open-ended questions, including free-listing tasks (Bernard, 2011; Brewer, 2002). To increase comparability, all informants were recruited from the same non-denominational Christian organization in Greenville, NC (Bernard, 2011). A quota sample was employed to reflect differences by gender and preference for tattoos (Bernard, 2011). Interviews were recorded and transcribed. The resulting text was coded using a grounded theory approach, logging discoveries about frequencies and co-occurrences of themes to establish similarities and differences between study participants (Bernard, 2011). A model of young Christian’s beliefs and values that suggests possible reasons for the choice for or against a tattoo was discussed.
The term ‘tattoo renaissance’ was used by Rubin (1988) to express the change in the Western tattoo culture that began in the 1960s. Prior to this shift, much of Western culture associated tattoos with the deviant behavior of bikers, criminals, prisoners, circus entertainers, gang members, and sailors (Govenar, 1982; Schildkrout, 2004). The ‘tattoo renaissance’ marked the era of mainstream and customized tattoos that were beginning to be identified as art (Rubin, 1988). In recent studies, the increasing popularity of tattooing in American society has been explained by some humans’ desire through body adornment to express individuality and gain acceptance into a subculture (Blanchard, 1991; Gagne & Orend, 2009). Previous literature has compared the decisions of youth to get a tattoo to other life influences (Roberts & Ryan, 2002; Farrow et. al., 1991) but few studies have explored the motivations for body adornment among young Americans that simultaneously choose to participate in Christianity (Scheinfeld, 2007). Research has demonstrated that spirituality can influence tattooing practices (Caplan, 2000; Swartz, 2006). Thus, it is important for researchers studying cultural change to consider the role of Christianity as a spiritual influence on current tattooing practices for young Americans.

The subject of body adornment is of interest to scholars of numerous backgrounds; Schildkrout (2004) provides a detailed overview of studies in anthropology and other social sciences that have given insight to inscription practices, including tattoos. The discipline of cultural anthropology is interested in understanding the perspective of the person making a choice, i.e., the emic perspective which asks “What motivated you to make this choice?” For this reason, I chose anthropological research as a means to reveal the views towards body adornment of both tattooed and non-tattooed young active-Christians who participated in a non-denominational Christian club in Greenville, NC. From exploratory research in this Christian community, I observed the frequent positive perspectives towards religiously symbolic tattoos in this culture. My limited knowledge about the Bible encouraged me to further question this phenomenon as the practice of obtaining tattoos is a controversial subject. Similarly, Scheinfeld (2007) notes there is a “debate whether Christians are allowed to tattoo themselves” (p. 363). If religious beliefs are predictive of tattoo preferences in a small community of young active-Christians, the data obtained in this study can provide models for future researchers. One research goal of this study is to explore the views that the interviewed young active-Christians in Greenville, NC, have towards this debate.

What motivates individuals to obtain a tattoo?

From 2005 to 2007, Antoszewski, et al. (2009) distributed questionnaires to 492 participants Lodz, Poland, to address the motivations behind their decisions to get a tattoo. The most commonly reported motivations were enhancement of one’s individuality, aesthetic value, acceptance into a subculture, and peer pressure (Antoszewski et al., 2009). The study’s results indicated that 28% of those surveyed believed having a tattoo increased their self-esteem, and 26% of the informants thought their tattoo helped in self-determination (Antoszewski et al., 2009). I adapted questions from Antoszewski, et al. (2009) study to my semi-structured interview template because the questions asked were unique in terms of the ordinal scale and informative about personal adornment motivations.

Are Tattoos Referenced in the Bible?

Both Scheinfeld (2007) and several informants in my exploratory research noted that the Bible verses Corinthians 6:19-20 and Leviticus 19:28 are commonly used by Judeo-Christian tattoo refuters to support their stance. In order to discover how the young active-Christians in my study interpret their faith, I asked both tattooed and non-tattooed informants for their interpretation of these verses. Scheinfeld (2007) further mentions several verses in the Bible that are

**Methodology**

I conducted ethnographic research with a quota sample to understand the values that can influence both tattooed and non-tattooed young active-Christians today in deciding about body adornment. Quota sampling is “stratified sampling without random selection” to compare variables within a population or “culture of interest” (Bernard, 2011, p. 144). In other words, informants in this study were selected based on a quota sample differentiated by gender and having a tattoo. In order to reduce variability of informants, all participants regularly attended Victory Campus Ministries (Bernard, 2011). Victory Campus Ministries (VCM) is a non-denominational Christian club held on the East Carolina University campus every Thursday evening. Because VCM is a college club, membership includes those from various religious backgrounds. However, their desire to be an active member in VCM, as opposed to other Christian organizations on ECU’s campus and throughout Greenville, suggests informants have found commonalities in their faith.

Members of the VCM community were able to participate in this study if they were between the ages of 18 and 30. It was required that informants participated in their faith community three or more times per month, the criterion I used to define study participants as being an active-Christian. For recruitment, I relied on referral to meet the requirements of the quota sample. Thirty-two informants were interviewed. The term ‘informant type’ will be used subsequently to describe the following four categories: females with tattoos, females without tattoos, males with tattoos, and males without tattoos. I interviewed eight VCM members for each ‘informant type.’

I created two semi-structured interview instruments: one for informants with tattoos and one for informants without tattoos. Both instruments contained open ended questions, two free listing exercises, and two rank order tasks (Bernard, 2011; Brewer, 2002). Informants were given ID numbers so that their identities would remain anonymous. To maintain their privacy, I have not included images of my informant’s tattoos to assure their identities are not revealed. The interviews were voice recorded with the participants’ permission. After the informants’ initial responses to questions regarding their faith activity, tattoo description, and tattoo likes and dislikes, I followed up with ‘probing questions’ that initiated in depth responses and increased accuracy of recall (Johnson & Weller, 2002). Additionally, following free listing exercises exploring attitudes about sin and stereotypes, I discussed each listed item with the participants to ensure my understanding of certain words or phrases (Johnson & Weller, 2002; Brewer, 2002). Interviews lasted between forty-five minutes to one-hundred twenty minutes. After the interview concluded, informants were compensated with a $10 Target gift card. The Institutional Review Board of East Carolina University approved the procedures used.

Interviews were transcribed by the online transcription site CastingWords. Transcribed texts were coded and analyzed for recurring and co-occurring themes using a grounded theory approach. Grounded theory research is an inductive research method used to analyze qualitative data (Bernard, 2011). To elaborate, I read each interview closely and marked passages of texts with an appropriate label, such as, ‘religious tattoo.’ Using the software ATLAS.ti7, I identified frequent and coexisting themes (ATLAS.ti, 2013). Data were entered into SPSS statistics using dummy variables; themes based on the variables of gender, having a tattoo, and faith participation ranks were analyzed using cross tabulation procedures as suggested by Bernard (2011), setting an alpha level of .05
for statistical significance. Table 1 shows the demographic information of informants and faith participation which I discuss in the following section. To explain and validate the models I am presenting, I include exemplar re-quotes by informants, as suggested by Bernard (2011).

Additionally, data from the free listing exercises were entered into Anthropac to obtain salience and frequency rankings of informants’ responses (Brewer, 2002; Borgatti, 1992). The measure of saliency captures both the rank of items in an individual’s list as well as the frequency of the item mentioned by all informants (Bernard, 2011).

**Faith Analysis: Informant Participation**

During the interviews, I noticed that informants differed in the number of times they participated on a weekly basis in religious activities. These activities included service to others, attending church, fellowship with other VCM members, spreading the gospel to others, and individual or group worship, prayer, and Bible study. Based on an informants’ regularity of participation, I categorized informants as high or low frequency participants. The number of religious activities per week informants participated in ranged from 2 to 26. Compilation of the data revealed that informants mentioned they participated in either 10 or fewer or 16 or more activities per week. This determined the definition of high frequency participants as those who participated 16 or more times and low frequency participants as those who participated in 10 or less religious activities per week. High frequency participants actively worshiped God an average of 19 times per week while low frequency participants actively worshiped God an average of seven times per week. I found no significant correlation between frequency of participation and being tattooed (chi square=0.582, p=0.446). It is important to note that classifying informants as a “high” or “low” frequency participant is based solely on self-reported activities related to a choice to actively attend a religious service or activity. The faith participation of informants as a function of gender and being tattooed is located in Table 1.

**Faith Analysis: Defining a Sin**

As previously stated, the subject of tattoos in the Christianity community is controversial (Scheinfeld, 2007). The question of whether tattoos are a sin is also a point of debate. To gain a better perspective of the actions informants associated with sinning, I asked informants to define a sin. A compilation of definitions offered by study participants suggests a sin is anything that is put above God or anything that displeases him. Whether it is a physical object or an emotion, the thing that is put above God is termed an ‘idol.’ Idolatry is a sin that may lead to other sinful acts; it is referred to as a ‘root sin.’ As described by informants, even though someone may think certain idols are positive, such as family and friends, the number one focus in his or her life should be God. Informants described that when God is the center of their lives, other life concerns, such as their grades or financial situation, will fall into place.

Participants were asked to complete a free listing exercise of any activities, actions, or anything else they considered to be a sin. Only one female informant without a tattoo stated that she believed tattoos were sinful. However, no informants specifically listed tattoos to be a sin in the free listing exercise. Figure 1 represents the relations between the top ten sins mentioned in the free listing exercise by overall salience score. To reiterate, saliency encompasses both the rank of a term in an informant’s list as well as the frequency of the term mentioned by all informants (Bernard, 2011). Therefore, a high salience score signifies a term that was mentioned.

<table>
<thead>
<tr>
<th>Tattoos</th>
<th>Faith Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>No Tattoos</td>
<td>1</td>
</tr>
<tr>
<td>Tattoos</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 1

Rachel A. Johnson
Denying God was in the top ten frequencies of all informant types, suggesting that the young active-Christians in the current study aimed to serve and glorify God through their actions. Although informants strove to glorify God, the informants also stressed that Christians are not perfect because only God is perfect. However, as long as they repent early and frequently in the free listing exercise by informants.

When comparing the salience score of terms for tattooed informants to non-tattooed informants, the top seven terms were identical: lying, stealing, sexual immorality, murder, lust, idolatry, and cheating. It is interesting that all of these terms relate largely to the Ten Commandments of the Old Testament (Exodus 20:1-17 King James Version). The Ten Commandments of the Old Testament directly state that one should not lie, cheat, or steal. Additionally, it says ‘thou shalt have no other gods’ which refers to the root sin of idolatry. The Ten Commandments also specify that a believer should not kill or commit murder. To continue, sexual immorality encompasses adultery, which is an action the Ten Commandments forbid. Similarly, lust is the root sin that may lead to an adulterous act; it, too, is specified in the Ten Commandments.

Denying God was the eighth most frequently listed sin by all informants. One may deny God by not being obedient to prompting by him, not giving him all life, not worshiping him, or worshipping other gods. Denying God was the top ten frequencies of all informant types, suggesting that the young active-Christians in the current study aimed to serve and glorify God through their actions. Although informants strove to glorify God, the informants also stressed that Christians are not perfect because only God is perfect. However, as long as they repent early and frequently in the free listing exercise by informants.

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Denying God was the eighth most frequently listed sin by all informants. One may deny God by not being obedient to prompting by him, not giving him all life, not worshiping him, or worshipping other gods. One tattooed female with a high frequency faith participation noted, “God is so holy, perfect, and righteous. He is so good. We are so sinful. There is a huge gap between us... He’s more than enough to forgive anything, no matter what you’ve done. [God will] set you free from your past and bring you into this whole new identity."

The most frequently listed sin by all subgroups of informants was sexual immorality. Informants described this term to encompass acts that include prostitution, incest, masturbation, fornication, pre-marital sex, pornography, adultery, and homosexuality. However, an informant’s choice of obtaining a tattoo or not showed no statistically significant correlation with sexual activity, even among those who admitted engaging in pre-marital sex within six months of the interview (chi
through your actions, the way you dress, the way you reflect in your mirror, the way people see you” (Male without tattoos, low frequency faith participation).

Leviticus 19:28 states, “Ye shall not make any cuttings in your flesh for the dead, nor print any marks upon you: I am the LORD” (King James Version). When interpreting Leviticus, those participants who had a tattoo were more likely to mention that the context of this specific verse was very important for the correct interpretation (chi square=4.571, p= 0.033). This is likely because those who had tattoos were more often confronted by tattoo refuters with this verse. A female non-tattooed, high frequency faith participant illustrates this point, “You can’t really take a verse out and interpret it without first interpreting who said that. Was it God? Was it someone speaking? Was it God speaking through someone? Who were they speaking to? Was it cultural context? Who are the people?’” In addition, more than one-third of informants claimed that in Leviticus, God was trying to distinguish his followers from those who were engaging in pagan rituals to worship the dead. Additionally, slightly less than half mentioned that today they are not “under the laws of the Old Testament.” The following quote by a non-tattooed male low frequency faith participant describes this belief: “Well, I think you have to have a historical sense of the Old Testament, a little bit. You read anything out of Leviticus or anything Old Testament that’s under Moses’ Law; that was written for a specific time in the Israelite history. A lot of pagan worship was going on in that time; nothing had been redeemed in that time. God gave some very strict rules: this is how I want you to live, if you’re going to be my people, I got to set you on the right path. Down that road, I can redeem the entire world out of this little nation. I definitely see that in Leviticus as well as a number of other laws in the Old Testament... You can’t really single out a single thing and say that it was meant for eternity, along the course of human history.”

The Bible verse Revelations 19:16, which...
states, “On his robe and on his thigh he has a name inscribed, King of kings and Lord of lords,” was quoted by seven informants who considered it as a reference to tattoos. Interestingly, there was no statistically significant relation between tattooed informants and referencing this Bible verse (Pearson’s chi square= 0.183, p=0.669). The verse was mentioned by both tattooed and non-tattooed informants.

**Tattoo Stereotypes: A Religious Perspective**

Informants were asked to complete a free listing task about the social stigmas they had heard in association with tattoos. They were given three minutes to write all of the positive and negative stereotypes they could recall. We then discussed which of these opinions they personally had and which stereotypes they heard from others. The tattoo stereotypes that are associated with religious principles are provided in Table 2 reflecting salience scores ranks that indicate the importance of a particular term by informant type. Importance, or salience score ranking, is captured by computing the order in which terms were mentioned and the frequency of terms across informants.

Data from the salience scores in Table 2 indicate the belief that tattoos are sinful was the number one stereotype from the informant type “Females without tattoos.” Although the stereotypes listed were not necessarily personal stereotypes, the fact that these women frequently heard from others that tattoos are sinful may have been a reason for not obtaining a tattoo. The stereotype that tattoos are sinful was seldom mentioned by male informants with tattoos and didn’t register among the top 20 salience scores for this group of informants. The fact that this group less commonly heard the stereotype that tattoos are sinful did not inhibit their choice to obtain a tattoo.

The idea that tattoos are ‘Christian’ was recalled quickly and frequently by the males without tattoos, even more so than the males and females with tattoos. All informant types except “Females without Tattoos” noted that tattoos can be viewed as Christian. The fact that VCM offers gender based ‘connect groups’ may be an explanation. Male church members without tattoos could have observed multiple religious tattoos on other men because the majority of the male members in VCM who do have tattoos have been “inked” with religiously symbolic images or phrases. To elaborate, five of the eight tattooed males I interviewed had four or more tattoos, and most of those tattoos featured a religious motif. The fact that men without tattoos commonly see the tattooed males with apparent religious symbolism may explain why Christian was a more ‘important’ tattoo stereotype based on salience scores. In contrast, women without tattoos more often socialize with other VCM women. The tattooed women they interact with tend to wear tattoos at less visible locations on their bodies. In other words, six of the eight tattooed females in the sample have one or two tattoos, usually small in size and often in a location that is covered by clothing. Therefore, women

<table>
<thead>
<tr>
<th>Stereotype of interest</th>
<th>Females without Tattoos (n=8)</th>
<th>Males without Tattoos (n=8)</th>
<th>Females with Tattoos (n=8)</th>
<th>Males with Tattoos (n=8)</th>
<th>All Informants (N=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinful</td>
<td>1</td>
<td>19</td>
<td>17</td>
<td>NA</td>
<td>13</td>
</tr>
<tr>
<td>Non-Christian</td>
<td>NA</td>
<td>NA</td>
<td>10</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Christian</td>
<td>NA</td>
<td>5</td>
<td>16</td>
<td>14</td>
<td>12</td>
</tr>
</tbody>
</table>

Note. N= not ranked in top 20 salience scores
The importance of the tattoo stereotype ‘non-Christian’ was highest for the “Females with tattoos.” This could illuminate why their tattoos are commonly small or hidden; they do not want their elders to think they have less faith in God for obtaining a tattoo. In the majority of cases, the negative stereotypes that were listed, including ‘non-Christian’ and ‘sinful,’ were not the personal views of the informant. Instead, it was mentioned that they heard this from their parents or grandparents. Correspondingly, several informants commented that in contemporary US culture, tattoos are often considered trendy and are becoming more accepted. Further research with a larger sample of varying ages would be useful.

Views of Tattoos in VCM

Tattooed informants collectively defined a symbol to be a representation with a deeper meaning. All tattooed informants identified their tattoos to be symbolic. Only one male informant stated one of his tattoos, which he described as a ‘novelty tattoo,’ had no symbolism. Moreover, all but two tattooed informants had a religious tattoo. In both cases, the choice to obtain a tattoo was made prior to coming into their faith.

When non-tattooed informants were asked about the positive aspects of tattoos, less than one-fifth mentioned the religious based ideas that religious tattoos can spread the gospel or can be a way to worship God. More commonly, non-tattooed informants identified tattoos as expressive, symbolic, and creative (8, 6, and 5 non-tattooed informants, respectively). A non-tattooed female with a high frequency faith participant describes this sentiment, “I do think they’re good conversation starters. It [religious tattoos] can open doors for the world that we live in, where there is a lot of anti God... and for believers, I think it can be a good witnessing tool.”

Half of the informants who did not have a tattoo said they hadn’t gotten one because tattoos were too permanent. Likewise, seven non-tattooed informants discussed that their opinions are constantly changing. A non-tattooed female expressed this opinion: “I think because it’s permanent as well... in the way my personality is, I don’t like that. I like control. I don’t like that idea. I’ve noticed even in the last five years, my face, my preferences, [and] the way I think has changed so much.”

When I asked the questions that were adapted from Antoszewski, et al.’s (2009) study to assess motivations for getting a tattoo, half of all VCM informants agreed that tattoos increase self-esteem and 15 said tattoos help in self-determination. This suggests that tattoos were viewed by these young active-Christians as a means to find and feel good about themselves. Specifically, those who were 21 or 22 years of age agreed that tattoos can help with self-determination (chi square=10.945, p= 0.027). Tattooed informants more commonly fell within this age range (chi square=7.111, p= 0.029). This indicates that the active-Christians in the study, ages 21 and 22, were more inclined than the younger and older participants to view tattoos as a means for expression and individuality and therefore actually obtained a tattoo.

When informants were asked about the specific tattoo symbols they liked, two thirds stated they liked tattoos with a religious motif, and more than one-third described that they liked tattoos with meanings that relate to that person’s life. Participants disliked tattoos that featured images described as satanic (44%), meaningless (19%), against God (16%), and provocative (14%). Examples provided by informants of these tattoo descriptions were the devil, cartoon characters, upside down pentagrams, and naked women, or curse words respectively. Tattoos that were satanic, against God, and provocative were most probably disliked because they can be related to the sins of idolatry and sexual immorality. Women with tattoos were more likely than other informant types to comment that they disliked tattoos that convey an association that spoke against God (chi square= 10.193, p= 0.017). One quote from a non-tattooed female high frequency faith participant shows that VCM informants found high importance
in tattoos that glorify God and have personal meaning to the wearer: “I want to make sure that it [a potential tattoo] is really meaningful… I want it to relate to Jesus for sure.”

**Discussion**

The majority of the young active-Christians interviewed, regardless of personal body adornment practices, voiced their opinion that tattoos are not sinful and are commonly used as a way to express one’s faith. As expressed by several non-tattooed and tattooed informants, if a tattoo carries a religious message, it has the ability to spread the gospel and glorify God. Interviewed members of the VCM community most frequently liked tattoos that were religious and meaningful while simultaneously disliked tattoos that were satanic. It is apparent that the young active-Christians in this sample found it important for tattoos to have significant symbolism that did not displease God.

Approximately half of all informants agreed that tattoos help to improve one’s self-esteem and in ‘self-determination.’ It may be that, for the informants, tattoos are identified as a marking to specifically symbolize the beliefs and values of the wearer. All but two tattooed informants obtained tattoos with a religious motif, which corresponded to their life values. Similar to the conclusion by Sweetman (1999) that tattoo meanings are not constant, these two informants later gave their tattoos a religious meaning when they became more involved in their faith.

The choice to obtain a tattoo was not indicative of faith participation in this sample. The informants with religious tattoos were not necessarily more frequent participants in their faith than non-tattooed VCM members. However, informants with religiously themed tattoos explained that they chose particular motifs to serve as a permanent reminder and expression of their faith.

It seems that for the informants, obtaining a religious tattoo was more indicative of individualism rather than an association to the subculture of Christianity. The fact that informants chose unique and creative tattoos to symbolize their faith implies tattooing was a form of individual expression, similar to the tattooed informants in Sweetman’s study (1999). Furthermore, for some, religious tattoos in American culture have become a sort of fad despite a lack of participation in church or similar religious events. This suggests that it is difficult to identify someone’s religious beliefs or behavior based on a tattoo. Several informants commented that this phenomenon could be considered disrespectful toward Jesus, and that a person who wears a religious tattoo but does not have strong faith in that religion may misrepresent Christians. One tattooed female noted: “Lot of people don’t follow Christ at all, but will get a tattoo of a cross. It’s almost like crosses are a trendy thing now. They really are. If you look in fashion… it’s always cross earrings, cross shirts, dresses with crosses on them. It’s crazy. It’s the people who don’t know Jesus at all, don’t identify with Christianity like to wear crosses. It’s a fashion statement. It’s pretty crazy to me, because… the cross was the most morbid way to die, back in the Roman Empire. It was horrifying. That’s why Jesus died on a cross, because they want[ed] him to die the most painful death that you could imagine… it’s almost offensive when people are downtown, partying it up and not thinking about Jesus at all, but wearing crosses.”

Data based on informants’ interpretations of Corinthians 6:19-20 suggest that higher frequency of participation in their faith has led to a greater understanding of scriptures in context. Through exploratory research, I learned that those who refute tattoos often defend their stance with the verse of Leviticus 19:28 stating “Ye shall not make any cuttings in your flesh for the dead, nor print any marks upon you: I am the LORD.” However, study informants mentioned a belief that this verse is actually a reference to pagan rituals that were occurring at the time and are not binding for Christians today. Informants who chose to obtain a tattoo frequently mentioned that Christians must look at the context of the verse in order to understand its correct
interpretation. Furthermore, several informants mentioned that Revelations 19:16 may indicate the presence of tattoo practices in scripture. The verse in Revelations, and several others, were mentioned by Scheinfeld (2007) as evidence of “body markings in the Old and New Testaments” (363). This implies this group of young-Christians tended to look deeper into scripture to discover its meaning for themselves rather than accepting the authority of Christians from previous generations.

Only one young active-Christian that I interviewed interpreted tattoos as sinful. Hence, for the individuals in this study, I rejected the hypothesis that those who have chosen to not obtain a tattoo have refrained for reasons related to their faith. Instead, the most frequently mentioned reason non-tattooed informants listed for not obtaining one was that they were uncomfortable with the permanence of a tattoo.

Within a societal context, it is likely that some negative stereotypes towards tattoos are expressed by older generations; some of the informants in this study mentioned they heard these negative social stigmas from their parents and grandparents. The belief that tattoos are considered sinful by others emerged as the descriptor with the highest salience score among women without tattoos. This might indicate that these young women decided not to obtain tattoos to avoid judgment about their level of faith. Similar studies researching views towards tattoos by age and Christian denomination could be conducted to study this further.
References


A Study and Methodological Analysis of Neolithic Architecture in the Schist Geology of Kea, Greece

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ABSTRACT
In this paper I create and outline a methodology for identifying Neolithic schist architecture in the Cycladic schist landscape. I conducted the field-work phase of this research over a period of two site explorations during the Kea Archaeological Research Survey (KARS) during the summer of 2012 and 2013. The point of these observations was to determine the extent of the remaining architectural features in the archaeological record and then to create a map of the site. The map delineated and located all the excavation zones laid out by Coleman (1977) and I used this information to locate these zones and the structures therein. Evaluation of the data and methodology indicated a sound and efficient means of eliminating a recurring difficulty in pedestrian archaeological survey.

The problem of identifying architectural remains in the Neolithic tradition is a challenge when conducting a pedestrian archaeological survey, particularly when the local geology complicates this matter. This problem is prominent at the site of Kephala, located on the Greek Cycladic island of Kea, where the fracturing nature of the local schist, combined with the Neolithic architectural practice of incorporating natural rock ledges and scarps into their buildings, renders the task of identifying and locating these features in the landscape extremely difficult. Previous investigations of the site have included both excavation and surface survey1. The excavation team, under the auspices of John Coleman and John Caskey2, located forty graves, and excavated eight zones with architectural remains of a domestic zone, and two structures specifically designated as separate architectural complexes, Houses Z and Y. The 1983 survey undertaken by Cherry, Davis, and Mantzourani encountered difficulty in identifying the Neolithic architectural features from the landscape, namely when trying to ascertain the full limits of the Kephala cemetery, noting that severe erosion and infill at the site, combined with the local geology, made identification of further architectural elements, in this case funerary architectural elements, difficult3. During the first season of the Kea Archaeological Research

1 Coleman 1977; Cherry, Davis, and Mantzourani 1991
2 Coleman 1977 pp. 20-43, 46-47, 142-155
3 Cherry, Davis, and Mantzourani 1991 p. 208
Survey (hereafter referred to as KARS) an intensive gridded survey collection was conducted on this site, during which the problematic nature of identifying architectural elements was again noted. The survey results in this matter proved to be inconclusive, and the 1977 Coleman findings remain thus unchallenged in this regard. The goal I am pursuing in this paper is to create and outline a methodology for identifying Neolithic schist architecture in the Cycladic schist landscape. In the course of this paper I will outline what is to be accomplished by the creation of this methodology and its role in pedestrian archaeological survey as a means of alleviating the difficulties in this arena. To illustrate both the need for a methodology and how it will benefit archaeological research in the region I will explain the nature of the problem presented by the native geology and architectural tradition. From there I will present my methods and their application in the field, and will then present an evaluation of the data gathered from the Kephala investigations and the conclusions that can be drawn to ameliorate the task of discerning Neolithic architectural elements in a Cycladic schist geomorph.

Objective
The primary objective of this research project was to establish a method for distinguishing Neolithic architectural elements, which I define in my research as any anthropogenic alteration of the landscape for the purposes of construction and any human made structures and structural elements, from naturally occurring changes or features within the schist geology of the island of Kea. While the research conducted deals specifically with the island of Kea, the geology of the Cyclades is such that methodologies established on Kea can, within reason, be transposed to other Cycladic landscapes. The types of site targeted by the methodology under development are semi-exposed architectural sites near the surface, where the remains are visible for analysis, as this is a survey-based methodology. As Kephala is both partially exposed and a previously excavated Neolithic architectural site, it proved to be an ideal testing ground for the development of an architectural identification methodology. The fact that the site was previously excavated presented a unique challenge, in that questions of the efficacy of the resulting methodology could be raised, for how can one test an identification methodology on a pre-excavated site? The alternative, finding a new Neolithic architectural site, however, was neither practical nor feasible. At any rate, the concerns raised by the use of Kephala are addressed in the first phase of investigation. To understand the gravity of this problem, one must first become acquainted with both the nature of Cycladic Neolithic architecture, and the schist geomorph of Kea. The island of Kea is located in the Attic Cycladic Crystalline Complex, in the portion known as the Cycladic Blueschist Unit (CBU). The CBU covers the southern tips of Attica (Lavrion) and Euboea (Karistos), as well as the islands of Kea, Kythnos, Sifnos, Ios, Delos, Naxos, Andros, Sikinos, Tinos, Antiparos, Serifos, and Tinos. The geological unit is, as the name would suggest, defined by the predominance of schist as the primary bedrock. This is, however, not the only rock present, as is made apparent by the presence of the large limestone outcrop at the site of Paouras on the northern shore of Kea.

Explanation of Problem
The predominant form of schist present on Kea is mica-schist, so named for the presence of the mineral mica within the structure of the schist. The presence of mica is what gives the schist its signature cleaving behavior, wherein the schist breaks along planes established by the presence and positioning of the mica crystal flakes within the layers which comprise the schist. These fractures, or cleavage, are largely tabular in

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4 Coleman 1977
5 Bröcker and Pidgeon, 2007, Higgins and Higgins, 1996
6 Higgins and Higgins 1996
nature, resulting in the creation of slabs of schist which can be of regular or irregular geometric shape (here regular is defined as clearly identifiable rectangular forms). The Neolithic builders working at Kephala would have found this phenomena to be very much to their advantage, and would have likely exploited this in the construction of their dwellings and tombs. The problem presented here is that owing to the natural geometric cleavage pattern of the local schist, differentiating between naturally cloven schist, and schist that has been cloven and placed by human activity, is a rather problematic task. Short of encountering an intact wall foundation, it proves rather difficult to determine what is the exposed top of a wall unit, and what is a semi-exposed schist outcrop that has been cloven by natural forces so as to appear as a line of schist masonry. The matter is further complicated by the fact that the masonry at the site of Kephala does not appear to have been dressed in any fashion, aside from possibly reshaping some of the more irregular blocks. That said, even this is not readily distinguishable from the natural cleaving of the schist. The following figures illustrate the pertinent issues associated with the fracture patterns of schist.

Figure 1 demonstrates how even when cloven by natural forces, schist will break in a reasonably uniform and slab-like formation, separating both perpendicularly and parallel to the main outcrop, illustrating the tendency of the schist to cleave in a planar formation. This is due to the presence of mica within the crystalline structure of schist. It should be noted that though the example in Figure 1 was found in a natural setting, it is by no means definitively indicative of all patterns of schist fracture, and in many instances of schist architecture the edges of the slabs vary in degrees of roughness, from mildly rough to quite jagged in appearance and touch. Figure 2 illustrates the fairly smooth quality of a natural cleaving. As seen in the figure, schist breaks along relatively straight lines, much like worked stone, which is illustrated in Figure 3. The slabs in Figure 3 bear a striking resemblance to the naturally cloven slab in Figures 1 and 2.
These figures illustrate the fact that, at least where the Kean Neolithic architectural practice is concerned, there appears to be little to no difference between schist that has broken away naturally and that which has been extracted from the landscape by the builders of Kephala. This ambiguity continues into the modern period, where in the course of my field research I noted that the local farmers construct their pens and retaining walls using the same methods, and like the inhabitants of Kephala do not appear to dress their masonry. These walls vary in terms of energy expended, but consistently show the hallmarks of scavenged masonry, namely the lack of dressing and the noted absence of anything that could be definitively described as a quarry. This adds another dimension to the complication of identifying architecture in the landscape as there appears to be no evidence that the schist is worked.

One avenue that I had considered in the course of my research was the weathering rate of the schist, or rather to look for differences in weathering between potentially worked schist and the schist still resting in situ. Such investigations are, unfortunately, not wholly viable options. The reality is that the schist in the exposed masonry at Kephala, and that which has broken naturally from the bedrock, namely from the various exposed outcrops and ledges, has been exposed to the elements since the formation of the island itself. Obviously material below the surface will weather at a lesser rate, however the focus of this methodological investigation is on sites that are exposed on the surface, but rendered ambiguous by architectural tradition and landscape. A stone protruding from the ground and a stone lodged in a wall will experience the same exposure to the elements and thus display a similar weathering pattern. It should be noted again that there was nothing in the literature or material to suggest that building material was extracted from beneath the soil level, therefore it is only these outcrops and cliff faces with which this research is concerned. This is not to say that weathering analysis should be totally discarded, but rather that in this particular scenario it would be of little use. As Coleman notes in his publication on the excavations at Kephala, the site as a whole is in a poor state of preservation, with much of the extant architectural remains showing signs of extensive wear from the local environment and gravity. Weathering analysis could potentially be applied to investigation of hypothetical schist quarrying sites, here understood to be surface extraction sites, as opposed to traditional methods of quarrying which dig below the surface and are highly intensive and invasive operations. A potential quarry site would be indicated by a decisive difference in the weathering of the schist, as the schist exposed by quarrying activities would not have been exposed for the same duration as the surface schist. Weathering in rocks can be detected by splitting the rock in half, looking for “weathering rinds”, a phenomena caused by changes in the structural integrity and appearance of the rock as a result of weathering, and which appears as a noticeable ring-like surface layer. In this scenario mechanical weathering tests can be conducted with metal probes to test the strength and integrity of the rock, and from there a numeric scale can be developed based on observations from this testing, as well as outward appearance of the rock. Given that the majority of the schist appears to have been scavenged or pried from crumbling outcrops, however, the existence of dedicated quarrying sites is up for debate. At any rate, processes such as this, or cosmogenic ray analysis, which would best definitively date the rock, are prohibitively expensive in terms of energy and cost for what is being analyzed.

Methodology

I conducted the field-work phase of this research over a period of two site explorations during the Kea Archaeological Research Survey (KARS) during the summer of 2012.

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7 For a fuller discussion of modern Kean architectural practice see the chapters in Cherry, Davis, and Mantzourani 1991 pp. 351-454
8 Coleman 1977 p. 2
9 Goudie 1981 pp.152-153
and 2013. The point of these observations was to determine first the extent of the remaining architectural features in the archaeological record. Because the site of Kephala had last been excavated in the 1970’s, with no documented attempts at further conservation since that time, there were serious questions about the level of preservation at the site and if it would be possible to identify the site’s various elements and structures. During the first excavations 40 years ago, the site of Kephala was determined to be in a relatively poor state of overall preservation and during KARS operations in 2012, which consisted of an intensive, surface, survey collection and description of the cultural remains, as well as my own investigations, the site showed signs of collapse and refilling of the excavation zones. Knowing how poorly preserved the site was, I developed a methodology that would allow me to differentiate between unworked and worked schist slabs and to ascertain which were more likely to have been incorporated into structures.

Phase One of the investigation was to conduct an intensive architecturally focused survey on the site without the assistance of maps or research aids. By proceeding without these resources, an unbiased analysis was made possible. The main purpose of the Phase One operation was to determine what would be immediately architecturally identifiable from the landscape of the site, as well as how the local geomorph impacted what could be seen. As this is a survey oriented methodology, the primary focus and research methods will heavily involve the human eye, namely what is visible to a field observer and how to aid that observer in the interpretation of the material data they are viewing in the field. In the 1983 survey, the problem of discrepancies in survey walker observation skills was considered, but was not found to be of significant detriment, with Whitelaw noting in his chapter on the investigations of Kephala that it did not cause significant fluctuations in the data. Obviously a more attentive walker will have an easier time of detecting the sometimes subtle differences that contrast Neolithic schist architecture from the native geology; however, the methodology I developed in my research is primarily focused on the field walker whose powers of observation fall in the average skill level. What is meant

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David Koppang

Figure 4 A general plan of Kephala (Coleman 1977)

here is that such a walker can easily discern surface artifacts such as chipped stone and pottery, but may experience significant difficulty in separating Neolithic schist architecture from the surrounding schist geology, as was the case during the intensive grid pickup during the 2012 season, where many of the survey walkers were students experiencing archaeological material in its raw native context for the first time. It is important to note, however, that though the problem was highlighted during this season of the KARS endeavor, the problem has manifested itself in earlier investigations, and is not unique to the nature of utilizing student field school researchers. The objective was to see what could be picked out of the landscape by an observer, and what could be firmly and readily identified as architecture. This initial unaided observation was important in that it would determine first of all what the baseline capacity for the detection of architectural elements in the Kean landscape is for the average survey walker, and secondly establish a comparison point for the data obtained in the second phase of research.

An important goal of Phase Two was to first create a map of the site, delineating and firmly locating all the excavation zones laid out by Coleman, which would then be used to locate these zones and the structures therein. By surveying the site a second time and focusing on the excavation zones, the observations made in the Phase One operation could be either verified or refuted. Phase Two of research made extensive use of the free Google Earth application and the Coleman publication. These diagrams were extracted into GIMP (Gnu Image Manipulation Program), a freeware image editing and manipulation program, and used as temporary guide layers in Google Earth to trace the overall layout of the site as dictated by Coleman’s maps. This was done to have a properly oriented frame for the second step, which was to trace the locations of the excavation zones, and from there to trace the individual structural layout of the architectural remains documented by Coleman. By doing so a complete map of the site combining both the structures and excavation zones with satellite imagery was created. The reasons for the creation of this map were largely those of accuracy in terms of identification, as well as to contextualize any potentially new discoveries in the landscape of Kephala.

After mapping the site and the architectural features therein, I proceeded to the site to begin examining the excavation zones themselves. The location of these was now made clear, allowing for a comparison of observation of these zones pre, and post knowledge. By examining the zones in the wake of the Phase One operation, vital questions could be asked: What was still not being seen? What had been seen during the secondary runs that had not been seen in the Phase One investigation? Why had the material seen during the secondary runs not been seen during the Phase One investigation? These questions also led into inquiries into the nature of the architecture at Kephala. What do all these architectural elements have in common to distinguish themselves from the local rock? How have the natural forces of time, nature, and the landscape impacted the remains? Also of importance is the question of how these architectural elements correlate to the ceramic and lithic densities observed in the course of investigations of the site. To be sure, the volume of questions raised did indeed appear quite daunting. The methodological model was put in place to ensure that sufficient data could be generated to answer these questions, or at the very least begin asking the proper questions to tackle the main questions.

Observations and Conclusions

The Phase One investigation of the site was concluded in fairly short order. The site of Kephala measures approximately 275 meters in length from east to west, and, at its widest, from north to south approximately 150 meters in width. The primary target area
was the south slope, where the Coleman excavation zones were located, and where the site was most accessible for large scale exploration. Owing to the highly interpretive nature of the project I did most of the walking myself, mainly for the sake of consistency, although student observers were included for purposes of instruction and observation. The Phase One operation took place at approximately 12:00 PM Hellenic time on June 23, 2010, and continued until approximately 3:30 PM. During that time the entirety of the south slope was examined. In this initial investigation identifications were extremely tentative. The area of Zone G from the Coleman excavation\textsuperscript{13} was located; however, this was one of the more prominent features of the site, comprised of a wall situated on a rock ledge above the spine of the Kephala isthmus. As such this identification must be taken for what it is, the observance of a salient archaeological element, and therefore is not a major accomplishment in terms of observation. Beyond this first zone identification there was little else which was positively identifiable, as was suspected.

After the initial walking of the south slope, an attempt was made to locate a questionable feature from the first year of the KARS project; a schist slab embedded in the hillside at a roughly 90 degree angle. While this feature has been documented in the prior year’s research notes, as well as photographed, in light of both its qualities and location, this particular feature was specifically targeted as being relevant to this research endeavor. It is unfortunate then that during the course of the blind run, and subsequent runs, the feature was unable to be relocated. It is my opinion that this feature, having been partially covered by a patch of vegetation overgrowth when it was first noted, may have been enveloped by said overgrowth, or else the same forces which have served to deteriorate the site have perhaps carried it away, as its position did indeed seem somewhat precarious.

In the course of the Phase Two operations on the site (June 30th and July 7th respectively), Excavation Zones D, L, and F were located and the surrounding area of these zones examined as well. These investigations proceeded in a straightforward manner owing to the utilization of the mapping data generated for this project, and the excavation zones were located quickly and efficiently. Because map data were utilized, the Phase Two operations on the site were targeted to specific areas. The first Phase Two operation focused on the area around Zone D, as research conducted after the Phase One operation indicated a heavy architectural presence in that particular zone.\textsuperscript{14} Because of the density of architectural material located in this zone by Coleman, it was decided that this would be where the primary observations on the nature of Kean Neolithic Schist architecture would be made. Upon approaching Zone D, it was readily apparent why it had escaped notice during the blind run. While fairly exposed, the structure was very much integrated into the landscape, and partially obscured by vegetation. In what is posited to be the interior of the structure, a concentrated growth of ballota acetabulosa sits atop a wall which, at first glance appears to be a naturally fractured schist rock. Its positioning relative to the readily distinguished architectural elements, however, suggested otherwise, and this was confirmed by consultation with both the map and the Kephala publication.

This brings us to item number one in the methodological corollary which has resulted thus far: architectural elements can potentially be identified by proximity to other architectural elements. Not just in Zone D, but across the site’s excavation zones, it was found that in the majority of cases where a suspect rock formation was observed in close proximity to readily apparent architectural remains, said formation was found to have been a plotted architectural feature in the Coleman report. Again, this emphasizes the importance of the Phase One operation, as well as the decision to use a previously identified Neolithic site.
Specific example aside, several recurring trends were observed in the architectural data of Kephala. One overarching theme throughout the observations made of the architecture at Kephala is the use of thick slabs of schist and occasionally limestone, although this was observed only in limited quantities, and is confirmed by Coleman."\(^{15}\) Contrary to other examples of Neolithic architecture, particularly on the mainland, there appears to be no evidence of the use of mudbrick, and as such is must be assumed that the entirety of the Kephalaan structures was schist drystone masonry, with the roofs being either schist slabs or less durable material such as clay, reeds, or timber. The slabs in the retaining walls in particular are of a thicker, sturdier order than those used to cover a wall which is cut into the hillside, such as at Zone L. Zone L is interesting in that in addition to being cut into the hillside, it also makes use of a limestone slab approximately 40-43 cm. long set into a niche located in the center of the north wall of the structure.

This item, in addition to the observation that multiple varieties of schist beyond the local green are present in abundance, suggests that perhaps the Kephalans looked to sources outside their locality for building materials. This would not be surprising as it would appear that constant exposure to salt water does not have a beneficial effect on the structural integrity of schist, although further research would be needed to establish this as a genuine absolute. Therefore architectural elements can potentially be distinguished by marked difference in the stone from the local geology, even if the difference is more superficial in nature. The reasoning for this could be superiority of strength, perhaps a desire not to gouge out their own land, which might be better suited to other activities, or perhaps as simple as aesthetic taste and prestige. For Kephala, I would venture to say that it was a matter of integrity of materials, owing to the observed, and very marked, fragility of the local schist, which I would again attribute to the corrosive action of salt water from waves and particles in the air.

With the statement of this corollary, the question remains, “Does it work?” For the question of efficacy I can only point to a rather small discovery, but a discovery none-the-less. In the space between Zones L and F, a series of stones was observed running in a line from east to west, towards Zone F. Upon further examination, these stones were found to connect to exposed patches of walls, and more importantly that these stones were uniform in their path of “travel” so-to-speak, and were markedly different from the local green schist. Initial notions that this might have been a sheep wall were dispelled when it was pointed out that such structures, once land is purchased for clearance and excavation, are removed. It also bears mentioning that the wall in question connects two archaeologically validated structures. It is my opinion therefore, that this wall is perhaps a Neolithic retaining wall, given that it abuts the slope of the hill and follows its contours. In his opening description of the site of Kephala, Coleman notes that it appears that much of the terracing (which Coleman posits to have been the means by which the settlement was situated on the slopes of the headland) which supported the settlement appears to have been swept away by the gravity and the forces of erosion\(^{16}\), leading me to suspect that this wall may be the remnants of such terracing.

To conclude, though the Kean/Cycladic landscape presents unique challenges to archaeological investigation, when approached and probed methodically, solutions can be found. It is my profound hope that the efforts presented here are of use to those who will follow behind me. Survey archaeology presents its own unique challenges, of which those addressed in this research are a part. Through thorough analysis of the Neolithic site of Kephala and consultation of prior investigations, the framework of a methodology was created. This was then further developed through research and exploration of

\(^{15}\) Coleman 1977
\(^{16}\) Coleman 1977 pp/ 1-3
both the nature of the Cycladic schist landscape, in particular as it presents on Kea, and the nature of the Neolithic builders at Kephala, and thereby ostensibly across Kea. The methodology I have delineated here represents what my research has revealed to be a sound and efficient means of eliminating a recurring difficulty in pedestrian archaeological survey.

Acknowledgements
I would like to close this report on my research findings first and foremost with a statement of thanks for the assistance rendered to me by the staff and students of the Kea Archaeological Research Survey, in particular the tireless support of Dr. Joanne Murphy of the University of North Carolina at Greensboro, Giannakis Timotheou of the Greek Department of Antiquities and Ciarán Murphy, whose dedicated support of both my research and the KARS project is worthy of great praise, Dora Lambert, whose assistance with the mapping portion of my research is greatly appreciated, Margarita Nazou, whose expertise on the Neolithic period and Kephala was of considerable help, and Caolán Mac An Aircinn of Trinity College Dublin and Ashley Rutkoski of the University of Akron, whose sincere interest in, and participation in my research cannot be appreciated enough. Additional thanks must be expressed to the staff of the Kea Archaeological Research Survey (KARS). My success in this project is thanks in no small part to their efforts and support.
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A Relation between College Mentors and Transition Stress Among First-Year College Women

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ABSTRACT
College mentors are found in the college community and offer support, advice, and encouragement to students to help them achieve goals (Pfister 2004). In the present study, incoming students participated in programs implemented by a private women’s college that provided students with opportunities to establish mentoring relationships. The hypothesis was that a) students with one college mentor would report less stress than students without a mentor and b) students with multiple college mentors would experience less stress than students with only one college mentor. First-semester, female undergraduates (N = 199) completed a survey evaluating demographics, college mentors, and perceived stress. Stress scores in the mentor-present group (n = 155) were significantly lower (M = 120.97 of 287) than the mentor-absent group (n = 44; M = 130.13 of 287; t(197) = -1.98, p < .05). The mentor-present group was further divided based on number of mentors (one, more than one or none). The findings of the study suggested stress reduction benefits apparent for those in the single and multiple mentors groups compared to students without mentors. Thus, these findings suggest that establishing at least one college mentor can be associated with lowered stress, at least with the study’s limited demographic participants. However, the long term benefits of this relationship, and the characteristics of students who choose and do not choose mentors should be studied further.

For those students seeking a higher education, the first major life transition associated with the emerging adulthood life point is often that from high school to college. Shifting from a high school to a college setting may be an incubator for stress due to the often quick and numerous social, environmental and developmental changes associated with the transition (Cotterell, 2007). In most circumstances, college is the first time that many young adults are living and caring for themselves without being overseen by an adult or parental figure. These young adults may feel the pressure to take on a variety of different responsibilities and roles while still maintaining their role as a student.

Colleges frequently pair new students with faculty and/or peer mentors on the premise that such relationships may provide a supportive safety net for the first year transition, thereby increasing student retention. However, methodological and definitional
inconsistencies have plagued empirical research on the impact of mentoring relationships, limiting the amount of clear data available to practitioners (Jacobi, 1991; Gershenfeld, 2014).

**Stress, Separation Anxiety, and Academic Success**

Research by Mirsa, McKean, West, & Russo (2000) used the Perceived Stress Scale to analyze stress and anxiety in students. Mirsa et al. (2000) determined that although a moderate level of stress for students was appropriate, operating at high levels of stress may result in decreased academic performance, specifically for underclassmen. Seligman and Wuyek (2007) researched separation anxiety symptoms and how these symptoms related to the student’s educational decisions and performance. Participants completed two self-reported surveys: the Adult Separation Anxiety symptoms checklist (Manicavasgar, Silove, Curtis & Wagner, 2000), and the Separation Anxiety Symptom Inventory (Silove et al., 1993). Results determined that many students operated at high levels of stress but were capable of maintaining their usual levels of academic performance. The apparently conflicting findings of Mirsa et al. (2000) and Seligman and Wuyek (2007) prompted this study to further dissect transition stress in this population. Academic performance is not the only gauge of student adaptation to the college environment. A broader assessment of transition stress, as well as the exploration of moderating variables, such as social support, may therefore be warranted.

**Mentoring Relationships as a Stress Reducer**

While the aforementioned research indicated a high prevalence for stress in most first-year college students, recent research has also provided a basis for assessing social support as a buffer to stress (Pfister, 2004). Strong social support networks in the college environment may come in the form of peers, faculty, and/or organizations.

Pfister (2004) argued that because mentors can provide an inexperienced individual with guidance and support, mentors can be effective stress reducers in the academic environment. Strong social support from an individual in the college network may provide opportunities for first-year students to better participate in social integration into the academic environment. Prior research by Rayle and Chung (2008) found that an increase of social support and integration also decreased the likelihood of reported academic stress. Similarly, Pfister found that students who were mentored by a faculty member perceived more social support than those in the peer-mentored group. Social support resources were viewed as a form of stress reduction because these resources were sought out when individuals could not manage their stress levels. Social support resources were thought to provide some solutions to heightened stress, especially in the case of a mentor in an academic setting (Pfister, 2004).

Pascarella (1980) also examined the relationship between student aspirations, educational success, and student informal contact with faculty. Pascarella’s findings suggested a positive correlation between student-faculty informal relationships and student college outcomes. Pascarella specifically examined the relationship between student satisfaction with college and frequency of informal, non-classroom contact with faculty. Results showed that the frequency of informal, non-classroom contact with faculty was positively associated with student satisfaction (Pascarella, 1980). Students with greater access to and communication with faculty reported significantly higher satisfaction with both their own academic and non-academic experiences at college.

Burlew’s research in business settings suggested that under some circumstances having multiple mentors may fulfill diverse needs such as guidance, support, and training (Burlew, 1991). Burlew’s findings, while predominately involving workers in a business environment, suggest that if greater access to a mentor results in higher satisfaction and
potentially reduced stress, then having multiple mentors may further enhance that adjustment. However, to date, research exploring this question has been limited and methodologically inconsistent (Gershenfeld, 2014).

Measuring Stress
For this study, adaptations of the Student Academic Stress Scale (Busari, 2011) and the Perceived Stress Scale (Maynor & Carbonara, 2012; Cohen, Kamarck, & Mermelstein, 1983) were used to measure stress levels. Busari (2011) used the Perceived Stress Scale and an academic stress scale to determine academic stress of students. The Student Academic Stress Scale (SASS) was used to analyze the type of physiological, behavioral, cognitive and affective stress typical in university students (Busari, 2011). In this study, items for the SASS were totaled and higher scores were positively correlated with higher stress responses. Maynor and Carbonara (2012) used three surveys to examine the relationship between perceived stress and academic self-concept in pharmacy students and found that high stress scores correlated with low academic self-concept scores.

The purpose of the present study was to determine if college mentors were associated with reduced stress in the study group during the transition from high school to college. The hypothesis was that a) participants with a mentor would have less stress than participants without a mentor and b) participants with multiple college mentors would experience lowered perceived stress than students with a single college mentor.

Method
Participants
Participants (N = 199) included female freshmen (class of 2017) attending a women’s college as traditional undergraduate students (ages 17-19). College policy required freshmen not residing with a close local relative to live on campus, thus approximately 85% percent of first semester students lived in the residence halls. Participants who did not live on campus (commuter students) were allowed to participate in the study, but their data were not included in this analysis. Participants under 18 were included with parental consent. Before data collection was initiated, the design was approved by the college’s and the department’s institutional review boards. Participation was voluntary and anonymous, and participants were treated in accordance with the national guidelines for research with humans (APA, 2010). All participants gave informed consent prior to data collection and were provided with contact information for questions and concerns. The participants received no monetary compensation for the study, but were offered refreshments and an opportunity to submit names for a drawing of several $10 gift cards.

Procedure
The survey was administered in freshmen residence hall parlors by scheduling drop-in hours from 7 to 9 p.m. on two evenings during the same week (a month after move-in to residential housing). This time point was chosen as it was assumed that most participants would have experienced some level of transitional stress. The test was administered far enough into the school term for participants to become partly settled into their schedules and to become acquainted with college-assigned peer and faculty mentors. All participants were given the same administrative directions by a team of recruited and trained data collectors. Participation was only granted to traditional first-year students (first-time in college, approximately 18 years old, and lived on campus).

Participants first were asked if a mentor was present or absent in their college environment in a check yes or no response. If participants answered ‘yes’ (mentor present), they were asked to check all types of college mentors that applied to them from a list of examples [i.e., faculty advisor, “Big Sis” (an informal mentor assigned to all freshmen), student advisor, resident assistant, upper-classman]. For the study’s purposes, all students were assumed to have had equal opportunity to establish a mentoring relationship.
with any of the provided examples. The college provided students with a variety of options for mentors through diverse programs initiated by the institution. Incoming students were exposed to these relationships from the moment they set foot onto campus (move-in day) and continued to meet with these advisors (faculty and peer) and informal mentors (Big Sis, resident advisor, and peer) throughout the first semester in college. Incoming students had opportunities to meet with all of these potential mentors both in groups with their peers and individually. However, just because the opportunity for mentoring relationships was present, all participants did not feel fulfilled by these mentors; thus, some participants indicated “no mentors.”

Participants were separated into groups based on mentor present (n = 155) or absent (n = 44) and number of mentors. Participants in the mentor present group were further divided into groups based on the reported number of mentors: Group 1 (n1 = 108) reported having a single mentor. Group 2 (n2 = 47) reported having multiple mentors, ranging from 2 to 4. Group 3 (n3 = 44) reported no college mentors.

Perceived stress was determined through the Stress Snapshot section of the survey adapted from the works of Busari (2011) and Maynor and Carbonara (2012). Stress was self-reported using a point Likert Scale (1 = strongly disagree/never applies to me; 4 = neutral, 7 = strongly agree/definitely applies to me). Questions were asked in both positive (i.e., “I am always busy but this does not bother me”) and negative (i.e., “My work load is always too much”) formats and offered face validity. Participants’ responses were summed and referred to as perceived stress scores. There were 41 total questions with a lowest possible stress score of 41. This score would result in the participant choosing “1 = strongly disagree/never applies to me” for all negatively formatted questions and “7 = strongly agree/definitely applies to me” for all positively formatted questions. The highest possible stress score was 287 and was indicative of high stress. This score would result from participants strongly agreeing (7) to all negative questions and strongly disagreeing (1) with all positive questions.

The survey was untimed, but most participants completed in the questionnaire in 20 to 30 minutes. Participants were allowed to skip questions or check “not applicable.” All participants were debriefed and released. Surveys and consent forms were stored in a locked filing cabinet in the psychology labs.

**Results**

In the study’s findings, the mentor-present group had a mean stress score of 120.97 points out of 287 possible points (SD = 24.09). The mentor-absent group had a mean stress score of 130.17 (SD = 30.23). In the initial analysis, an independent t-test was used to analyze the difference between the two groups. Results indicated that participants who had a mentor had significantly lower perceived stress than participants without a mentor \([t(197) = -1.98, p < .05]\). However, when the mentor present group was further divided, Group 1 (one mentor) had a mean stress score of 120.40 (SD = 24.20), Group 2 (multiple mentors) had a mean stress score of 121.63 (SD = 23.94), and Group 3 (no mentor) had a mean stress score of 130.17 (SD = 30.23).

An Analysis of Variance (ANOVA) revealed no significant differences in perceived stress scores among the three groups \(F(2,196) = 2.349, p > .05\). Although the independent t-test suggested that at least one college mentor was associated with less stress compared to participants with no college mentor, the ANOVA showed there was no significant difference in stress scores among Group 1 (one mentor) and Group 2 (multiple mentors).

**Discussion**

Study findings indicated that mentor present group had a significant decrease in stress levels compared to the mentor-absent group. Further analysis reflected no statistical difference in stress levels between those who had multiple mentors and those who had one mentor. This finding contradicts Burlew (1991), whose research claimed that multiple
mentors were necessary in order to provide the skills and knowledge required to complete the development of a mentee. Because no significant difference in stress level was found among Group 1 (one mentor) and Group 2 (multiple mentors), the results in the present study suggested that the number of mentors does not affect stress, as long as at least one mentor is present.

One limitation of the study was that the sample was drawn from a small, liberal arts institution, an institutional type which Pascarella (1980) suggested may encourage more informal student-faculty interaction (e.g., causal loops). Pascarella’s findings suggested that students in these type institutions may seek relationships with faculty as a result of pre-existing traits and conditions which can promote student success. Such interactions may lead to higher rates of mentor relationships forming between students and college staff members. The present study’s sample reflected students in a college learning environment where informal contact with faculty was frequent. According to Pascarella, this prevalence of communication with advisors and faculty may be greater in small, liberal arts institutions as opposed to a large university environment.

The present study findings supported Pfister (2004) who suggested that mentors as social support resources may provide a buffer to transitional stress. Participants in the present study who did not have a mentor demonstrated heightened stress. However, Pfister also found significantly less academic stress in students who were mentored by a faculty member compared to a peer. The present study was not designed to investigate this difference since half of the participants who answered ‘mentor-present’ also had multiple mentors. These participants could not be clustered into faculty-mentored and peer/student-mentored groups because there was no accurate way to decipher which mentor (faculty or student) was most influential.

Additional limitations in the present study included the following. The sample was drawn from an all-women’s four year college and results cannot be generalized to other women, men, high school students and/or non-traditional students. The sample was also drawn from a small private college; therefore, institution size may also have an effect on stress level and student expectations of mentoring relationships. The survey was distributed after two weeks of class and one month after move-in day; participants may not have had enough time to establish a long-term mentor. The survey did not ask participants to report information regarding native language, race or ethnicity, learning disabilities or physical impairments. The Stress Snapshot assumed an ability to read and write in English. Other limitations include the potential circumstance that study participants may prefer other types of mentoring relationships or feel fulfilled by the ones presented by the college. Another explanation for the varying number of reported mentors could be that the present study did not offer a sufficiently clear definition of a mentor.

Future research will be needed to further understand the characteristics of the no mentor group and distinguish possible reasons for students reporting no mentor (i.e., do not feel they need a mentor, do not feel connected, not enough time to establish a mentor). Future studies might collect demographic information of the mentors and include a mentor-mentee satisfaction inventory to determine if the relationship is influential. Further research could also investigate gender differences and faculty-mentor versus peer/student-mentor groups. In a planned second wave of analysis, this project will collect data on retention rates and GPA, and determine if the participants maintain the same mentor throughout their second year.
Explorations | Social Sciences

References


Measuring Importance, Performance, and Frequency of Green Initiatives among North Carolina Bed and Breakfast Operators: A Pilot Study

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Abstract
To better understand the adoption of green practices within the North Carolina (NC) Bed and Breakfast (B&B) industry, the purpose of this study was to investigate not only how important green initiatives are to owner/operators, but also how frequently they are performed. The study used the theory of planned behavior to assess operator motives for green practices. The research design was a cross-sectional design, and an importance-performance analysis (IPA) was used to analyze the data from 41 NC B&Bs on five key areas: energy efficiency, water conservation, solid waste management, local community efforts, and marketing. From the data gathered for this study, a list of most frequently used green practices of NC B&Bs was generated. The results of the study showed that most NC B&Bs are implementing green practices well in all categories, except for marketing.

Bed and breakfasts (B&B) are establishments, such as a house or small hotel, where a lodger can pay a fee to let a room, with breakfast included the next morning (Bed and Breakfast, n.d.). The United States B&B industry is worth approximately $3.4 billion, with about 17,000 inns in existence (Professional Association of Innkeepers International, 2010). According to Lanier and Berman (1993), a reasonable return on investment for B&Bs can be achieved by having a minimum of five rooms for people to rent on the property. The typical B&B has between four and eleven rooms, with six being the average number of rooms available for rent (Professional Association of Innkeepers International, 2010).

Literature Review

Definition of a Bed and Breakfast
Lanier and Berman (1993) described three main types of B&Bs. They are as follows:

Bed and Breakfast: A residence that is divided almost equally between home and lodging, with lodging given a higher priority. Usually offering four or five rooms, the majority are historical buildings.
Bed and Breakfast Inn or Lodge: An
accommodation with a primary use of providing transient lodging. Ranging in size from two to twenty rooms, such properties usually require large capital investment for renovations and amenities.

Country Inn: Bed and breakfast inns that offer full meal service in addition to breakfast, often to persons who are not lodging guests (p. 16).

Defining a Green Hotel

According to Tsai (2008), green hotels are lodging facilities that use “operation techniques that have a low impact on the environment, while maintaining their business environment, to provide clients with green products (meals), green services (housekeeping), and living environments that are natural, healthy, clean, and comfortable” (p. 286). Jin-Soo, Li-Tzang, Heesup, and Yunhi (2010) included management decision making in their definition, “Green hotels are environmentally friendly properties whose managers are eager to institute programs that save water, save energy, and reduce solid waste – while saving money – to help protect our one and only earth” (p. 902).

B&B Green Initiatives

According to Dodds and Holmes (2011), small hospitality businesses usually take part in recycling programs, water conservation programs, energy efficiency, air and water filtration systems, and the use of organic, local, and natural-grown food products. East Carolina University’s Center for Sustainable Tourism (2011) found twelve key areas of eco-friendly initiatives in the lodging industry. These areas are as follows: greenhouse gas emissions management and reduction; solid waste management, reduction, reuse, and recycling; freshwater consumption reduction; wastewater management; energy efficiency, conservation, and management; ecosystem and biodiversity conservation; land use planning and management; air quality protection and noise reduction; preserving the social norms and cultures of local and indigenous communities; providing economic benefits to local and indigenous communities; responsible purchasing; and training and education for employees and clients.

Lack of Research in the B&B Industry Regarding Green Initiatives

Dodds and Holmes (2011) showed that the highest levels of awareness and activity were in the traditional areas of reduction of waste, reduction of energy use, and water conservation but noted a lack of knowledge in other fields of eco-friendly practices. They also stated that “there is a need for more information, research, and tools for owners in the B&B industry” of green practices (Dodds & Holmes, 2011, p. 492).

There is a misconception in much of the lodging industry that green initiatives are expensive to implement, but many eco-friendly projects require little expense at all (United States Small Business Administration, 2008). However, the return on investment can be substantial (Phillips & Phillips, 2011). For example, small businesses that invest strategically in green initiatives can cut utility costs 10% - 30% without sacrificing service, quality, style, or comfort – while making significant contributions to a cleaner environment (United States Small Business Administration, 2008).

According to Graci and Dodds (2008), there is a gap between green attitudes and green action in the overall hotel industry; there seems to be greater awareness and intention in the B&B industry to utilize more green initiatives, but the number of inns that are actually carrying out those initiatives is low. The research by Nicholls and Kang (2012) supports this claim by finding substantial differences between the perceived importance of environmental initiatives and their actual adoption or implementation.

Theoratical Underpinning: The theory of planned behavior (Ajzen, 1991) states that attitudes toward a behavior, subjective norms, and perceptions of control impact intentions to perform or not perform a behavior and actual performance of a behavior. As Azjen (1991) states, “It is at the level of beliefs that we can learn about the unique factors that
induce one person to engage in the behavior of interest and to prompt another to follow a different course of action” (p. 206). Therefore, for this study, the theory of planned behavior was used as the foundation for investigating beliefs about the importance of green initiatives in the B&B industry and the level of performance of implementing them.

An aim of this study was to bridge the information gap and make bed and breakfast operators more aware about green practices that they could be utilizing in their businesses. In order to better understand the adoption of green practices within the NC B&B industry, I investigated, not only how important green initiatives were to owner/operators, but also how frequently they were performed. Therefore, the research questions for this study are as follows:

- **RQ1:** What is the importance of practicing green initiatives to NC B&B owners/operators?
- **RQ2:** What is the level of performance of NC B&B owners/operators in practicing green initiatives?
- **RQ3:** What are the most frequently used green initiative practices in NC B&Bs?

**Method**

**Research Design**

The research design employed in this study was a cross-sectional design. An importance-performance analysis (IPA) was also used to analyze the data. IPA breaks down a value intention by classifying its most important attributes in two dimensions: 1) the importance of each attribute and 2) judgments of its performance (Arbore & Busacca, 2011). This approach to the importance-performance map is divided into quadrants once the mean importance and performance scores for each attribute are calculated and plotted (Eskildsen & Kristensen, 2006). Importance is on the x-axis of the grid, while performance is on the y-axis of the grid (Koh, Joanne, & Boger, 2010). The grid was comprised of 5 units per dimension, with 3 being the midpoint for both importance and performance. IPA is used in many service and quality studies of the hospitality and tourism markets. For example, Nalini and Samuel (2011) used this research technique to analyze the service quality of a panel of different restaurant service attributes in a variety of dimensions.

The four quadrants of the importance-performance map are classified as follows: quadrant I (concentrate here), quadrant II (keep up the good work), quadrant III (low priority), and quadrant IV (possible overkill). The upper left quadrant shows excellence in terms of importance, but lacks performance. Therefore, variables that fall into the upper left quadrant (quadrant I) require more concentration and attention from the organization, as the performance levels of the items in question are low. The upper right quadrant (quadrant II) shows excellence in both importance and performance. Consequently, all variables that are placed in this quadrant can be maintained within the organization. Variables that fall into the lower left quadrant (quadrant III) have a low priority within the organization, as they lack both importance and performance. The lower right quadrant (quadrant IV) could be considered possibly unnecessary within the business, as the variables placed into this quadrant are performed well by management, but are not deemed important.

**Sample**

A total of 215 North Carolina bed and breakfasts were contacted for this study with all three regions of North Carolina were represented: coastal plain (n=41), piedmont (n=43), and mountains (n=131). The high volume of B&Bs represented by the mountainous region of NC may have stemmed from the numerous tourism locales in the area that support the B&B industry.

**Recruitment:** The recruitment of bed and breakfast properties throughout the state was conducted via email. A database of North Carolina inns was generated after an extensive web search was completed on www.bedandbreakfast.com/north-carolina.html.
This database listed the name of the property, the property’s email address, and the region where it was located.

The 215 surveys were distributed, and 71 were returned; this is a response rate of 33%. However, of the 71 surveys that were completed, only 41 were usable due to missing data. Thus there was a functional response rate of 19% (41/215). This rate is comparable to typical online survey response rates (cf. Jeong, 2004).

**Survey Instrument**

The survey for this study was created from three published checklists: Go Green: An Environmental Checklist for the Lodging Industry (DeFranco & Weatherspoon, 1996), Sustainable Tourism Practices Checklist: for the Lodging Industry (East Carolina University Center for Sustainable Tourism, 2011), and Trash Talk: Waste Reduction at Bed and Breakfasts (East Carolina University Center for Sustainable Tourism, 2012). The first two publications were examples of green practices that would be applicable to the lodging industry as a whole, while the third publication set the framework of what was relevant to bed and breakfasts in particular.

The survey consisted of 29 items for the bed and breakfast owners/operators to rate for their properties based on the two variables of importance and performance. The survey questioned the green practices that are important to them, as well as how well they perform the initiatives for their properties. A 5-point Likert scale was used throughout the survey. The importance scale was anchored at (1) not important to (5) very important. The performance scale was anchored at (1) do not practice to (5) excellent. Based on average rankings from the sample, we generated a list of most frequently used green initiative techniques and also IPA plots. Demographic information, such as average daily rate and occupancy percentage, was also collected.

**Reliability & Validity:** Face validity was assessed before the survey was sent out. A draft of the survey was sent out during the preliminary stages of the research to five different individuals, composing the expert panel. Two panel members were survey design experts, two panel members were sustainable tourism experts, and one member was an innkeeper and B&B industry expert. The opinions and edits of all five members were considered, and changes were made to the survey before sending it out to the sample.

Reliability was assessed with Cronbach’s alpha. This reliability coefficient ranges between 0 and 1. The closer the coefficient is to 1, the greater the consistency of the variable. For this study’s 29-item instrument, Cronbach’s alpha was 0.934, which supported its reliability.

**Data Analysis Techniques**

Statistical Package for the Social Sciences (SPSS) was used to calculate descriptive statistics for all 29 green initiatives. These were then plotted on the IPA grid and used to develop a list of the most frequently used green practices. Demographic factors were also analyzed and are reported below.

**Results**

**Sample**

Approximately 78% of the North Carolina innkeepers who responded to the survey with usable data were between the ages of 50 and 69. They reported industry experience of up to 23 years, with six months being the shortest amount of experience. Roughly 56% of the innkeepers surveyed have been a part of the B&B industry for 2-7 years. The properties contained different numbers of guestrooms, ranging from 2 – 17. Approximately 68% of the properties surveyed had 4 – 8 rooms. Though the properties were built between 1790 and 2005, 50% of the respondents claimed a historic or landmark property. All of the B&Bs respondents surveyed claimed non-smoking establishments.

While the properties’ occupancy percentages ranged from 20% - 89%, roughly 49% of the sample had occupancy percentages between 30% and 59%, with a mean occupancy percentage of 47.6%. The average daily rate
(ADR) of the properties surveyed ranged from $80 - $300. Approximately 61% of the average daily rates for the study’s sample were between $90 and $159. The mean ADR for this study was $140.60.

Respondents were questioned about how “green” they considered themselves to be as well as their properties. Only 2.4% of the respondents stated that they were not green individuals, and most NC B&B owners/operators (56.1%) claimed to be “somewhat” green individuals. Over a third (36.6%) considered themselves to be green individuals, and 4.9% claimed that they were “very green” individuals. Roughly 4.9% of the owners claimed that they did not have green properties, but the majority (63.4%) claimed that the property was “somewhat” green. A total of 26.8% considered the properties “green,” and 4.9% of the sample stated that they owned very green properties.

Assessing the Research Questions

Twenty-nine green practices were analyzed to identify the importance and performance levels of each initiative. The results of this analysis are displayed in Table 1. There were five major categories into which the 29 practices were distributed: energy efficiency, water conservation, solid waste management, local community efforts, and marketing.

**Importance-Performance Maps:** The importance-performance map for the complete set of data is provided in Figure 1. The four quadrants must be considered before beginning the analysis. Most of the items for this study fell into quadrant II (keep up the good work). This quadrant exhibits that the B&B

<table>
<thead>
<tr>
<th>Table 1: Survey Item Results</th>
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<tbody>
<tr>
<td><strong>Survey Item</strong></td>
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<tr>
<td><strong>Energy Efficiency</strong></td>
</tr>
<tr>
<td>1. Energy consumption monitored</td>
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<td>2. Energy efficient window techniques</td>
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<tr>
<td>3. Temperature control program</td>
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<tr>
<td>4. Efficient electricity consumption</td>
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<tr>
<td>5. Renewable and/or efficient systems</td>
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<td>6. Energy efficient lighting</td>
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<td>7. Integrate green building techniques</td>
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<td>8. Buy energy efficient electronics &amp; appliances</td>
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<td><strong>Water Conservation</strong></td>
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<td>9. Low-flow showerheads in guestrooms</td>
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<tr>
<td>10. Low-flow toilets throughout property</td>
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<tr>
<td>11. All appropriate faucets have aerators</td>
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<tr>
<td>12. Towel &amp; linen reuse program in guestrooms</td>
</tr>
<tr>
<td>13. Use water efficient irrigation practices</td>
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<tr>
<td><strong>Solid Waste Management</strong></td>
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<tr>
<td>14. Use reusable housekeeping products</td>
</tr>
<tr>
<td>15. Use of a recycling program</td>
</tr>
<tr>
<td>16. Provide &amp; publicize recycling bins</td>
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<tr>
<td>17. Implement paper reduction practices</td>
</tr>
<tr>
<td>19. Bulk purchasing</td>
</tr>
<tr>
<td>20. Responsible purchasing of durable goods</td>
</tr>
<tr>
<td>21. Implement a composting program</td>
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<tr>
<td><strong>Local Community Efforts</strong></td>
</tr>
<tr>
<td>22. Purchase local foods, products, &amp; services</td>
</tr>
<tr>
<td>23. Allow local artists to sell and/or display their art</td>
</tr>
<tr>
<td>24. Form partnerships with local businesses</td>
</tr>
<tr>
<td>25. Give donations to local charities</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
</tr>
<tr>
<td>26. Promotion of green practices via signage</td>
</tr>
<tr>
<td>27. Green claims are verifiable by customers</td>
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<tr>
<td>28. Advertising of green practices via website</td>
</tr>
<tr>
<td>29. Participate in a green certification or recognition program</td>
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![Figure 1: Importance-Performance Map of the Study's Five Main Categories](image-url)
is performing the practices well and that the owners/operators find the initiatives important to their business. Only a few of the variables fell into quadrant I (concentrate here), two variables fell into quadrant III (low priority), and zero items were placed into quadrant IV (possible overkill). This demonstrates that the respondents of the study felt they were doing well in the performance of the practices that they found to be important.

Because many of the values were similar, each of the five categories (energy efficiency, water conservation, solid waste management, local community efforts, and marketing) will be displayed separately in Figures 2 – 6.

All of the items from the survey for energy efficiency fell into quadrant II. This demonstrates that the respondent NC B&B owners/operators felt that energy efficiency is important and perform the practices of this initiative effectively. Figure 3 represents the importance-performance plot of water conservation.

All of the items for water conservation were placed into quadrant II. This seems to exhibit that respondents of B&B properties of North Carolina consider themselves to be conscientious about conserving water, just as they are about energy efficiency (as shown previously in figure 2). The importance-performance chart of solid waste management can be found in Figure 4.

Only one of the eight items in the solid waste management category was placed outside of quadrant II. Item 21, the implementation of a composting program, was placed into quadrant I. For the majority of items in this category, the properties showed high levels of importance and performance. The IPA map for local community efforts can be found in Figure 5.

Only one of the four variables in the local community efforts category fell outside of quadrant II. Item 23, allowing local artists to display and/or sell their handicrafts at the property, was found in quadrant I. For the sample of this study, the use of local products, goods, and services was found to be both important and performed well. Figure 6 displays the IPA chart for the marketing category of this study.
Two of the four items in the marketing category fell into quadrant I, while the other two fell into quadrant III. This category of the study displays a lack of importance and performance in the area of green initiative marketing within the sample of NC B&Bs. Item 29, participating in a green certification or recognition program, ranked the lowest of all in terms of priority to the property. Item 26, the promotion of green practices via signage, was also placed in quadrant III. Responses to items 27, green claims are verifiable by customers, and 28, advertising of green practices via website, indicate that the NC B&B sample are inconsistent in implementing behaviors based on attitudes. The owners/operators of the properties felt that it was important for their green claims to be verifiable by their customers, but their performance of that practice was relatively low. The operators also felt that it was important to promote the property’s green practices via the B&B’s website, but their performance level of this item was low as well. This correlation seems to represent that a correspondence between utilizing green practices and marketing the property has not been made.

Most Frequently Used Practices: From the data gathered for this study, a list of most frequently used green practices of North Carolina B&Bs was generated. For the category of energy efficiency, efficient electricity consumption ranked highest of all 29 items. A total of 97.6% of the sample respondents ensure that their properties are efficiently consuming electricity. The marketing category of this study ranked lowest overall. A complete list of the green practices in question, and their rankings in the list of most frequently used practices for NC B&Bs is provided in Table 2.
used initiatives, can be found in Table 2.

Discussion

The first research question of this study asked what the relative importance of practicing green initiatives was to NC B&B owners/operators. From the data that were compiled via the electronic survey, an IPA grid was generated. From all of the items in question, only two fell below the importance midpoint (< 3) on the IPA grid. The first item was number 26, the promotion of green practices via signage. This item was deemed slightly unimportant by the B&Bs that were surveyed, which may be because the owners/operators didn’t want to take away from the aesthetic appeal of the property.

The second item that fell below the importance midpoint on the IPA grid was number 29, the participation of the B&B with a green certification or recognition program. This item may have been deemed unimportant because the owner/operator may have a lack of understanding of what is involved, the expense, and resultant benefits of being affiliated with a green certification/recognition program.

The second research question of this study asked what the relative performance level was of NC B&B owners/operators practicing green initiatives. Only 6 of the 29 items on the electronic survey fell below the performance midpoint (< 3) on the IPA grid. The first item that fell short in terms of performance was number 21, the implementation of a composting program. The lack of performance with this item may be because of a spacing issue on the property or a lack of knowledge in how to create, build, or implement a composting program into their businesses. The second item that was performed poorly was number 23, allowing local artists to sell and/or display their art or handicrafts. The respondents of this study may be performing this item poorly because they do not want the liability of the artwork on their properties, as well as the space it takes to display the artists’ handiwork.

Number 26, the promotion of green practices via signage, was the third item that fell short of the performance midpoint. This item may have fallen short in terms of performance because it also fell below the importance midpoint on the IPA grid. The fourth item that was performed poorly was number 27, the practice of making sure that green claims are verifiable by customers. This practice makes sure that the B&B is being honest with its claims. The owners/operators may not have performed this practice well because they haven’t asked any customers to verify or complete a survey attesting to the implementation of the businesses’ green initiatives.

The fifth item that fell short of the performance midpoint was number 28, the advertisement of green practices via website. Promoting the utilized green practices on the property’s website would certainly be a marketing tool, but the B&Bs that were surveyed did not deem this practice necessary to perform well. This supports previous research that found a gap between the intention and awareness of green initiatives and the actual adoption and implementation of the practices (Nicholls & Kang, 2012; Graci & Dodds, 2008). The sixth and final item that fell below the performance midpoint (< 3) was number 29, the participation of the B&B with a green certification or recognition program. This item, like number 26, may have fallen short of the performance midpoint because it also fell short of the importance midpoint in the IPA grid.

The third research question of this study asked what the most frequently used green initiatives were of NC B&Bs. The initiatives listed above in table 2, in descending order of implementation percentage, represent the green practices of the sample of NC B&B owners. The top ten practices of this list may be the most popular because they are familiar, are easy to implement, save money, and/or produce a return on investment. The energy efficiency category took up 50% of the top ten list. This trend may exist because these practices help save the most money and have the quickest return on investment, which is in agreement with previous research (Phillips & Phillips, 2011).

The solid waste management category had
three items in the top-ten list. This may be because the use of a recycling program is very familiar and the purchasing of durable goods is easy to perform. Bulk purchasing also helps tremendously in terms of cost savings. One of the most common green practices, recycling, may have become so prevalent because most cities assist the initiative via specific recycling pickup days and separate recycling bins from regular household waste bins.

The local community efforts category took two spots in the top-ten list. The successful implementation of the initiatives in this category may have been because the B&Bs are investing in the communities in which they serve. The purchasing of local foods, products, and services benefits the local economy, as well as the business of the B&B. However, perhaps the most influential reason that motivates B&Bs to support the local economy is because it has become so popular and effortless to do so.

It was interesting to find that the water conservation category wasn’t a part of the top-ten list, as it was an area of critical importance in a previous study that listed twelve key areas of eco-friendly initiatives in the lodging industry (East Carolina University Center for Sustainable Tourism, 2011). As one of the survey items under water conservation, the use of a towel and linen reuse program in guestrooms was the closest to making the top-ten list by taking the #12 spot. Though this practice is common in the lodging industry, as seen in the checklist created by East Carolina University, some inns may not utilize this initiative because they don’t want to take away from the experience that their guests have become accustomed to (East Carolina University Center for Sustainable Tourism, 2011). Some guests expect there to be fresh linens and towels after each night’s stay. Responsible innkeepers try to keep their guests happy, no matter the cost. If washing a towel or two will add to their guest’s experience, then they are willing to do so at the cost of a load of laundry. Also, some of the other practices in the water conservation category have a high initial investment cost that some properties may not deem necessary. The barrier of high initial cost of investment for small businesses like B&Bs to implement such programs has been a consistent trend in previous research as well (Graci & Dodds, 2008).

The marketing category of this study was lacking in both importance and performance in the subset of inns surveyed. The deficits of importance and performance were precursors to the low level of implementation in the list of most frequently used green practices. The practice of making green claims verifiable by customers was the highest-scoring initiative of the marketing category, as it placed in the #24 spot out of 29 practices. The marketing category’s implementation rates varied from 65.9% - 14.6%. These results support the research conducted by Dodds and Holmes (2011), which claimed that many B&Bs lacked knowledge in eco-friendly fields outside of the realms of waste reduction, energy efficiency, and water conservation. This study also supports the idea that marketing needs to be a focus of more NC B&B businesses in order for growth to occur (Hu, 2012; Hudson & Gilbert, 2006).

The theory of planned behavior (Ajzen, 1991) states that attitudes toward a behavior, subjective norms, and perceptions of control impact intentions to perform/not perform a behavior and actual performance of a behavior. Specific to this research, NC B&B owners/operators’ attitudes toward green behaviors were assessed, and the study found that overall these behaviors were deemed important. Only two behaviors, the promotion of green practices via signage (item #26) and the participation of the B&B with a green certification or recognition program (item #29), were not deemed important. The vast majority of the respondents also rated their performance on these green behaviors as acceptable. Six particular behaviors were not performed at this level of acceptability. This research provides further support that attitudes toward a particular behavior, in this case NC B&B owners/operators and green behaviors, can impact performance of the behavior. The theory of planned behavior

Mary Stuart Sanderson
Implementing green initiatives can be used as an avenue of connecting better with their green-conscious clientele. Nevertheless, because most NC B&Bs aren’t marketing their green attributes, owners/operators may just be implementing them because they feel it is the right thing to do. This connects back to the thought that their utilization of green initiatives is internally motivated and not externally driven by certification or recognition programs.

Limitations and Future Research

The sample size was a limitation of this study. Even though the response rate of the study was 33%, the sample size was not large enough and the geographic location was not varied enough to allow the results to be generalizable to the B&B industry as a whole. The scope of the study was limited to just the state of North Carolina. As such, the results may have been different if the entire North American B&B industry was included. Further, future research should request more demographic and economic information about the B&B owners so that we could gain a better understanding of the variables that are correlated with motivation.

There are many possible research topics that could expand on the results of this study. The instrument for this study was supported as reliable and valid and therefore should be used in future studies focusing on green initiatives of B&B owners/operators across the country. If the B&B industry deems it necessary, this study could even be replicated in other countries in order to attain a better understanding of the international scope of green initiatives being utilized in B&Bs around the world.

Furthermore, this research study could be modified in order to ask the sample of B&B owners what motivates them to practice green initiatives. Though this study concluded that internal motivation is the driving force behind NC B&B green practice implementation, the stimulus for B&B owners in other regions around the world may be completely provided a theoretical underpinning for the research and for the findings.

Implications

One suggestion resulting from the conclusions of this study is for green agencies (sustainable tourism firms, eco-friendly lodging firms, and green 501c3 nonprofits) to become more engaged in the green actions of B&Bs. For example, sustainability leaders in the state of North Carolina could try to encourage NC B&B owners/operators to make more knowledgeable choices about adopting new green initiatives, such as composting or participating in a green certification or recognition program. North Carolina green agencies should engage further with the NC B&B industry, as these operators are an active and dynamic sustainability group of the economy.

An inference that can be made from this study is that NC B&Bs are practicing green initiatives simply because the operators/owners feel it is the right thing to do. Their low implementation percentage of participating in a green certification or recognition program could reflect a lack of concern with meeting a third party’s set of standards. Because certification program act as third party regulations and criteria to uphold, B&Bs may find this extra step to be too much of a challenge or barrier to deem the enrollment in and participation of their small business to be essential (Jarvis, N., Weeden, C., & Simcock, N., 2010). Therefore, an internal motivation to adopt the green movement into their businesses could be one of the NC B&B industry’s key motivators for implementation.

A final implication of this study is the need of NC B&B owners/operators to find a competitive advantage to market and sell their B&Bs. A connection between the consumer and the attractiveness of the product should include environmental stewardship and green practices. Guestroom amenities such as wireless internet access and the size of the bed are often mentioned on the property’s website. However, green practices could also be an attribute that NC B&Bs strive to market.
References


About the Student Authors

Dewey Bennett
is an undergraduate student at the University of North Carolina at Wilmington where he is seeking a double major in Political Science and History. Dewey grew up in Raleigh, NC with his identical twin brother, William, who originally encouraged research on the Kerala paradox. In addition to his studies, he serves as the Chairman of Academics and Scholarship for the Chi Beta Chapter of Delta Kappa Epsilon Fraternity and holds a legal research internship with the Law Offices of John Kirby. After graduation, Dewey plans on attending law school in pursuit of a legal career.

Katherine Culatta
hails from Boone, NC, and graduated from the University of North Carolina at Asheville in December 2013 with a B.A. in Studio Art and a B.S. in Biology. Her senior exhibition, ‘Symbolization of Species’, focused on human perception of the natural world. Katherine currently works as a botanist and devotes nights and weekends to ink drawing and watercolor painting with an eye toward a career in scientific illustration.

Kieran McCarthy Fell
graduated a semester early from UNC-Chapel Hill in December 2013 with a Bachelor of Music degree in flute performance and a history minor. She received three fellowships from UNC-Chapel Hill to research intersections and divergences of Irish traditional music and classical music in Ireland during Summer 2013, and gave presentations on that research on four separate occasions between August 2013 and July 2014. She now volunteers at the Irish Arts Center in Manhattan, NY, and works full-time as an Administrative Assistant to the Legal Department at Standard Motor Products in Long Island City. In her spare time, she enjoys playing traditional Irish flute at sessions, traveling, reading, and relaxing with her family and friends.

Luke Flood
graduated from Appalachian State University in May 2014, where he earned a BS degree in Chemistry. In addition to his interests in chemistry, he also has a life long passion for medicine and human physiology which he has perused through work as an EMT. He is now entering the workforce seeking opportunities in areas where his interest in medicine and chemistry meet.

Daniel Franch
is currently a senior at East Carolina University, where he is pursuing his BS degree in History Education, with a minor in German. In addition to his studies, he currently volunteers as a student advisor to the Dean of the College of Education, tutors German at the Pirate Tutoring Center, and works as a writing consultant at the ECU University Writing Center. He aspires to continue his education by pursuing a master’s degree in history, and hopes to enhance his understanding of topics in history and economics in order to be a more proficient educator.

Emily Gering
graduated from the University of North Carolina at Greensboro in May 2013 with a
Rachel Johnson

completed a dual BS degree in Chemistry and Biochemistry at East Carolina University in Spring 2014. As a member of the inaugural ECU Honors College, Rachel was required to complete a Senior Honors Project. With encouragement from Honors College advisors to pursue a project outside of her major, Rachel chose conduct a study in the field of anthropology which interested her since freshman year. She is now a graduate student at East Carolina University, pursuing an MS degree in Chemistry with a concentration in Inorganic Chemistry. Rachel is currently working with Dr. Anne Spuches to collect thermodynamic data on heavy metal interactions with human Troponin C using isothermal calorimetry. She hopes to continue her education in a Chemistry PhD program to become a professor.

Clayton D. Harrington

is currently a graduate student at Candler School of Theology at Emory University, where he is pursuing a Master of Theological Studies in Modern Religious Thought and Experience. He graduated from Campbell University in May 2014 with a Bachelor of Arts in History and Religion. He plans to continue studying the relationship of religion, politics, and society in contemporary American life.

Monica J. Johnson

is a recent graduate of High Point University, where she graduated with her B.S. degree in Psychology, with a minor in Communications. In combination with her studies, she worked alongside her advisors, Dr. Danzis and Dr. Hundt, on separate research projects. She aspires to continue her education by obtaining her Ph.D. in Clinical or Counseling Psychology, with a focus on adolescence and multicultural studies.

David Koppang

is an undergraduate student majoring in Classical Archaeology at the University of North Carolina at Greensboro. He has attended the school since 2011 and is currently in the process of applying to the Master’s Program in Applied Geography at the University of North Carolina at Greensboro, with the eventual goal in mind of acquiring a PhD in the field of Late Antique Archaeology. His scholastic backgrounds are in Classical and
Taylor Lawless

earned her bachelor’s degree from East Carolina University in May 2014 where she majored in Nutrition Science and minored in science. During her undergraduate career she was an EC Scholar and a member of the inaugural class of the Honors College. She represented her peers as an EC Scholar Roundtable Representative, a College of Human Ecology Dean’s Council Representative, and as an Honors Ambassador. For the 2014-2015 academic year she will be completing a dietetic internship through East Carolina University in order to become a Registered Dietitian Nutritionist. She intends to use her knowledge and gifts to improve as many people’s lives as possible.

Rachel L. Leahy

is a recent alumna of Guilford College, graduating May 2014 with a BA degree in English and a minor in Early Modern and Medieval Studies. In addition to her studies, she was a Teaching Assistant for First Year English Composition classes and was the volunteer project coordinator for the college’s Bonner Scholars program at the Servant Center in Greensboro, a rehabilitation house for recovering veterans. She plans to continue her education by pursuing a Master’s degree in the future, but is currently enjoying working for Guilford’s Admissions and Communications & Marketing departments.

Ashle M. Page

is currently a sophomore at North Carolina State University where she is pursuing a BS in Chemical Engineering and a BS in Polymer and Color Chemistry with a minor in English.

She has conducted research on materials for aerospace structures at NASA Langley Research Center, serves as an ambassador for the Institute for Emerging Issues, is a student representative for the University Standing Committee on International Programs, and also enjoys being active in church and spending time with her family. In the future, she hopes to pursue research in materials, aerospace, agriculture, medicine, and environmental sustainability.

Lara Pantlin

graduated with a B.A. in psychology from Meredith College in 2014 magna cum laude. While at Meredith, Lara was a teaching assistant, 4-year cross country runner and senior captain, intern at the Neurotoxicology branch of the Environmental Protection Agency, and the co-founder and senior lab supervisor of the Meredith Emerging Adulthood Longitudinal Studies (M.E.A.L.S) research lab. Currently, Lara is a top 30-nominee for NCAA’s Women of the year. She is a first year graduate student and teaching assistant at Colorado State University, where she is working on her PhD in cognitive neuroscience.

Mary Stuart Sanderson

is currently pursuing a medical degree at the Brody School of Medicine at East Carolina University. She recently received her undergraduate BS degree in Communications. She hopes that her unique background of diverse interests in interpersonal communication, small business ventures, and health advocacy will help her be a better physician for the population she serves. In addition to her studies, Mary Stuart also enjoys spending time at the East Carolina Heart Institute, either shadowing in clinic or completing cancer research projects under the guidance of the university’s department faculty.
Jamie Watson
is an undergraduate English major at the University of North Carolina Wilmington. She is currently working on her honors thesis project, an examination of maternal metaphor in male-authored, Gothic texts. Additionally, Watson is editor-in-chief of the UNCW Honors College newsletter and serves as a university writing tutor. She hopes to continue her research in graduate study.

Emily A. Woolard
is an undergraduate student at Meredith College where she is pursuing a BS in Biology and a BA in both Psychology and Chemistry. Her free time is spent volunteering at WakeMed hospital and planning service projects as an officer for Alpha Lambda Delta honor society. Emily is looking forward to studying abroad in Copenhagen, Denmark during her next semester where she will gain further insight into international healthcare. Upon graduation, she hopes to continue her higher education by entering a Medical Scientist Training Program where she will have the opportunity to earn an MD and PhD.

Lanson W. Wells
is a 2014 graduate of the University of North Carolina at Charlotte, holding a BM in Viola Performance. In addition to UNCC, Lanson has attended the Baldwin Wallace Conservatory of Music, and is an alumnus of the Aspen Music Festival, the Brevard Music Center, the Pierre Monteux School for Orchestral Musicians, and the Oberlin Baroque Performance Institute. He presented at the 2013 SNCURCS, and was a prize winner at both the 2013 and the 2014 UNCC Undergraduate Research Conference. He plans to continue his scholarship and research into early music and instruments. Lanson is currently pursuing a Master’s degree in Viola Performance at the University of North Carolina School of the Arts.
About the Faculty Mentors

**Diya Abdo, PhD**
is an associate professor of English and current Chair of the English department at Guilford College. She attended Yarmouk University in Jordan where she completed her undergraduate degree and later earned her PhD in English literature at Drew University in New Jersey. Her research interests and publications focus on Arab women writers’ narrative strategies, life-writing, and Arab and Islamic feminisms. She is the recipient of Guilford’s 2010 Dick Dyer Award for Outstanding Academic and Personal Advising, 2012 Bruce B. Stewart Award for Teaching Excellence, and 2013 Board of Visitors Award for Excellence in Academic Advising.

**Carol Babyak, PhD**
serves as an associate professor in the A. R. Smith Department of Chemistry at Appalachian State University. She graduated from Saint Vincent College (Latrobe, PA) with a BS in Chemistry and later earned a PhD in Chemistry from West Virginia University. Her research interest is in environmental monitoring.

**Christine Avenarius, PhD**
serves as an associate professor of Anthropology at East Carolina University in Greenville, NC. She graduated from the University of Cologne in Germany with an MA and a PhD in Sociocultural Anthropology, with minors in Economics and Chinese Studies. Her research looks at the interrelation between human cognition and social network structures to understand processes of social and cultural change. Dr. Avenarius conducted extensive ethnographic field work in China, Namibia and the United States. Since 2012 she applies her knowledge of research methods and community engagement to explore perceptions about environmental change among residents of North Carolina.

**Alleah Crawford, PhD**
is an Associate Professor in the School of Hospitality Leadership at East Carolina University. She completed her PhD at Auburn University and has industry experience in the areas of lodging and event management. Her research includes employee well-being, alternative lodging, and human resources.

**Deborah Danzis, PhD**
is an associate professor of psychology at High Point University. She earned her BA in psychology from Boston University and her MA and PhD in Industrial/Organizational Psychology from the State University of New York at Albany. She serves on the Editorial Review Board of the Journal of Managerial Psychology, and her research interests focus on interpersonal power and social perception issues in employee decision-making.

**Brooks de Wetter-Smith, DMA**
holds a DMA degree from the Eastman School of Music and is the James Gordon Hanes Distinguished Professor in Humanities
at UNC-Chapel Hill. He is in great demand as a recitalist, concerto soloist, and masterclass teacher, and has performed in 20 nations and almost all of the States. He was awarded a Fulbright Senior Professorship to teach at the Hochschule für Musik in Munich and Cologne as well as the Escola Superior in Lisbon, Portugal, and he is former President of the National Flute Association. As a published photographer, he has produced three multimedia works with music and his videography created in Antarctica and the High Arctic regions. Recently, he has been exploring traditional Arabic improvisation techniques, an outgrowth of his long-standing interest in jazz. This search has led him to Turkey, Syria, Lebanon, Egypt, Palestine, and Israel. Dr. de Wetter-Smith has combined his work in the Middle East with the study of Brazilian jazz/folk elements, suggesting a close connection between both Arabic music and western jazz traditions via West Africa.

**Wade G. Dudley, PhD**

serves as a Teaching Professor at East Carolina University. He holds a BS in Social Studies (East Carolina University), a MA in maritime studies and nautical archaeology (East Carolina University) and a PhD in history (University of Alabama at Tuscaloosa). Dr. Dudley spent two decades with Procter & Gamble Manufacturing before returning to academia. Author of eight books and numerous chapters and articles, he specializes in naval and North Carolina history. He also serves Phi Alpha Theta History Honor Society in several capacities: Advisor to the Lambda-Eta Chapter at ECU, Director for the Carolinas Region, and as a member of the National Advisory Board.

**Robert Dunning, MFA**

joined UNC Asheville in 1987. His teaching responsibilities include all levels of printmaking, introductory drawing, introductory two-dimensional design. He is active in service to the university, serving on several major committees and most recently as chair of the Department of Art from 2004-2009. He has worked with Undergraduate Research students since 1988 and mentored UNC Asheville’s first Undergraduate Research project in Studio Art to be presented at the National Conference on Undergraduate Research (NCUR) at Trinity University in 1989. Professor Dunning’s work has been exhibited internationally and nationally, particularly throughout the southeast. It is included in the permanent collections of the Asheville Art Museum, The Kansas City Art Institute, The Southern Graphics Council (University of Mississippi), McNeese State University, The University of Kansas, Indiana University, and Wachovia Bank. He recently exhibited his work at Blue Spiral One Gallery, Asheville, NC.

**Cynthia A. Edwards, PhD**

is a Professor of Psychology at Meredith College. Edwards’ research focuses on the role of peer social networks in the development of girls and women. She has conducted a series of studies on the social networks formed by girls in dormitory and summer camp settings, and her current project is a cross-sequential study of cognitive-social networks and key life transitions among women. Edwards enjoys working collaboratively with Meredith undergraduate students in the development of research projects, and has mentored numerous students to national conference presentations in both psychology and interdisciplinary Honors.
James A. Grymes, PhD

is Professor of Musicology and the Interim Chair of the Department of Music at the University of North Carolina at Charlotte. He holds a BM in Music Education from Virginia Commonwealth University, as well as MM degrees in Historical Musicology and Music Performance, a Certificate in Early Music, and a PhD in Historical Musicology from The Florida State University. His latest book, Violins of Hope, tells the remarkable stories of violins played by Jewish musicians during the Holocaust, and the Israeli violinmaker dedicated to bringing these inspirational instruments back to life.

Jennifer Horan, PhD

is Associate Professor of Political Science at the University of North Carolina Wilmington. Her PhD is from Tulane University and her research interests focus on Latin American political institutions and environmental and public health policy. Her most recent publications appear in The Social Science Journal and The Latin Americanist. Her current research examines Tsunami education and preparedness.

Katherine Montwieler,

PhD

serves as an associate professor and Chair of the English Department at the University of North Carolina Wilmington. She received both her PhD in English and Women’s Studies Certificate from the University of Georgia. Montwieler generally teaches courses in nineteenth-century British literature and women’s studies. Currently, she is writing about Frances Imlay, the first daughter of Mary Wollstonecraft and sister to Mary Shelley.

Joanne Murphy, PhD

is an associate professor of Classical Studies at the University of North Carolina Greensboro. After taking her a BA (Hons) and MA from University College Dublin she received an MA and PhD from the University of Cincinnati. Her work focuses on the archaeology of ritual and death in Bronze Age Greece and archaeological methods. Her work has addressed these issues in both the early small scale communities of Crete and the later states on the mainland and she currently is the director of the Kea Archaeological Research Survey.

Kimberly B. Myers,

PhD

is an Associate Professor in the Department of Nutrition Science, and is Adjunct Faculty in the Department of Kinesiology at East Carolina University in Greenville, North Carolina. She consults with corporations in the DC area. Dr. Myers earned both of her BS degrees and Masters in Health Science from Western Carolina University in Cullowhee, North Carolina. She completed her internship for eligibility to become a Registered Dietitian Nutritionist (RDN) also through Western Carolina University and has been a RDN since 2002. Her PhD was obtained in Human Nutrition from the University of Nebraska at Lincoln in 2003. Dr. Myers is a licensed Dietitian Nutritionist within the state of North Carolina. She is engaged in the university community and serves on numerous departmental and university committees. Dr. Myers has served as the faculty senator representative for the Nutrition Science Department for six years and has served on the Eat Smart, Move More, Weigh Less Committee at East Carolina University. She is an active member of the Academy of Nutrition and Dietetics and the American Society for Nutrition. She has contributed to nutrition position papers for the Academy of Nutrition and Dietetics and
written and published articles on Anglo-American relations following Stalin’s death in 1953, the Cold War and the American South, American popular perspectives of the Solidarity movement in Poland, and American popular perspectives on the end of the Cold War and the collapse of the Soviet Union. She continues to work on a larger project documenting American popular culture and popular perspectives of the 1980s in order to understand how and why so many did not anticipate or predict such a sudden and peaceful end to the Cold War between 1989 and 1991.

Brandon Sanderson, MFA

is currently an Associate Professor of Art at the University of North Carolina at Pembroke, where he teaches printmaking and drawing. He holds a BS from Colorado State University-Pueblo in Printmaking and Computer Information Systems and an MFA in Printmaking and Drawing from the University of South Dakota. In his time at UNCP, he has organized four national printmaking exhibitions and brought in 35 visiting artists. He has also held 17 printmaking workshops at universities in 11 states and participated in 41 print exchanges. He has also participated in more than 250 exhibitions, including 60 international venues.

Jaclyn Stanke, PhD

is Associate Professor of History at Campbell University. She graduated from Washington State University with BA degrees in Political Science and Russian Language and Literature. She earned her MA and PhD in History from Emory University in Atlanta. A specialist in Cold War history, she has

Wesley A. Tayonis, MS

is a Materials Research Engineer in the Advanced Materials and Processing Branch at NASA Langley Research Center. Mr. Tayon is a graduate of Old Dominion University with a BS in Mechanical Engineering and the University of Illinois at Urbana-Champaign with a MS in Mechanical Engineering. His research focuses on the metallurgical characterization of aerospace structural materials fabricated through innovative manufacturing methods.

David B. Wharton, PhD

is Associate Professor of Classical Studies at the University of North Carolina, Greensboro. He graduated from Cornell College with a BA in History, Greek, and Classics, and later earned an MA in Ancient Greek and a PhD in Classical Philology from the University of North Carolina at Chapel Hill. His current research interest is the lexical semantics of Latin, particularly the semantics of color language.
Submission Process

Who is Eligible?
The primary author or authors must be undergraduates at a 2 or 4 year college or university in the state of North Carolina working on original research under the direction of a faculty mentor. Works may be co-authored. Students at North Carolina School of Science and Mathematics are also eligible.

What to Submit?
We are seeking research papers, critical essays (literature/research reviews, articles written on a particular topic), or media submissions of performing/fine art endeavors. Standard term papers are not appropriate. Text of papers should be no more than 6000 words.

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4. Once your work has been approved by your faculty mentor and reviewed by another faculty member familiar with the research area, your faculty mentor may submit it on your behalf. If you are a single author, you will be the main contact. If you are one of multiple authors, decide who will be the main contact and have him/her submit on behalf of all.

5. Proofread, proofread, proofread.

Submission Deadline for Volume X: June 1, 2015.