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DEAR READERS:

It is with great pride that we present Volume IV of the Fordham Undergraduate Research Journal. Undergraduate research is an integral part of the Fordham educational experience; accordingly, FURJ continues to serve as a showcase for the diverse research projects undertaken by Fordham students. Studying a range of disciplines, Volume IV authors represent a broad-spectrum of academic interests. To complete their research, submitting students have dredged up data from the ocean floor, examined international copyright law, and scoured the Vatican Archives. As Co-Editors, seeing such tenacity in the pursuit of knowledge has proved infectious and given us an even greater appreciation for the innumerable individuals who support the culture of research at Fordham.

As always, a new year has brought many alterations and innovations to FURJ. For the current publication cycle, FURJ received a record number of humanities and social-science submissions, rendering 2014 an exceptionally competitive year for all disciplines. In light of this broad-based interest, we believe this volume of FURJ in particular captures the highly diverse academic pursuits of Fordham undergraduate students. The new year has also brought increased collaboration between Fordham's two campuses, with students from both LC and RH contributing substantially to the journal's production.

This year, FURJ has had the benefit of working with a new faculty adviser: Dean Erin Burke, without whom this edition of the Journal would not have been possible. Her support and guidance throughout the publication process can only be described as invaluable. We would also like to thank our Faculty Advisory Board and the FCRH Dean's Office for their assistance and advice at every stage of the process. Finally, on behalf of the entire FURJ staff, we would like to recognize Dean Michael Latham, whose tireless effort and deep investment in student initiatives has remained integral to the journal's success. In light of Dr. Latham's legacy, this issue of FURJ is dedicated to him.

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DIGITAL NATIVES, OR SPECIFICALLY the millennial generation—myself included—pride themselves on their ability to multitask. We can check our email, respond to a friend’s message on Facebook, and start writing an essay all in one sitting. However, studies on brain activity show that the ability to multitask is actually a myth. David Meyer, a psychology professor at the University of Michigan, performed studies on the effects of divided attention on learning and observed that people are actually serial tasking, or performing tasks in rapid succession. Multitasking, or the ability to do two tasks simultaneously, requires two things: at least one of the tasks must be almost automated to us (e.g., eating) and each task must require the attention of different parts of the brain. When the tasks require the same mental resources, such as texting a friend and writing an essay, the brain is not performing these tasks simultaneously, but instead switching its attention back and forth repeatedly.

Serial tasking is performed using the prefrontal cortex, or the area of the brain right above our eyes, which allows us to exert some sort of voluntary control over our behavior and rapidly switch our focus. In early human history, when hunting larger and physically more-capable animals was necessary for survival, the prefrontal region of the brain gave physically vulnerable humans the advantage of prioritizing information and planning attacks ahead of time. This mental development is not necessary for hunting, but it is the reason that humans have become the dominant species on the planet. This dominance, however, may have given us too much confidence in our own ability to handle multiple tasks.

The myth of multitasking may have originated from the understanding that we can perform simple tasks simultaneously. For example, talking to a friend and folding laundry or perhaps listening to classical music and studying for a test are easy tasks to combine. However, writing an essay for Comparative Literature and scanning links on your news feed are both demanding tasks that use the prefrontal cortex. Many students may argue that they are performing both tasks with ease, but Meyer declares that these students are deluded. Most of these mental processes are unconscious, so it’s difficult for an individual to properly evaluate how well he or she is performing. In a study published by the American Psychological Association (APA) titled “Multitasking: Switching Costs,” Meyer found that the transition of focus from one task to another is neither fast nor smooth. The brain suffers a lag time as it shifts from an initial task to a new one. This shift may feel instantaneous, but in fact takes up to an extraordinary 40 percent more time than single-tasking.

The APA also found that growing up with digital technologies like Facebook, Google Plus, and smartphones does not mitigate the inefficiencies created by handling all of them at once. Researchers have detected a stream of negative outcomes that occur when students multitask while doing schoolwork. First, the assignment takes longer to complete since students have to reacquaint themselves with the material after being distracted by other activities, e.g., scrolling through Reddit. Second, the mental fatigue caused by continually dropping and picking up a mental thread leads to more mistakes. Some research also suggests that while students are distracted, their brains actually process and store information in different, less useful ways. When memory fails to recall a fact or concept, the missing link may have occurred not at the time of recollection but at the time the memory was originally encoded in the brain. In a 2006 study in the Proceedings of the National Academy of Sciences, Russell Poldrack of the University of Texas at Austin asked participants to perform a learning activity on a computer while also counting musical tones that sounded while they worked.
At first, it appeared that subjects who did both tasks at once did as well as subjects who did the learning activity by itself. However, further examination showed that the former group was much less able to extend and extrapolate their new knowledge to new concepts. Although students of the millennial generation may have adapted digital technologies into their daily lives, we have not yet realized their interference in the way we process new information. We may enjoy multitasking, and even be addicted to it, but it is always better to focus on a single task at hand until its completion.

Poor academic performance is one negative result of multitasking, but Meyer worries the problem is larger in scale. If the depth of processing information is notably less on account of the many digital distractions, the millennial generation may actually be learning more shallowly than young people in the past. It is hard to imagine spending hours in the library without any means of respite besides bathroom and food breaks, yet that is how every student in the generations preceding us studied and processed new information. The only practical solution is to strengthen our willpower against digital temptations.

In the 1960s, psychologist Walter Mischel tested the ability of four-year-olds to delay gratification by resisting eating a marshmallow for 15 minutes. During his study, Mischel observed kids who immediately indulged themselves once the clock started while others resisted longer. Others distracted themselves by covering their faces or kicking the table. The researchers followed these kids through adulthood and found that the participants who were able to delay gratification for the full 15 minutes had fewer problems in behavior, drug addiction, and obesity in high school when compared to the kids who could not resist temptation. The former group also scored an average of 210 points higher on their SATs. For the millennial generation, academic and professional achievement may now rely on the ability to resist updating a status or sending a Snapchat. Phones and social networks are the new temptation.

There are many theories that seek to explain why we are so addicted to digital communication. Some argue that it is because people never want to be the last to know something. Others argue that it is an easy diversion from actually doing work and concentrating on a stressful task. In any event, our time with our apps and social networking sites needs to be curbed. In order to satisfy cravings, Meyer suggests taking “tech breaks.” After working for about 15 minutes, allow two or three minutes of traversing the Internet. Think of it as indulging in a sweet, gooey concoction of sugar and chocolate.

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**News Staff Bios:**

*Victoria Mulhern* is a sophomore from northern New Jersey. She is a psychology major with a minor in bioethics. Her areas of interest are in cognitive neuroscience and forensics.

*Leena Mancheril* is a senior majoring in economics and minoring in computer science. This is her third and last year as the News and Features Editor of FURJ. It has been a fun and rewarding experience working alongside a very bright and talented staff, and she will surely miss it.
THE DISTINCTION BETWEEN introverts and extroverts can seem very apparent at a party: some people circle through the rooms, greeting everyone, while others hang back and talk with people they know. Extroverts are often identified as “social butterflies.” They are known to thrive on frequent interactions with others and depend on others to solve their own problems. On the other end of the spectrum, introverts are often seen as reserved or solitary. They appear to prefer ruminating on matters on their own, making them seem analytical and distant. Contrary to popular understanding, however, studies led by psychologist Randy Buckner at Harvard University show that both extroverts and introverts can enjoy and feel comfortable at social gatherings. The real factor separating the two personality types, according to Buckner, is their source of energy. Extroverts need consistent social interaction to maintain positive energy levels, while introverts prefer intervals of time alone in order to recharge. Buckner’s findings suggest that adjusting these personality types is not as simple as practicing independence or communicating more. In fact, neurological brain makeup has a much stronger and more resilient influence on personalities than previously assumed.

While studying the brain scans of self-proclaimed introverts and extroverts, Buckner found that the participants who identified themselves as introverts contained larger and thicker gray matter in areas of the prefrontal cortex. This region of the brain, found in the anterior frontal lobe, is responsible for decision-making, abstract thought, and other complex cognitive behaviors that impact social interplay. It can be inferred that this abundance of gray matter is the source of the introverts’ frequent deep pondering.

Buckner is not the first to posit that different personality types are created via unique brain wirings. Many biological psychologists, such as Richard A. Depue and Yu Fu at Cornell University, have found evidence to support this theory as well. According to their research, humans have a set of nuclei called the ascending reticular activating system (RAS) that connects the cortex, hypothalamus, and thalamus. RAC is responsible for keeping the stimuli in our bodies at homeostasis. Too much stimulation in the brain creates anxiety and stress, while too little causes depression. Depue and Fu found that extroverts and introverts have different levels of brain activity at rest. Introverts naturally have a higher level of regular stimulation in their brains. As a result, introverts are often much closer to being overstimulated than under-stimulated and do not require excess socialization. Conversely, extroverts have a naturally lower level of default stimulation. Additional stimulation is necessary in order to maintain optimal levels of excitation. Altering personality types would necessitate altering the resting stimulation levels of the RAC, a tricky feat to accomplish given that there is still much to learn about brain activity.

Although neurological makeup has some influence on the desire for more or less social activity, it is not the deciding factor. It is certainly possible for an introvert to adapt to constant stimulation and for an extrovert to become comfortable with solitude. At the same time, the default stimulation levels for both personalities can never be significantly altered. It is debatable which personality type is better suited for success since both offer benefits. Extroverts tend to be great networkers as a result of their constant need for social interaction. They tend to excel in fields such as teaching, business, and politics. J.D. Rockefeller, Margaret Thatcher, and Steve Jobs are known extroverts. Introverts tend to work in fields that require deep analysis and critical attention to detail, such as writing, engineering, and composing. Albert Einstein, Bill Gates, and J.K. Rowling are known introverts. Although differences in brain design alter how people enhance their energy and drive, once optimized, the two have comparable levels of ability and potential for accomplishment.
HAVE YOU EVER BINGED on Pugsley’s chicken rolls after a long night? Or realized you have been at the dining hall for over two hours eating enough servings for a family of four? At the other extreme, does skipping breakfast before an 8:30 a.m. class or not eating lunch in between classes sound familiar? These habits are almost treated as rites of passage in the Fordham community. Unfortunately, these choices may be taking a serious toll on students’ health. Amy Rosenfeld, registered dietitian and co-founder of the nutrition firm Your Secret Ingredient, promotes corporate wellness and runs nutrition education programs. In partnership with Fordham nutrition professor Dr. Adelaide Nardone, Rosenfeld gave a presentation at Fordham to spread awareness of the ways in which current dietary choices can have either positive or negative effects on students in the long run.

Rosenfeld began her presentation by introducing the difficulties in starting and maintaining a healthy diet on campus. Moderately active college students require between 2,400 and 3,000 calories a day, the second highest caloric intake proportional to their size and activity level when compared to other age groups. A common misconception about human growth and development is that most people stop growing after age 18. However, many people, particularly men, continue to grow into their mid-20s. Cognitive growth is also a continual development, and nutrition for the mind is vital if students are to excel in college.

Unfortunately, college students’ busy schedules make it hard for them to supply their bodies and minds with the nutrition they need. Classes, jobs, club meetings, intramural games, and other extracurricular activities tend to make their days extremely long. When students leave meals plans to the last second, it becomes easy to pick up poor habits, such as skipping meals or substituting coffee for breakfast. The real damage sets in when these habits become consistent. The longer the cycle runs, the harder it is to break out of it. In order to combat this downward spiral, Rosenfeld offered a series of helpful tips based on nutritional and psychological research to make healthy eating seem more feasible.

Many students blame their inconsistent eating habits on their class schedules. Rosenfeld points out that not eating for a long period of time puts the body in starvation mode. The body assumes that there is a shortage of food and will thus try to make the most of whatever food it receives, causing its metabolism to slow down. Studies in The American Journal of Epidemiology show that eating every three to four hours is an ideal way to keep one’s metabolism high by providing a constant source of energy. This routine was shown to decrease hunger throughout the day and prevent binging at mealtimes. Rosenfeld compares the body to an engine. Breakfast, whose name is derived from the notion of breaking an overnight fast, is the initial fuel for the body in the morning, and meals and snacks throughout the day keep the engine going.
However, mindful eating is about not just the quantity and frequency of food but also the quality of nutrition. Students who have regular meals that leave them feeling full and satisfied are also less likely to graze on snacks throughout the day and night. Nardone uses an mnemonic device to describe high-quality food intake: Always Make Bright Vegetables. It stands for adequate, moderate, balanced, and varied. If students look for these qualities in their meals throughout the day, Nardone is confident they will utilize their daily caloric intake. The benefits of following the acronym include decreased stress, positive moods, clearer skin, and weight loss. Since the brain’s main source of fuel is glucose, a constant intake of nutritious foods can also improve productivity and creativity.

Rosenfeld compares the body to an engine. Breakfast, whose name is derived from the notion of breaking an overnight fast, is the initial fuel for the body in the morning, and meals and snacks throughout the day keep the engine going.

The path to good nutrition is easy to stay on once students pay attention to what they are consuming.

However, finding the right path can be difficult. The failure of most students results from the open access to unhealthy food choices in the dining hall. It is hard to choose a salad over a steaming slice of pizza or forgo fresh-out-of-the-oven muffins for an apple. Through years of practice in the dietary field, Rosenfeld has formulated some tips on how to avoid the Freshman 15. In order to control cravings, never show up hungry at the dining hall or a restaurant. The level of serotonin, a chemical in the brain that curbs cravings and suppresses appetite, drops during extreme hunger. The fastest way to reintroduce serotonin back into the brain is through sweets and starches. As a result, the temptation to reach for sugary, fatty foods becomes irresistible. A healthy snack such as an apple or handful of almonds prior to eating can help maintain serotonin levels and control cravings.

Another common mistake students make is eating too quickly, because of either hunger or time constraints. The average time it takes a college student to consume a meal is between seven and 12 minutes. However, it takes 20 minutes for the signals between the digestive system and the nervous system to reach one another. As a result, students are likely to consume at least two or three courses of food before they realize they are no longer hungry.

In other words, the first course at any meal should take 20 minutes to finish in order for the brain to recognize whether or not additional caloric intake is necessary.

Rosenfeld also suggests that in times of high stress, it is easy to reach for foods high in fat or sugar for immediate gratification and high satiety. Unfortunately, the chemical high produced from large amounts of these foods lasts very briefly and results in an aggressive crash. During the most hectic parts of the semester, students want to stay alert as long as possible. Students who eat foods that offer brief energy boosts end up eating more often in order to sustain energy levels. Since these foods also lack high nutritional value, students feel weak and tired during the day. In order to get work done, they stay up late and end up snacking even more. As a result, they fall into a vicious cycle of repeatedly making poor food choices. Rosenfeld recommends filling half the plate with fruits and vegetables as a way to counter temptation at meal-times.

Late nights and even all-nighters are commonplace for college students. Unfortunately, sleep deprivation poses even more health risks many people realize. A recent study by the International Journal of Psychophysiology showed that sleep deprivation causes deficits in the frontal regions of the brain, which are responsible for movement, problem solving ability, analyzing social situations, memory, and judgment. Shortened hours of sleep will inevitably come during finals or the nights leading up to a paper deadline. However, lack of sleep is far too common for many people and has many negative consequences for students’ health. Inadequate sleep produces more stress and also decreases body temperatures. The combination of these two factors makes it harder for students to be mindful of their diets.

College is unavoidably a stressful time. Students are managing schoolwork, internships, and laundry, often for the first time. It is easy and common, therefore, to put mindful eating on the back burner. However, research and studies show that a healthy diet is the easiest way to promote health in all areas of life. A balanced plate can lead to a balanced lifestyle, and the best way to ensure a healthy future is to start making healthy choices now.
WHEN ALYSSA HENRY, FCRH ’15, enrolled in Fordham’s London study abroad program last fall, she expected to do research related to her minor, medieval history. Her class saw castles in Wales, visited burial sites of past kings, and explored London via scavenger hunts. During these excursions, Henry compared her literary impressions of the centuries-old city to the modern-day urban center. However, she was reminded not of King Arthur’s Round Table but of the late-Victorian book series about detective Sherlock Holmes.

“I feel like Sherlock embodies the spirit of London. All of his stories take place at notable sights in the area, like the Tower of London and Westminster Abbey. He’s the quintessential British man with his afternoon-tea habits and smoking pipe,” said Henry.

As a psychology major, Henry decided to use her experience with the Sherlock novels and the popular ongoing BBC series to do a personality assessment of London’s shrewdest detective. Her diagnosis may surprise some dedicated fans. After observing Sherlock’s eccentricities, Henry noticed that many of his traits could also be symptoms of the neurological disorder autism. Whereas some fans see his behavior as the reason for his detective prowess, Henry views it as an impediment to his social life.

Henry’s first step was to study the major symptoms displayed by people with autism. One symptom, for instance, is difficulty conveying and understanding emotions displayed through gestures and facial expressions. Henry then searched passages from Sir Arthur Conan Doyle’s The Hound of the Baskerville and The Crooked Man and scenes from Sherlock and the popular 1980s British television series The Adventures of Sherlock Holmes to find instances where Sherlock has the same issue.

“It is hard to identify this so much in Doyle’s writing but Watson does refer to Sherlock as ‘machine rather than a man,” said Henry. Sherlock’s struggle is more apparent in the televised depictions. “In one scene of The Adventures of Sherlock [Holmes], he starts uncontrollably laughing at a crime scene where someone was shot,” said Henry. Sherlock seems very similar to people with autism, who often have an inability to regulate their emotions and to control outbursts of seemingly immature behavior.

The biggest indicator that Sherlock may have autism is the absence of meaningful relationships in his life. According to Sarah Crompton’s review of the current BBC series in the UK newspaper The Telegraph, Sherlock is “a man who lives entirely in his own mind with little regard for the world outside.” Once Sherlock starts a case, he is often immersed in his own thoughts, at times ignoring other people’s cares or worries. People with autism often have trouble understanding the perspectives of other people. They misread social cues and, as a result, can seem cold and detached. Since other people are often left feeling hurt and offended, autism makes it difficult to form strong friendships and relationships. Sherlock is well known for being a loner. Henry acknowledges that Sherlock’s friendship with Watson could be seen as a contradiction, but says, “people with autism do sometimes connect with another person, most likely a family member. To Sherlock, Watson is like family.” Throughout the book series and in the show, it is taken for granted that Sherlock cannot make friends easily. Some fans may argue that Sherlock is too busy trying to solve cases, but Henry suggests it is a social impairment that he cannot control.

Another autistic symptom Sherlock displays is his preoccupation with certain topics, such as chemistry and boxing. Sherlock also has a hobby for collecting peculiar things. In one passage, “he loves to collect different types of cigar and pipe ashes. He has 140 variations in his collection,” said Henry. Other symptoms include his repetitive habits. Repeatedly pacing back and forth across the room and regularly using the catchphrase “Elementary!” are some examples. These behaviors create Sherlock’s distinctive persona but also hint at an underlying neurological issue, according to Henry.

Sherlock has been around for decades, so one may wonder why this diagnosis has not been brought up before. Henry argues that the incidence of autism has increased recently and as a result, the disorder has gained greater visibility. “One in 80 boys are diagnosed with autism today. Those are big odds,” said Henry. One reason for the increased rate could be that scientists now know more about autism and are able to identify symptoms more accurately.
readily in children and adults. If Sherlock were growing up in the U.S. today, he would more than likely be diagnosed with autism.

“It’s interesting to note that whereas people with autism struggle to connect with others, Sherlock has always had an intense fan following, from the novels to the shows and movies,” said Henry. Sherlock’s strong fan base could be attributed to the fact that he is a fictional character whose skill at solving mysteries makes for an interesting story.

The situation would likely be different if fans had to work with Sherlock in real life. Nevertheless, Henry notes that contemporary depictions of Sherlock may open up the discussion on how to treat people with autism. Sherlock has good intentions and tried to help people. Viewers always have and always will root for him. His “eccentricities” make working alongside him more difficult, but definitely worthwhile. The same can be said for all individuals with autism, both fictional and real.

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**Student Profiles:**
Undergraduate Research at Fordham

**The IDEAL School System**

*Lalita De Souza, FCLC '15; Major: Psychology*

**What is your research about?**

I am conducting my research at an independent school called the IDEAL School, in the Upper West Side. It’s an inclusive K-8 school, with a class of kids with special needs or behavioral problems. My research project is titled “A Case Study of the IDEAL School’s Social Justice Mission.” I am focusing on the school’s character education program and its implementation. I partnered with the school last semester because of the service-learning requirement for Professor [David] Glenwick’s “Clinical Child Psychology” course. This school caught my attention because [it] has an open, friendly, and safe environment for children of all backgrounds and abilities. I am really interested in working with children after graduation and thought this would be a great steppingstone for that.

**What has been the best and most worthwhile thing about your research process so far?**

The best thing about my experience thus far has been interviewing teachers and meeting other people who are as passionate about this school and [these] children as I am. Also, I get to spend a lot of time with little kids who are absolutely hilarious and so fearless! The worst thing is the amount of work. It’s pretty challenging balancing extracurriculars, my senior thesis research, and full-time course work. It will definitely be worth it though.

**If you could start over, would you do anything differently?**

I’d say I would have started earlier. The whole process of IRB [Institutional Review Board] approval and communicating between your advisor and school administration was lengthy. I finally got really into my research and before I knew it I was leaving for break!

**Why is the IDEAL school different from other institutions that work with kids with special needs?**

One unique aspect of the IDEAL school is that it aims to teach students how to be better people. For example,
The school offers lessons and discussions on interpersonal communication and relationships. The aim is to help their students right now outside of the classroom as well as beyond their years as students. Higher education isn’t for everyone but most people have to interact with others on a daily basis. It makes me wonder what the world would be like if more schools taught these specific skills as well. They have the flexibility and the power to teach more than how to achieve high scores on tests.

My research topic is the philosophy of philosophy (also known as metaphilosophy). Basically, I want to come up with some good answers to the questions: (1) what is philosophy? (2) why should we practice philosophy? and (3) how should we practice philosophy?

It’s actually a project I’ve been thinking about for years. As a sophomore, I took a class in 20th century philosophy in which we studied logical positivism. Logical positivism was a movement in philosophy which claimed that traditional philosophical questions—questions about the nature of reality, God, morality, free will, etc.—were nonsensical because their answers couldn’t be verified by observation. Positivists wanted to eliminate the majority of philosophy and turn it into “the hand-maiden of the sciences,” basically just clarifying the use of terms in other areas of knowledge. Virtually no one is a logical positivist anymore, but the movement had an enormous effect on the field. Philosophy still hasn’t been able to reclaim its former status. Ever since positivism, philosophy has become heavily institutionalized to the point where any developments in the field now rarely matter to anyone except other philosophers. The implicit assumption is that, while it might be interesting, the field is useless.

What is the aim of your research?

It’s mainly a prescription of what I think philosophy should be doing. I’m really concerned to give philosophy a job, to give it a practical purpose in the lives of non-philosophers. There’s a lot that is worthwhile in philosophy that the general intellectual public is missing out on. So I want to suggest how philosophy can be used to help our efforts as citizens in a democracy and as individuals striving for personal perfection.

Any advice for students aspiring to get an Undergraduate Research Grant?

I would say if you are looking for inspiration for a proposal, look at your passions. So often we are forced into picking specific classes or being a club leader for it to look “good” on a résumé. I think the best thing to do is think about what you enjoy and go from there. I knew I wanted to work with kids and their development and voilà! Things worked out.

How do you conduct your research?

My research can be done anywhere. Typically I work in the library at Rose Hill. But since it’s mostly just reading a bunch of philosophy and writing my own, I also like to work in parks: Central Park, Union Square, and Washington Square Park. Not now that it’s so cold, though!

Do you have a professor overlooking your work?

I have a professor mentor, philosophy professor Dr. Stephen Grimm. He’s given me a lot of good background on the field and he’s suggested a number of fascinating articles for me to read. He’s excellent to bounce my ideas off of and test how they should be presented. He’s also great to anticipate objections and point out the weak points in my theory. It’s really important to have someone coming at your ideas from a different perspective, especially when they’re actually trying to help you. All good ideas need to be tested and revised and tested again. This is what makes working with a professor so important.

Any advice for fellow undergraduate students looking to start their own research projects?

1. Choose something you’re really interested in. My project has been a big commitment, and totally worth it because it’s something I love. But if you choose something that you aren’t excited to get up most mornings and do, you’re going to [be] spending a lot of time wondering if you should have applied for this.

2. Narrow your topic early. Make sure you have something concrete (e.g. some concrete set of questions to answer). Too broad of a topic can have you swimming aimlessly in a sea of literature.

3. Go for it! It has been such a rewarding experience for me. It’s an excellent way to combine your personal and academic interests. How many other opportunities do you get to research and write a paper on whatever you choose? For me, this has been the perfect capstone to my education at Fordham.
Describe your research topic.

My research explores Venezuelan President Hugo Chavez's role as a leader of the “radical left” in Latin America. Chavez was the first among several leftists elected in the late 1990s and early 2000s, and in his 14 years as president he has used Venezuela's oil wealth and several regional projects to spread influence and foster the growth of the radical left. In March 2013, Chavez passed away. My research ultimately aims to show how the strength and prominence of the radical left of Latin America has and will continue to diminish in the wake of Chavez's death.

Any interesting observations yet?

Chavez has promoted several projects that are aimed at better integrating Latin America and moving the region away from the influence of the United States, like the Bolivarian Alliance of the Americas (ALBA). ALBA promotes the integration of Latin American countries through trade and programs that promote socioeconomic reform. What is interesting is that in recent months, Venezuela has been experiencing serious economic problems as a result of the country's reliance on oil wealth. These issues have forced Venezuela's President, Nicolas Maduro, to cut back on regional investments and aid programs. These cuts threaten the continuation of Chavez's regional projects and the spread of his influence.

How did you decide to focus on the political career of Hugo Chavez?

I'm an international studies major and I'm on the Latin America track, so I was already studying that region. Last year, I took a class with Professor Juan Carlos Vignaud, who is an ambassador from Argentina. During that class, Hugo Chavez was dying and [we] were keeping track of the whole sequence of events, learning a lot about what his role had been and how Venezuela would change without him. From there, I became interested in how the region was going to change without him. After Chavez died, a lot of leaders reacted in interesting ways. [Bolivian] President Evo Morales was a big supporter, who kept saying, “he's still alive in Latin America. He was the greatest leader.” But there were others, like Brazilian President Dilma Rousseff, who said, “he was great and we'll remember him but we definitely were never aligned with many of his ideas.” I was very interested in the mixed reactions.

Have there been any difficulties when conducting your research?

My research has mostly been carried out on the internet – a combination of scholarly articles and more recent news articles. I've relied heavily on JSTOR, often referencing publications such as Foreign Affairs. One problem that I have run into is that many authors have focused their work on portraying Chavez in a negative light and discrediting his work. Finding unbiased, informative work has been a challenge. Luckily, more in-depth research led me to a couple publications that take a more positive stance on Chavez. Overall, the process of carrying out in-depth research has been challenging, but rewarding.
Undergraduate Research Accomplishments: Publications

Stacey Barnaby (FCRH ’11) is first author and Nazmul Sarker (FCRH ’13) is a co-author on the article “Biomimetic formation of chicoric-acid-directed luminescent silver nanodendrites” in Nanotechnology, 23, 294011 (2012). (mentor: Ipsita Banerjee, Biological Sciences).

Stacey Barnaby (FCRH ’11) is first author and Nazmul Sarker (FCRH ’13) is a co-author on the article “El-lagic acid directed growth of Au-Pt bimetallic nanoparticles and their catalytic applications” in the International Journal of Nanoscience, 12, 1250037 (2013). (mentor: Ipsita Banerjee, Biological Sciences).


Stephen Frayne (FCRH ’12) is first author and Stacey Barnaby (FCRH ’11) and Nako Nakatsuka (FCRH ’12) are co-authors on the article “Growth and Properties of CdSe Nanoparticles on Ellagic Acid Biotemplates for Photodegradation Applications” in Materials Express, 2(4), 2012: 335-343. (mentor: Ipsita Banerjee, Biological Sciences).

Stephen Frayne (FCRH ’12) is first author and Stacey Barnaby (FCRH ’11) and Evan Smoak (FCRH ’10) are co-authors on the chapter “Growth of CdSe nanoparticles on Abscisic Acid Nanofibers and their Interactions with HeLa cells” in Smart Nanomaterials for Sensor Application, 2012: 93-110. (mentor: Ipsita Banerjee, Biological Sciences).

Natalie Klempel (FCRH ’10) is first author on the article “A measure of family eating habits: Initial psychometric properties using the profile pattern approach (PPA)” in Eating Behaviors, 14(1), 2013: 7-12. (mentor: Rachel Annunziato, Psychology).


Nako Nakatsuka (FCRH ’12) is first author and Stacey Barnaby (FCRH ’11) and Brian Williams (FCRH ’13) are co-authors on the article “Self-assembling peptide assemblies bound to ZnS nanoparticles and their interactions with mammalian cells” in Colloids and Surfaces B: Biointerfaces, 103, 2013: 405-415. (mentor: Ipsita Banerjee, Biological Sciences).


Nazmul Sarker (FCRH ’13) is first author and Stacey Barnaby (FCRH ’11), Aaron Dowdell (FCRH ’12), and Nako Nakatsuka (FCRH ’12) are co-authors on the article “Biomimetic Formation of Pd and Au-Pd Nanocomposites and their Catalytic Applications” in Soft Materials, 11(4), 2013: 403-413. (mentor: Ipsita Banerjee, Biological Sciences).


Effects of Diel Cycle on Observed Behavior and Abundance of the Southern Stingray, Dasyatis americana

Kate Sutter, FCRH ’15

Kate Sutter is majoring in urban studies and environmental policy. An avid SCUBA diver, she spent Fall 2013 abroad in the Turks and Caicos working as a research assistant. Studies included coral bleaching acceleration, lemon shark ecology, lionfish invasion patterns, sea turtle growth rates and stingray behavior. She currently works at the American Museum of Natural History and hopes to continue in the field of marine biology and ecology. Having traveled to all seven continents, she aspires to dive them all, too.

Acknowledgments: I would like to thank Margot Wilsterman, Ben Chappell, Cornelia Osbourne and Amanda Cole for their help in the field. Thank you to Dr. Alex Tilley for guidance and organization throughout the entire project. This study was sponsored by the School for Field Studies.

ABSTRACT

The aim of this study is to begin to understand diel patterns of the Southern stingray (Dasyatis americana) in an effort to identify and fill the large biological and ecological knowledge gap of the species. Encounter rates from timed swim surveys were used to analyze the effects of diel stage on abundance (rays sighted per hour) and behavior (foraging, resting, buried, swimming) at four sites around South Caicos, British West Indies. Differences were found in activity patterns between one-hour intervals, but the only variable that showed significant differences was observed disc width (larger) vs. hour (1400). Stingray activity patterns in these tropical reefs could be affected by prey availability, avoidance of humans, or thermoregulation.

Limited research on elasmobranchs has been published and this study intends to provide more details on the ecological behavior of the southern stingray.

INTRODUCTION

The southern stingray, Dasyatis americana, is becoming a popularly researched species in the scientific world due to its rapid population decline. This new curiosity has led to an influx in basic behavioral and ecological research. The southern stingray is classified as “Data Deficient” by the International Union for the Conservation of Nature (IUCN), because so much more data still has to be collected and analyzed (Grubbs 2006).

Many studies describe the physical biology and ecology of Southern rays, but there are relatively few published behavioral studies. Understanding abiotic factors such as
tides, temperatures, salinity, and depth is key to understanding the behavioral patterns and shifts expressed in diurnal (day), crepuscular (dusk and dawn), and nocturnal (night) movement of *D. americana*. Changes in behavior have been commonly attributed to tidal fluctuations (Huish & Benedict 1977; Teaf 1980), temperature, light (Wolfe & Tan Summerlin 1989), and salinity (Ortega et al. 2009), yet only two studies exist addressing specifically on diel-associated behavior (Cartamil et al. 2003; Tilley 2013). Diel shifts are largely defined by change of temperature, predation risk, tides, and prey habitation, which could effectively be the driving factors for behavioral variation. Evaluation of anthropogenic factors could also significantly influence diel patterns. However, more information is needed in order to understand diel-associated behavior on shallow water reefs. The focus of this study is the behavioral patterns of the Southern stingray in relation to diel periods. Other variables, such as encounter rate and observed disc width, will also be examined in association with diel period. This study contributes to the understanding of behavioral and biological patterns of rays in an effort to fill a knowledge gap and advance conservation management.

**Methods**

**Study Site**

This study, conducted under the supervision of the School for Field Studies, was undertaken at four separate sites off the coast of South Caicos (N21.5094°, W71.5178°W), in the Turks and Caicos Islands, British West Indies. Three of the four sites—Shark Alley (N21° 29.021', W71° 32.053'; Figure 1. Label A), The Grotto (N21° 28.836', W71° 31.743'; Figure 1. Label B), and Spanish Chain (N21° 29.015', W71° 31.271'; Figure 1. Label C)—are located on the easternmost coast. The other site, Coast Guard (N21° 34.520', W71° 29.667'; Figure 1. Label D), is situated on the northernmost tip of the island. These sites are known to be a common place for multiple sightings of stingrays.

**Data Collection**

Observations of *Dasyatis americana* were collected at four sites. After 26.5 hours of timed surveys, a total of 169 observations were recorded between 2013 October 23 and 2013 November 26. The number of observed hours, individual sightings, and methodology differed between sites depending on tide strength, visibility, and depth (Table 1).

Each transect was sampled twice in a random pattern by two pairs, averaging an 80-minute transect. The surveyed area spanned anywhere between 100 m² to 1300 m². Quantitative observations of depth and time were recorded alongside categorical notes such as sex (determined by presence or lack of claspers), and behavior (buried, swimming, foraging, or resting). A photo was taken directly above the individual with a 40 cm T-Bar next to the ray to accurately record the disc width. Other subjective notes including associated species, scars, marks, or any other unique identifier were also noted.

**Data Analysis**

Encounter rate was calculated according to relative abundance and time in the field. All data distributions were checked for normality using the Shapiro-Wilk goodness-of-fit test. Wilcoxon non-parametric analysis was conducted to check for significance in mean disc width data. A multivariable comparison Wilcoxon test was used for each pair to find specific significant differences in the behavior-time distributions. All data analysis was carried out using JMP 10 statistical software (SAS Institute Inc.).

**Results**

**Mean Disc Width (cm) versus Time of Day Observed**

A total of 169 rays were observed. Disc width sizes ranged from 30 cm to 185 cm but later proved not to be normally distributed. (Figure 2). It was determined that there was a high correlation between time of day and observed disc size (Figure 3). Rays encountered within an hour of 1400 hours were significantly larger than rays observed during all other times (z > -4.52, p < 0.0321). There also was a difference in size observations between 0900 hours and 1600 hours (p = 0.0195).

<table>
<thead>
<tr>
<th>Transect Site</th>
<th>Method</th>
<th>Total Observed Hours</th>
<th>Total Sightings</th>
<th>Encounter Rate</th>
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<tr>
<td>Coastguard</td>
<td>Snorkel</td>
<td>9.17</td>
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<td>4.80</td>
</tr>
<tr>
<td>Shark Alley</td>
<td>Snorkel</td>
<td>8.32</td>
<td>49</td>
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<tr>
<td>Grotto</td>
<td>SCUBA</td>
<td>5.98</td>
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<tr>
<td>Spanish Chain</td>
<td>SCUBA</td>
<td>2.25</td>
<td>17</td>
<td>7.56</td>
</tr>
</tbody>
</table>

Table 1. Administered method, total number of sightings of *Dasyatis americana*, encounter rate (stingrays per hour), and total minutes at each surveyed site on South Caicos.
behavior and time of day

The most common behavior observed was swimming. When data was skewed to calculate relative sighting-behavior relationships, swimming was the most prominently observed behavior except at hours 1100 hours, 1400 hours, 1600 hours and 1700 hours. At 1100 hours, 45% of observed rays were buried and 18% were swimming. At 1400 hours, an equal number of rays were observed swimming and buried (37.5%). The sample size observed in the hours after 1600 hours is so small that they are classified as outliers.

DISCUSSION

Although *D. americana* is not locally endangered in the Turks and Caicos Islands, it is a target fishery species in other regions around the world. No previous stingray research has been conducted in the Turks and Caicos, so this study is the first of its kind.

The results of this study imply that more encounters occurred within an hour of 1400 hours compared to the other studied hours. A plausible explanation for this phenomenon could be behavioral thermoregulation. Their need for heat would cause a tendency for rays to reside in shallower waters during times when they need energy. The sun is directly overhead at noon, and the few hours following that peak in diurnal cycle would in theory be the time when surface and shallow water temperatures are highest, in a phenomenon called “daily temperature lag” (Barrans 2012) (figure 5). The hottest hours are the hours following 1200 hours because the Turks and Caicos Islands follow daylight savings time, which means true noon is closer to 1300 hours. Because the study excluded 1200 hours and 1300 hours as an observed time, 1400 hours was the hottest hour that we conducted observational surveys, thus resulting in the highest sightings of rays at that time. Basic human observation tendencies could account for the sightings of larger rays. Observers could have overlooked smaller rays and only recorded the larger, more obvious rays.

Resource exploitation is another possible explanation for increased number of sightings at midday. Warmer waters attract more rays, which become more active due to the heat. Bigger rays exploit resources in warmer waters, preventing smaller rays from foraging in the popular localities. This theory is based on simple size-competition dynamics, which could explain larger observed rays during warmer hours of the day.

Basic study bias had an important effect on these results. Observers analyzed data collected from 17.5 hours of snorkeling in shallow waters compared to only 9 hours of diving in deeper waters. This results in notable data deficiency for the colder, deeper waters. If southern sting rays migrate to warmer waters during the day they probably migrate back to cooler waters at nighttime. A cause of this migration could be an increase in substrate rugosity for purposes of protection.

Diel cycles affect not only rays but also the behavior of their predators and prey. The southern stingray’s primary natural predators, coastal sharks, are predominantly nocturnal foragers (Cartamil et al. 2003). One study mentions “large rays to be distributed more in shallow areas at night and dawn, whereas small rays were in shallow waters dur-
ing the daytime and dusk” (Tilley 2013). This distribution implies that there is a correlation between predation risk and diel period because of thermoregulation. The large rays dominate the safer localities at night while energy is low. Predation could then be a plausible driving factor of diel-associated movement.

Results also showed that swimming was the most commonly observed behavior. Although this correlation proved to be insignificant, the data is fascinating. Swimming was observed at a high rate possibly due to factors such as predation or avoidance of humans. During the surveys, divers and snorkelers created high disturbances, which in turn could have startled rays and caused them to swim away. Once swimming, rays are more easily detectable. This is significant because it addresses a possible bias in future studies.

In future studies, observations should be conducted for a longer period of time at longer durations. Result accuracy increases with larger sample sizes and longer study periods. Human disturbance may skew results, so increased precaution should be emphasized in fieldwork. Although southern stingrays are not at risk in the Turks and Caicos Islands, information and data gathered from the area can be used to further understand the species. Results showed that larger rays were observed more at 1400 hours than at any other studied hour. Southern sting rays were found to be swimming more than half of the times they were encountered. With detailed ecological knowledge like this, more influential research can be done in tracking reef health, population estimates, and other biological studies.
REFERENCES:


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In Her Own Image?: Inclusive Language and Jewish Liturgy in the Italian Renaissance

Emilie Amar-Zifkin, FCLC ’13

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“Blessed are you, O Lord, who has not made me a woman.” This prayer has been part of Jewish liturgy for centuries and has been contentious for nearly as long. It has also served to encourage an important debate about the role of women in liturgy. The Farissol siddur, a 1471 women’s prayerbook, features multiple emendations, including “blessed are you, O Lord, who has made me a woman and not a man.” This prayerbook and others like it reveal a surprising fact about Jewish women in the Renaissance: they took an active enough role in prayer that the emendations they made were preserved in writing. Similar emendations to other blessings are evidence of a women’s liturgical movement that flourished because of the culturally fertile atmosphere of the Renaissance. The Farissol siddur provides a window into a moment of relative liturgical freedom, before censorship and the effects of widespread religious persecution and ghettoization reached the liturgy, as well as those involved in praying it. Further, the fact that the emendations in the Farissol siddur are still considered revolutionary and noteworthy points to the importance of looking back to early sources of inclusive and gender-specific language in the liturgy. Jewish liturgical practice will almost certainly need to undergo linguistic emendations if it is to remain relevant in the quickly changing theological climate of contemporary Judaism. Examining the emendations in the Farissol siddur is a mindful way toward a responsible, faithful implementation of those potential linguistic changes.

Since the second century CE, devout Jewish men have awakened, gotten out of bed, and prayed their morning prayers, thanking God in no uncertain terms for “having not made [them] a woman.”1 This prayer and the other morning prayers surrounding it are some of the most contentious portions of Jewish liturgy. They have been subjected to criticism, censorship, and change through the ages. A comparison of contemporary daily prayer books, or siddurim, from various branches of Judaism reveals that the tension between ancient liturgy and modern practice has yet to be resolved. There has been and always will be an inherent disconnect between prayer as mandated by its earliest codifiers and prayer as performed by generations of the faithful at different points in history, in different cultural milieux, and with numerous liturgical versions. Investigating this disconnect is difficult: sources about day-to-day religious practice often prove to be limited, and certain rites of prayer were lost to history in their entirety. Fortunately, well-preserved manuscripts like MS8255, a fifteenth-century Italian siddur held at the Jewish Theological Seminary and commissioned by an unnamed groom for his unnamed bride, can provide a firsthand look at how the liturgical variations within it may have evolved as a direct result of the surrounding Renaissance culture.2 Among other peculiarities, the manuscript contains the following emendation: in the text of the morning prayers, the woman thanks God for “making me a woman, and not a man.”

In order to grasp the significance of this change in that particular book and at that particular time in history, we must first turn our attention not only to the context of composition but also to the origins of these prayers and their canonization, and finally to what can be concluded from the emendations present in the siddur. Answering this question necessitates an examination both of the social and religious climate of the early Renaissance and of the particular history and reception of the siddur in question. A study of the background of the scribe who produced the prayer books, Abraham Farissol, affords valuable information about the changes to the prayers and about Jewish life in the early Renaissance more generally.

The Italian Renaissance and the Jews

The Jewish community in Italy is one of the oldest in the world, with a small, sometimes persecuted Jewish presence in Rome documented as early as 161 BCE.3 The Renaissance, however, opened previously unimaginable opportunities for Jews. Historian Moses Shulvass points out two distinct reasons why this might have been so: first, the renewed interest in the ancient world meant that Jews were viewed as the keepers of that culture; second, new economic conditions gave rise to the general public being more accepting of typically “Jewish” professions like money-lending, until then one of the only occupations permitted to Jews.4 The renewed interest in the ancient world had further-reaching ramifications. Many Christians sought out Jewish humanists with whom to study Hebrew and scripture, and previously unthinkable theological and philosophical lines of discussion and debate were opened between Jewish and Christian humanists, eventually yielding an impressive body of polemic literature.5 It is no surprise that the manuscript in question, produced by the French scribe Abraham Farissol, was commissioned and written in Ferrara. The comparatively flexible Italian

Abstract

“Blessed are you, O Lord, who has not made me a woman.” This prayer has been part of Jewish liturgy for centuries and has been contentious for nearly as long. It has also served to encourage an important debate about the role of women in liturgy. The Farissol siddur, a 1471 women’s prayerbook, features multiple emendations, including “blessed are you, O Lord, who has made me a woman and not a man.” This prayerbook and others like it reveal a surprising fact about Jewish women in the Renaissance: they took an active enough role in prayer that the emendations they made were preserved in writing. Similar emendations to other blessings are evidence of a women’s liturgical movement that flourished because of the culturally fertile atmosphere of the Renaissance. The Farissol siddur provides a window into a moment of relative liturgical freedom, before censorship and the effects of widespread religious persecution and ghettoization reached the liturgy, as well as those involved in praying it. Further, the fact that the emendations in the Farissol siddur are still considered revolutionary and noteworthy points to the importance of looking back to early sources of inclusive and gender-specific language in the liturgy. Jewish liturgical practice will almost certainly need to undergo linguistic emendations if it is to remain relevant in the quickly changing theological climate of contemporary Judaism. Examining the emendations in the Farissol siddur is a mindful way toward a responsible, faithful implementation of those potential linguistic changes.
liturgical tradition as well as the many wealthy Jewish patrons commissioning Jewish books were a perfect breeding ground for the kind of innovation that this siddur may represent.

Although the majority of Italian territory was part of the Papal States, conditions for Jews were favorable in these regions, especially when compared to the persecution, expulsions, and pogroms that Jewish communities were facing in Germany and France. Large-scale Jewish migration to what would later become Italy first occurred in the late fourteenth century. The great majority of immigrants were Ashkenazic rather than Sephardic: they came from Germany and France rather than from the geographical region of Sefarad (present-day Portugal, Spain and parts of North Africa). Indeed, Abraham Farissol, the scribe who produced the siddur in question, was born in Avignon in southern France and only arrived in Ferrara in the late 1460s. By the end of the 1400s, the Italian Jewish community had gone from mono- to multi-cultural very quickly. The Italian Jews, known as the Italiani and still the majority, lived amicably alongside the recently arrived Ashkenazic and Sephardic Jews.

**JEWISH WOMEN: EDUCATION, LITERACY AND LITURGY**

Moses Shulvass, one of the earlier scholars of Renaissance Jewry, paints an idyllic picture of Jewish life in an Italian city-state, even for women. Sources indicate that women owned and managed pawn-shops, engaged in trade, acted as midwives and even physicians, and were sometimes authorized as ritual slaughterers. As so often occurs with the difficult task of reconstructing the history of Jewish women when sources written by them are unavailable, points of view differ quite significantly as to the degrees of emancipation and equality that Jewish women enjoyed during the early Renaissance. Historian Howard Adelman takes a much harsher view on the subject. The public behavior of women “was not—although it has been said otherwise—a function of nebulous Renaissance values, which supposedly breathed a spirit of liberation into Jewish personal and communal life.” Instead, Adelman views realism as the main factor that made women’s public role possible. He argues that the authorization of women as ritual slaughterers, viewed by some earlier historians as evidence of emancipation, was merely an allowance by necessity, so that women in “distressed circumstances or isolated locations” could provide their families with food.

Luckily, sources do exist to provide a more unanimous-ly accepted picture among scholars of wealthy Jewish women in the Renaissance and their degree of education. Prayer books and psalters commissioned for or by women and written either entirely in Hebrew or in Judeo-Italian using the Hebrew alphabet serve as clues that many women were able to read Hebrew, or at least to decipher the alphabet enough to follow a synagogue service. According to Shulvass, educated women could read Hebrew and possessed some Jewish knowledge. Of course, we must examine this statement critically: the issue at hand is not only whether wealthy Jewish women in the Italian Renaissance could read Hebrew, but also whether or not they attended synagogue regularly enough to make use of a prayer book like MS8255 in the first place.Apparently, many Jewish women in Rome were taught to read Hebrew prayers. Some Jewish women read the Bible, or were known to pray daily and on the Sabbath. Interestingly, in Adelman’s discussion of women’s disruption of services to air grievances (an ancient custom practiced by men as well), he does not indicate that women attending synagogue was in any way out of the ordinary. He even states that “we can only guess, therefore, that women in their own section of the synagogue were involved in a service parallel to the men’s service—one that included features of which some men may have been unaware, particularly the women’s public demand for restitution of wrongs.”

This is an exciting development in light of the analysis of MS8255 soon to follow. The historical evidence for women attending synagogue, at least on festivals and on the Sabbath, is strong.

While tracing women’s literacy and levels of education in the Renaissance is a relatively simple task, the question of women’s involvement in traditional Jewish worship services is more difficult. Translations of the entire synagogue service into Judeo-Italian highlight this ambiguity. Although the large number of manuscript prayer books may point to widespread women’s participation in the liturgy, “it seems that they did not know enough Hebrew to understand the prayers (the same was true of many men) or to pray in that language by themselves.” This raises an interesting question for the analysis of MS8255. The existence of manuscript prayer books specifically commissioned and often emended for a woman’s use suggests that women were accustomed to attending synagogue both on the Sabbath and on festivals, and moreover that the emendations may have actually been prayed in public, but the question of how widespread this revolutionary emendation would have been still remains. Like all siddurim, MS8255 contains both prayers that are intended to be prayed communally in a synagogue setting and individual prayers meant to be said at home on weekdays, bookended by selections from the Torah and the Psalms. The question still remains of whether the emendations would have been prayed out loud within a synagogue setting, or whether they would have been prayed individually and silently, but within a communal setting. Would
the women praying this emended blessing have realized just how important the changes in wording were? Or was this kind of gender-specific blessing simply the norm?

The end of the fifteenth century saw a dramatic decline in what we might cautiously call the movement toward a more inclusive liturgy. Political turbulence affecting the Jewish community began in earnest as early as the late 1470s. Jews were forced to attend church and listen to Lenten sermons, a blood libel in Trent led to one in Treviso, and Jews were burnt alive in Venice in 1475. Eventually, even the Estes, the liberal ruling family of Ferrara, became more repressive: they took up the practice of forcing Jews to attend Easter services and forced all Jews to wear a defining badge on their clothing. Bernardino da Feltre, a Franciscan missionary, reached Ferrara in 1483 with an anti-usury campaign, which undoubtedly caused financial hardship to the many Jewish bankers who had been previously welcomed there. The first ghetto was established in 1516 in Venice, and papal edicts condoning anti-Jewish thought and practice were soon to follow. A papal decree issued in May of 1554 denouncing the Talmud led to widespread book burning throughout France. Many of the extant manuscript prayer books today bear obvious marks of censorship, both by authorized censors and by the scribes themselves, who preferred to scratch out or change a word rather than to see their work literally go up in flames.

ABRAHAM FARISSOL: BIOGRAPHICAL DETAILS AND SCRIBAL CAREER

The scribe who produced MS8255, Abraham Farissol, emerged from this cultural milieu. Born in 1452 in Avignon and dying in Ferrara in 1528, Farissol lived to hear of the ghettos in Venice and the book burning in his native France. However, he also witnessed and took part in the overwhelmingly positive cultural innovations that characterized the Renaissance. Farissol was heavily involved in the social and artistic spheres most affected by the Renaissance: music, prayer life, science, and politics. Before delving into the theological and liturgical complexities of MS8255, it is necessary to review briefly the life of the scribe who produced it, especially because all other information about the patron, not to mention its intended recipient, has been lost.

Abraham Farissol was born into an enlightened Jewish family in Avignon that emphasized Jewish subjects as well as secular fields. Farissol’s relatives were doctors, natural scientists, astronomers and musicians. Because of this background, we can imagine that Farissol was involved in a struggle common to almost any Jew living in the Diaspora: how can one be involved in Renaissance culture and be fully a part of the ambient society without completely forsaking one’s allegiance to Judaism? Farissol left Avignon for Italy in 1468, possibly due to economic reasons or to anti-Jewish legislation. He followed in his father’s footsteps and began his scribal career upon his arrival in Mantua, copying manuscripts for wealthy patrons. Farissol arrived in Ferrara around the end of 1471 or the beginning of 1472. He taught logic, writing, and grammar from 1473–74 and was well known in the Ferrarese Jewish community by 1480 as a cantor, scribe, musician, and educator. Like nearly all humanists of the period, he depended on commissions for financial stability and engaged in multiple occupations. As a result, he moved around northern-central Italy frequently, only returning and settling in Ferrara by 1487 to continue his duties as scribe, cantor and community leader. He is responsible for drawing up the constitution of the first society for gemilut hasadim, or charitable works, in 1515, indicating that his role in the community went far beyond acting as a scribe and tutor for the wealthy.

THE FARISSOL SIDDUR

MS8255 is contained in a small, unassuming cardboard box in the stacks of the Jewish Theological Seminary’s rare book room. Its size and lack of illumination belie how exciting the prayers held within this siddur are, both culturally and theologically. Dating MS8255 is an uncertain science: the date on the manuscript could correspond either to 1471 or 1478, depending on how one reads the last letter of the Hebrew date in Farissol’s own colophon. Although the manuscript is catalogued with 1471 as its date of completion in the library’s own record, many scholars read the date as 1478 rather than 1471. The siddur is in the Italian rite and was commissioned, according to the colophon, by a man whose name has been erased, for “his wife the bride.” Art historian Evelyn Cohen points out that the erasure of the city of composition and of the name of the patron is not particularly striking and that this would have occurred at the hands of a subsequent owner. What is striking, however, is that all three blessings have been emended for a woman’s use, and that these emendations are not the same emendations that appear in other women’s sidurim of the period, many of which are also written in the Italian rite and thus cannot be attributed to the scribe simply using a different liturgical rite with different liturgical forms.

BLESSINGS OF SELF-IDENTITY: HISTORY AND EMENDATIONS

The blessings that are of particular interest for the purpose of this analysis are the three morning blessings. Jewish liturgy prescribes a number of blessings to be recited upon
awakening, three of which explicitly function as statements of self-identity.23 The recitation of these three blessings is outlined in the Talmud22 and is generally rendered as follows in Orthodox siddurim even today: “Blessed are you, Lord our God who has not made me a woman. . . a slave. . . a heathen.”23 MS8255 has an emendation for each of these blessings to render them appropriate not only for a woman’s use, but also for the historical period in question. Even among other siddurim that feature emended blessings specifically for a woman’s use, the blessings in MS8255 give us pause as being different. In them, the woman thanks God for having made her “a woman and not a man,” for having not made her a concubine or a slave, and for not having made her a “stranger.” Other siddurim exist with similar but not identical variations, and it is through a brief survey of these that the truly unique quality of MS8255 shines through.

Yoel Kahn, author of The Three Blessings: Boundaries, Censorship and Identity in Jewish Liturgy, points out three manuscripts with blessings formulated for women, all of which come from roughly the same period and geographical area.24 Strikingly, two of them were penned by Farissol, and one of them is MS8255, the manuscript in question. The earliest of the three manuscripts, which is dated to fourteenth- or fifteenth-century Provence, is the only one of the three manuscripts written in Shuadit, a Franco-Jewish dialect. The colophon (inscription placed at the end of a book or manuscript usually with facts relative to its production) indicates that it was commissioned by a man for his sister, and the blessing is positive rather than negative. The wording is “who made me a woman” rather than the direct opposite of the standard male blessing seen in both Farissol manuscripts.

Aside from MS8255, the other manuscript of interest is a 1480 manuscript’s siddur, also penned by Farissol, most likely in Mantua. Here, the formulations are more similar to those in MS8255, though in a different order: “not a maid servant...a woman and not a man...not a goya,” the feminine form of the noun goy, alternately translated as gentile or heathen. Two peculiarities in this 1480 manuscript lend credence to the claim of the uniqueness of MS8255. First, the “and not a man” seems to have been added in a later hand possibly due to a specific request on the part of the subsequent owner of the siddur, making MS8255 one, if not the only, extant manuscript to render the blessing with such a formulation in the original incarnation of the siddur. Second, the goya actually seems to have been partially rubbed off of the surface of the parchment by a later censor, a practice that was widely performed once the mounting tides of Christian religious conservatism began to insist on the censorship of prayers that were viewed as anti-Christian. Many siddurim from the period, including MS8255, have large sections of text blacked out, but the 1480 manuscript’s mention of goya seems to have literally been erased, either by the scribes themselves or by later censors. As Tabory and Kahn point out, the two Farissol manuscripts simply adapt the masculine version of this prayer in the Italian rite, which is usually rendered “who has made me a man and not a woman.” However, this argument for symmetry is not as convincing as it seems at first glance. In MS8255, the other blessings do not preserve the Italian rite’s formulation of “x and not y.” Even if the “woman and not a man” emendation is interesting but unsurprising, the use of “stranger” as well as “maidservant and concubine” without additions to maintain the poetic symmetry is worth mentioning.

MIXED LITURGICAL RITES IN THE FARISSOL SIDDUR

A final peculiarity shared by a number of the Farissol manuscripts occurs in the prayer that generally follows the blessings of self-identity.23 The morning prayer service involves readings from both the Torah and the Talmud, and specific blessings must be recited before taking up the study of Torah. Interestingly, although a woman is not required to and is sometimes categorically barred from, studying Torah, MS8255 retains the full text of these Torah blessings. The formulation of the first Torah blessing, regardless of its inclusion in a woman’s prayer books, is odd. It is rendered as “Blessed are you, Lord our God, who has commanded us regarding the Torah,” rather than the standard Ashkenazic (and Italian) formulation of “. . . who has commanded us to involve ourselves with the commandments of the Torah.” The previous formulation is not itself strange: it is the standard Sephardic formulation of the blessing, used even today in prayer books according to the Sephardic rite. One question remains: what is a Sephardic prayer doing in an Italian prayer book produced by a French scribe? The answer likely lies partly in Farissol’s own background. Farissol was born and raised in Avignon, an enclave within the Comtat Venaissin, a papal territory in Southeastern France. The Jews of the Comtat Venaissin used the Provençal rite, which combined Ashkenazic, Sephardic, and even Italian elements into the liturgy.26 Situated as it was between the three great Jewish intellectual centers of Spain, Italy, and Franco-Germany, Provence was a melting pot of Torah study and of different aspects of Jewish thought, and its liturgy came to reflect that diversity.27

The fact does remain that the siddur was commissioned in Ferrara, presumably by a Ferrarese aristocrat, and that it is classified as being in the Italian rite. There are two possible explanations for the appearance of the Sephardic (or indeed, Provençal) version of this blessing. The first is that
Farissol was commissioned by someone who wanted this particular blessing to be phrased according to a different rite even though the rest of the siddur very much follows the Italian rite. This may have been because the alternate phrasing of the blessing is much vaguer and therefore theoretically more gender-sensitive. Since women are exempt from actually studying the Torah, phrasing the blessing so that the woman is thanking God for having commanded her “according to the Torah” provides a more general and, in this case, more inclusive way of performing the prayers surrounding the Torah. The second possible explanation is that Farissol himself had decided to break the convention of the Italian rite, which has the Ashkenazic formulation, because he simply preferred the Provençal formulation with which he had grown up, rather than because he viewed it as more gender-neutral. That one of Farissol’s last commissioned siddurim, dated to 1528 and belonging to a male, preserves the Provençal formulation lends credence to this theory.28 Of course, there is no way to tell which of these possibilities is historically the case. Because the identity of the patron is not known, it is possible that the patron himself may have been of Sephardic ancestry, although this seems improbable given the migration trends of the Jewish community at the time of the composition of MS8255. As demonstrated here, when there is no compulsion for standardization, liturgical variations in rite and language abound, and separating originality from simple adherence to tradition becomes an exciting, if difficult, task.

**CONCLUSION**

Though an interesting one, the question of whether the emendations to the three blessings of self-identity in this siddur were Farissol’s own invention is not the only question to be posed of this manuscript. If women are obligated or even allowed to pray these blessings, the fact that a siddur specifically intended for a woman renders them in such a female-positive way suggests that the Jewish community in Renaissance Italy viewed public recitation of this kind of blessing as acceptable. That Farissol himself was such a well-respected and educated member of the Jewish community, and that he came from an area very close to where the Provençal manuscript was written, lends credence to this. The type of gender-specific language present in MS8255 is not just an isolated occurrence brought about by a rogue scribe, but rather a socially sanctioned way of allowing women to participate in the prayer service in a more concrete way. The Farissol siddur with its emendations and variations is thus a window into a moment of relative liturgical and even social freedom, before censorship and the effects of widespread religious persecution and ghettoization reached the liturgy, as well as those involved in praying it. The importance of the Farissol siddur to current research in liturgy and feminism should be noted as well. The culturally fertile atmosphere of the Renaissance that yielded the kind of prayers found in this siddur and other similar ones is not irreproducible. By looking back at early sources of inclusive and gender-specific language in the liturgy, modern interlocutors in theological discourse might be able to recreate the kind of atmosphere that allowed such blessings to emerge and flourish five hundred years ago.

**ENDNOTES**

1. The blessing is first mentioned in tractate Menachot 44a and tractate Berachot 9:1, which are part of the Mishnah (first written compendium of Jewish Oral Law) and dated to the second century CE.
2. Abraham Farissol, Siddur, Italian Rite (“The Woman’s Siddur”) (MS8255, JTSA Special Collections, Ferrara, 1471), folio 5v.
6. See, for example, Samuel K. Cohn, Jr., “The Black Death and the Burning of Jews,” *Past and Present* 97 (2007): 1. Hundreds of Jews throughout France, Germany, and Austria were murdered between 1348-1350 as scapegoats for the plague sweeping through Europe at the time. The massacre on February 14th 1349 in Strasbourg killed 2000 Jews in one day.
19. JTSA, MS8257.
21. It should be noted that the morning liturgy evolved through the Middle Ages to the point where the morning liturgy, or shacharit, was being performed in the synagogue rather than at home.
25. See “Siddur, Italian rite, for unknown woman patron copied by two scribes, one of them being Farissol” (NUL, MS805492, Mantua, 1480), as well as Abraham Farissol, “Siddur minhag Romah le-khol ha-shanah” (JTSA Special Collections, MS8257, Ferrara, 1528).

27
The Politics of Protectionism and Parmesan Cheese: Evaluating Geographical Indication Protection Levels in the World Trade Organization

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“HOW CAN YOU BE expected to govern a country that has 246 varieties of cheese?” French General Charles de Gaulle wondered fifty years ago (Pickles, 2014). In today’s globalized world, the World Trade Organization (WTO) grapples with a similar question, but on a much larger scale; namely, how can we govern a world with thousands of varieties of cheese and all of the intellectual property (IP) that accompanies them? Debates over food and IP have grown in frequency and proportion in international institutions over the last several decades, creating tension between states and raising questions about authentic goods and the role of traditional culture in trade. Geographical indications (GIs), intellectual property rights that protect a good’s essential link to its geographical origin (such as champagne to Champagne, France or Parmigiano Reggiano cheese to Parma, Italy) and traditional skills of producers in those origins have become one such area of debate. GIs lie at the crossroads of politics, economics, and culture because they are economic tools governed by political entities that deal with cultural products. Because of this, legislation on this form of IP must weigh a wide variety of political interests and socioeconomic considerations.

Ultimately, policymakers in the WTO must ask themselves this fundamental question when working with GIs: to what extent should states be permitted to place IP boundaries around their goods (especially when cultural pride is at stake, as is certainly the case with goods such as French wine or Indian rice), and at what point does IP protection unfairly inhibit free trade? This article argues that Article 22 of the WTO’s Trade-Related Aspects of Intellectual Property (TRIPS) Agreement should provide the only basis for future GI protection, and that the current extra level of GI protection afforded to wines and spirits under Article 23 of the TRIPS Agreement is overbearing and therefore must face amendment or elimination. To arrive at this conclusion, this article will consider the major arguments both for and against the greater levels of GI protection granted to goods such as wines and spirits under Article 23, considering such protection in the context of Robert Gilpin’s benign/malevolent mercantilism dichotomy. It will utilize a case studies approach to consider some of the largest and most diverse instances of GI conflict and cooperation in the TRIPS Agreement era. These cases have been selected because they are important to international IP discussions and show variation in the way that IP conflicts have been handled. They are exploratory in nature and help to determine the plausibility of this article’s thesis.

First, however, it is important to gain a better understanding of the main practical purpose for GIs and their legal background in the TRIPS Agreement. Terroir, the notion of a distinctive link between a good and its place of origin, is one of the primary bases for GIs and the feature that differentiates GIs from other IP forms such as trademarks (Bowen & Valenzuela-Zapata, 2009, p. 109). Amy Trubek, associate professor in the nutrition & food science department at the University of Vermont and cultural anthropologist, best describes the terroir taste sensation: “Inside your mouth flavor somehow evokes landscape and region...With wine, terroir allows us to ‘see’ the taste of place and ultimately explain how and why a wine tastes a certain way” (Trubek, 2008, p. 55). The GI for Chianti wine, for instance, informs consumers that the product contains unique flavor characteristics that derive from the environment of the Chianti region in central Tuscany and the traditional knowledge of the farmers/ producers in that region. The idea is that this product information will assist consumers in purchasing the authentic product with the quality that he or she desires.

Labels such as Chianti are protected under Articles 22-24 of the TRIPS Agreement, the three articles of the document dealing specifically with GI protection. It is important to note that although the WTO provides a general, universal standard for GI protection with the TRIPS Agreement, many of the specific details—GI registration processes and determining which goods are fit...
for registration, to name two—are largely determined by individual states. The 159 members of the WTO thus each formulate their own legal frameworks, choosing the breadth and depth of GI protection within their national boundaries. This has, in effect, been a large reason for the seemingly perpetual disagreement between the United States and European Union over GI protection levels, as Europe continues to call for a stricter, more highly regulated system while the US insists on a less rigid GI structure (Josling, 2006, p. 356-358).

The basic points of Articles 22-24 of the TRIPS Agreement may be found in Figure 1. Essentially, Article 22 provides an official WTO standard definition for GIs and requires members to “provide the legal means for interested parties to prevent the use of any means in the designation or presentation of a good that indicates or suggests that the good in question originates in a geographical area other than the true place of origin in a manner which misleads the public” (TRIPS Agreement). That is to say, Article 22 does not specifically prohibit the imitation of GI-protected goods, so long as they are accurately labeled and do not mislead the public (Lang, 2006, p. 497). This definition establishes a minimum standard or protection to which all GIs must adhere. It ultimately makes it possible, for example, for Wisconsin cheese makers to label their granular white cheese as “Parmesan,” provided that the label states the cheese’s origin as Wisconsin and not as Parma, Italy. The label would only be impermissible if it were to mislead the public into believing the cheese is authentically Italian.

Article 23, on the other hand, focuses specifically on the protection of GIs for wines and spirits, and controversially provides more stringent standards for these beverages than the general protection offered to goods under Article 22. Article 23(1) reads:

Each Member shall provide the legal means for interested parties to prevent use of a geographical indication identifying wines for wines not originating in the place indicated by the geographical indication in question or identifying spirits for spirits not originating in the place indicated by the geographical indication in question, even where the true origin of the goods is indicated or the geographical indication is used in translation or accompanied by expressions such as “kind,” “type,” “style,” “imitation,” or the like (TRIPS Agreement).

In other words, Article 23 prevents even the mere usage of the authentic name in the labeling of GI-protected wines and spirits. This extra protection conferred to wines and spirits must be addressed, as some states—and most notably, the European Commission—are seeking to extend this protection to all goods (Josling, 2006, p. 356-358).

Article 24, finally, outlines some exceptions to the GI laws set out in Articles 22 and 23. The most significant of these are Articles 24(6) and 24(9). Article 24(6) precludes generic names that have become synonymous with a particular product in another country from requiring protection in that country, and Article 24(9) states that foreign countries need to protect a GI good only to the extent that the good’s home country does. These points, while certainly important to international GI protection, are of lesser significance to this analysis than Articles 22

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<th>Main purpose</th>
<th>Article 22</th>
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<td>Defines GIs: “indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin”</td>
<td>Provides additional protection for wines and spirits only</td>
<td>Outlines exceptions to Articles 22 and 23</td>
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<td>Establishes minimum standard of protection</td>
<td>Prevents not only falsely labeled imitation goods, but even those imitations where “the true origin of the goods is indicated”</td>
<td>24(6): Generic names synonymous with a product do not require GI protection</td>
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<td>Protects against falsely labeled imitation goods</td>
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and 23 and therefore will not be given further attention at this time.

Thus, GIs, like other forms of IP, are a sort of legal monopoly in the market of a good. They allow the producers of regional goods (especially in the case of wines and spirits), many of whom continue production traditions that are centuries old, to retain the sole right to naming their good authentic x. The use of GIs, therefore, may be seen as a form of self-interest that seeks to preserve the name and cultural tradition of regional foods. Indeed, it is only logical that states and their regional producers should want to act in self-interest, and one cannot fault them for seeking out ways to ensure their survival and prosperity. This is a key principle in the mercantilist theory of international political economy (IPE), a way of thinking that is “deeply entrenched in the psyches of state officials in their societies” (Balaam & Dillman, 2011, p. 77). Yet in seeking greater GI protection that prevents foreign producers from even the mere referencing of the authentic good, some states may attempt to establish a monopoly on regional products, one that unfairly closes the market to cheaper, lower-quality substitutes to the authentic good from a different region of the world.

Robert Gilpin, a distinguished scholar of IPE, offers a nuanced version of mercantilism in The Political Economy of International Relations with his important differentiation between “benign and malevolent mercantilism,” a distinction that is very helpful when considering protectionist policy in GI law. Essentially, “the first [type of mercantilism, benign mercantilism] is defensive; the second [malevolent mercantilism] is the conduct of interstate warfare by economic means” (Gilpin, 1987, p. 404). Benign mercantilism “entails a degree of protectionism that safeguards the values and interests of a society; it enables a society to retain domestic autonomy and process valued industries in a world characterized by the internationalization of production” (Gilpin, 1987, p. 404). Tomer Broude, a law professor at Hebrew University of Jerusalem and expert in WTO dispute settlement, alludes to a similar dichotomy when he describes the line that GIs tread as one “between disguised trade protectionism and bona fide cultural policies” (Broude, 2005, p. 636). Though Broude goes so far to argue that “Culture should not be allowed to become a euphemistic code word for protectionism” at all, this article holds that benign mercantilism in the name of cultural protection is acceptable, and defensive measures to protect oneself must be considered just in international trade (Broude, 2005, p. 680).

Malevolent mercantilism, on the other hand, is offensive rather than defensive and essentially war without gunpowder and explosions. It consists of economic policies (which may include overly burdensome IP protection) that seek to gain an unfair advantage in international trade and distort important neoliberal principles such as rational consumer choice and free competition. Gilpin’s dichotomy would therefore have we ask the question, does GI protection seek to defend regional producers’ culture, or does it function as a weapon to distort trade? If we use Gilpin’s dichotomy—and this article will—then GIs should be treated as a form of benign mercantilist policy within a larger free trade regime, one that must be regulated and protected from abuse. Simply put, Article 22 is benign while Article 23 opens the door for malevolent mercantilism. Therefore, the WTO must reconsider the extra protection conferred by this law.

Let us consider, then, the arguments for and against expansion of Article 23-level protection to all goods, and better understand why it must be reassessed. First, the most common argument in favor of Article 23-level protection is that it is necessary to prevent imitations of traditional regional goods from ‘stealing’ earnings from the producers of the authentic product. One might be justified in asking, for example, whether eliminating the extra protection of Article 23 would lead to scenarios in which imitation goods labeled as x-style unjustly divert revenues from the goods’ original geographical location or diminish the production culture of a particular region (Addor and Graziolli, 2002, p. 895-896). After all, in some cases a generic or imitation will suffice for the rational consumer by offering a lower price than the authentic good while maintaining an acceptable level of quality.

Those who hold this argument might point to the “Basmati Affair,” a 1990s dispute between Indian basmati rice farmers and a Texan firm, as evidence that stronger, Article 23-level GI protection is needed for goods beyond wines and spirits. The Texan firm, RiceTec, had been using genetic material from authentic Indian basmati rice to produce an imitation product, and were labeling their product as authentic, going so far as to patent the name “basmati” in the United States Patent and Trademark Office (USPTO). This clearly should have been a violation of GI law, but was not addressed until the Indian government officially brought its concerns to the USPTO in 2000. India requested that RiceTec withdraw the patent and not label its American-made product ‘basmati’ without a clear indication of its true source. By the end of the negotiations, RiceTec could no longer lay sole claim to the name “basmati” in the US, nor attribute the traditional qualities of basmati rice (its unique aroma and long length) as unique to its product (GRAIN, 2001). RiceTec could, however, continue to produce three strands of the rice under the name “American basmati rice,” because the USPTO found that those three varieties were products of
RiceTec innovation, despite its initial use of Indian rice genetic material. Still, this was enough to satisfy the Indian government, which claimed that RiceTec’s future production of rice would “not hamper export of its own basmati product” (Rai, 2001).

It is important when considering this first argument for more stringent GI protection to again draw a line between benign mercantilism and offensive mercantilism. Indian farmers have every right to protect their name and their culture abroad—there should be no dispute about this. However, it would be unfair to restrict international consumers from choosing a clearly labeled, unofficial imitation of the original product if that is what they demand, and it is unfair to prevent producers of similar yet different goods to market their products as imitators or in the style of basmati rice if their products contain similar features. RiceTec was blatantly in violation of Article 22 when it sold its product as authentic basmati rice, but the ultimate outcome of the Basmati Affair was fair: an imitation good with features similar, but not identical to, the authentic product was able to label itself as such, and the pure basmati name was restricted for its rightful owners in India.

It is important to recall that the Indian government was satisfied with the outcome of the Basmati Affair, and officially stated that the American production of imitation basmati rice would not hinder its own export of the product. Indeed, trade statistics reveal that the Indian government was correct: even with Texmati on the American market (labeled as “American basmati rice”), American imports of Indian basmati rice have increased three and a half times since the Basmati Affair, from $12,075,000 worth of rice in 2000 to an initial drop to $8,137,000 in 2002, and an astounding increase to $42,572,000 in 2012 (United States Rice Trade). Of course, one could argue that the growth could have been even greater had RiceTec never entered the market, but this concern is unwarranted considering the incredible fourfold increase in American imports of basmati from India over the last twelve years. Basmati rice clearly is still in high demand by American consumers, who also now possess the added benefit of purchasing an American substitute if necessary.

Thus, the response to the first argument for stronger GI protection asserts that extending the level of Article 23 in the TRIPS Agreement to foods such as basmati rice and excluding RiceTec’s product would only be closing the market to a good that is in demand separately from authentic basmati rice. This would make the GI label an offensive tool rather than a defensive one. The Basmati Affair began with malevolent mercantilism on behalf of RiceTec, as the Texan firm unquestionably and unjustly robbed Indian producers of its own geographic name. The dispute ended, however, with a fair allowance of the Texan firm to label their product as an American version similar to the authentic Himalayan product. Expanding Article 23 would be overly protectionist, and rob consumers of a substitute good that imitates the authentic product. Therefore, Article 22 should remain the standard for protection levels for goods like basmati rice.

The second major argument in favor of higher, Article 23-level protection for all GI goods suggests that the extra protection will help developing countries to boost their economies and become more competitive in the global market (Lang, 2006, p. 500-501). This resembles the infant-industry argument for protectionism, which suggests that higher levels of protection are needed for the health of small or underdeveloped industries until they can grow large enough to compete on their own (Roberts, 2007, p. 60-61). Aaron Lang suggests in the *Duke Journal of Comparative and International Law*, “GIs have been identified as being especially promising [for developing economies] because they tend to protect the types of goods that are most common to developing societies” (Lang, 2006, p. 498-499).

In response to this argument, one might consider the case of Ethiopia, which sought to protect its popular coffee varieties in the USPTO in 2005. Ethiopia’s case is extremely important for the study of GIs, as it presents an example of a nation that has opted to utilize trademarks instead of GIs to protect its regional product. This decision is significant because it reveals that GIs are not always in fact the most suitable form of protection for all cases of development, especially those involving the poorest and least developed countries of the world, and it is incorrect to assume that stronger GI protection would aid the economic growth of developing countries. With the guidance of Light Years IP (an American non-profit organization) and several IP law firms, the Ethiopian Intellectual Property Office (EIPO) opted for a trademark system similar to the American system in 2004 in order to protect the nation’s Harar, Sidamo, and Yirgacheffe coffee varieties (WIPO). These coffees have been noted for their unique, high-quality flavors, which have been described as “fruity,” “citrussy,” and “aromatic” (Sereke-Brhan, 2010, p. 18). They are also unique in that their beans are sun-dried instead of washed with water in order to draw out a distinct flavor (Sereke-Brhan, 2010, p. 19).

Ethiopia’s case shows that Lang is thus correct in suggesting that developing countries often possess regional agricultural goods fit for IP protection. However, the EIPO recognized that GI protection would not apply to Ethiopia’s coffees, and that it would not be feasible to change the
production and distribution of its product to fit the high standard for international GI registration. The WIPO's strategy was sound because Sidamo and Harar coffees, while named after geographical regions in Ethiopia, are not “produced in the same region under the same circumstances,” which is problematic in light of the requirements set forth by Article 22 of the TRIPS Agreement (WIPO). The coffee beans are grown on over four million separate plots of land, which the government would be forced to monitor for quality under the requirements of a GI system (WIPO). Building a legal and commercial transportation infrastructure to handle sorting coffee beans from all over the country would have been virtually impossible for a nation as poor as Ethiopia in its monetary cost and enforcement requirements.

The Ethiopian government’s hope in using the trademark system, therefore, was that even producers outside of Sidamo could grow coffee that closely resembled Sidamo coffee and still sell it as such, since there was no need to prove a direct link between the environmental factors and quality (its terroir) under a trademark label. Ultimately, the key point here is that there exist other, cheaper forms of IP—trademarks, in particular—that must also be explored alongside GIs for the developing world. An expansion of GI protection to the level of Article 23 will be of little help to a country that cannot afford to implement a GI system in the first place. The question of whether Article 23-level protection is benign or malevolent is thus irrelevant here.

We now have seen two reasons for why the level of protection under Article 23 (and its potential expansion to goods beyond wines and spirits) is undesirable: it holds the potential to encourage monopolies and inhibit free trade, and does little to help some of the poorest countries of the world in comparison to other forms of IP. Yet Kal Raustiala and Stephen Munzer, professors of international law at UCLA School of Law, offer another important critique of high levels of GI protection. Raustiala and Munzer make one of the strongest cases for the elimination of Article 23 by appealing to theories of property, noting that “the current level of protection afforded by TRIPS for wines and spirits...is unwarranted and goes beyond what any existing theory of property can support” (Raustiala & Munzer, 2007, p. 340). Article 23 completely disallows imitations to associate their characteristics with the authentic product they imitate, and therefore, “the absolute protection standard [afforded to wines and spirits]...is not grounded in a consumer-confusion rationale, since no consumer would be confused by a label reading ‘Imitation Champagne from New Zealand’” (Raustiala & Munzer, 2007, p. 362).

Indeed, Raustiala and Munzer are correct to argue that “the absolute protection standard can foment confusion...[as] it is often hard to market a similar product with a different name without using or referencing a well-known GI” (Raustiala & Munzer, 2007, p. 362). Completely removing the name Champagne from a Napa Valley equivalent that imitates the French bubbly wine—even if the cheaper imitation is inferior—does more to foster consumer confusion than to dampen it, especially outside of France. A quick survey of the Internet for “sparkling wine” yields a number of relevant results that demonstrate this consumer confusion, as many blogs and wine-tasting websites attempt to clarify the difference between champagne and sparkling wine.5 Foreign consumers will recognize a cheaper imitation of champagne if the product describes itself as a champagne substitute. This suggests that the GI for wine, while protecting the interests of European vintners, is hurting consumers around the world by creating consumer confusion and overreaching its limits by allowing too high a level of protection.

If Article 22 were the only article of the TRIPS Agreement to govern GI protection, then this confusion would not exist. The proper origin of a product, whether authentic or imitation, would be clearly marked on the label, and consumers would be able to differentiate Italian Chianti wine from an American equivalent. Cheese makers in Argentina could continue to produce “Parmesan” cheese to sell in New York, so long as they note the chees’s true origins and ingredients on the label. At the end of it all, consumers would benefit from the increased range of choices, and authentic producers would continue to benefit from market differentiation between their goods and others’ imitations, which—as seen in the case of basmati rice—would not necessarily harm their own sales.

CONCLUSIONS

Article 23’s extra protection simply exceeds the reasonable boundaries for IP protection, and verges on malevolent mercantilism in cases where it is not explicitly so. Because Article 23 prohibits the use of regional names on imitation wines and spirits, even for the use of mere association with particular traits of the authentic product, it can cause consumer confusion (recall Raustiala and Munzer’s example of “Imitation Champagne from New Zealand”). Moreover, the Basmati Affair and the case of Ethiopian coffee reveal that an expansion of Article 23 to cover goods such as rice and coffee would either result in no change at best (in the case of Ethiopia, which does not possess the requisite infrastructure to establish a GI system), or malevolent abuses of names that have become generic in places like the US (in the case of basmati rice).
Ultimately, we must remember Gilpin’s assertion that mercantilism is not intrinsically offensive, and understand that the protection of culture is a legitimate concern in today’s globalized world. GIs are a useful strategy for maintaining the reputation and quality of traditional goods and production methods, so long as boundaries are established. The WTO, then, must prevent blatant abuses of place names in clear cases of consumer confusion or mislabeling, but not suffocate trade with unnecessarily protectionist policies such as those granted under Article 23. This is why Article 22’s reasonable level of protection for GIs must become the main standard for GIs moving forward.

ENDNOTES

1. This is a fundamental principle from Article 1.1 of the TRIPS Agreement: “Members shall be free to determine the appropriate method of implementing the provisions of this Agreement within their own legal system and practice.”

2. Some may make the case that GIs also serve a free market benefit in that they alleviate consumer confusion by stating clearly the origin of the product. Josling, for example, suggests that GIs are a “proxy for information about the consumer attributes of a good.” (Josling, 2006, p. 338).

3. It is difficult to know how future negotiations will work out or the exact likelihood of Article 23 expanding or contracting. Yet this paper’s argument contributes to an important ongoing discussion in international IP law.

4. Ethiopia, though not yet an official WTO Member, is currently in the process of obtaining membership status and expects to be a full Member by 2015 (Maasho). Its present non-Member status has no bearing on the arguments made in this paper.

5. See HM’s Food and Wine (at http://www.fnw.com.np/all-sparkling-wines-are-not-champagne/), for example.

REFERENCES


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The Effect of Transitional Programs on Scholastic and Daily Living Skills in Children With Autism Spectrum Disorders

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This study examined the effectiveness of a school-based transitional program for students (ages 13 to 17) diagnosed with autism spectrum disorders in comparison to a traditional scholastic curriculum. A repeated measures design examined changes across three cohorts (N = 15, with five students in each cohort) on measures of adaptive functioning, receptive vocabulary, and reading efficiency. Adaptive functioning and receptive vocabulary scores did not change significantly. However, there was significant improvement from pre-test (i.e., traditional curriculum) to post-test (i.e., transitional curriculum) scores in reading efficiency for both sight words and nonsense words. Implications of transitional programming for academic development are discussed.

AUTISM SPECTRUM DISORDERS (ASD) are pervasive neurodevelopment disorders characterized by impairment in communication, social interaction, and behavior (Caronna, Milunsky, & Tager-Flusberg, 2008). The Centers for Disease Control and Prevention [CDC] (2012) report the prevalence rate of ASD in the US as 1 in 88 children. Ongoing educational support and attention is required to instruct students with ASD, highlighting the need to establish reliable and effective education plans (Simpson, De Boer-Ott, & Smith-Myles, 2003).

TRADITIONAL CURRICULUM

Prior to 2004, when federal legislation mandated a life-skills component for special education students above age 16, programs for students with ASD relied heavily on a traditional curriculum (Holtz, Owings, & Ziegert, 2006). A traditional curriculum focuses on promoting in-classroom interaction, literacy, vocabulary, arithmetic, and science skills (Harrower & Dunlap, 2001).

Proponents of traditional programming argue that students with ASD become better at setting and meeting goals in these programs than do students in programs that are life-skills based. Empirically, students with autism who were instructed heavily in a traditional math and language arts education (referred to as core education in this study) have been shown to have fewer goals than do students in life-skills programs but were more successful at meeting their goals (Kurth & Mastergeorge, 2010). This may have to do with traditional goals being of a concrete, academic nature (e.g., “to be able to count up to 100”) as opposed to a more abstract focus on skill development (e.g., “to develop better communication skills”). A growing concern of advocates of traditional education has been that the development of academic skills for students with ASD is often overlooked in lieu of a focus on improving the core communication, language, and behavioral symptoms (Wilczynski, Reed-Gilbert, Milward, Fear, & Schwartzkoff, 2007).

TRANSITIONAL CURRICULUM

Transitional curriculum is a relatively new form of education that is aimed at easing the passage from school to adult life. The goal of transitional curriculum is to help students become self-sufficient in adulthood. Day-to-day learning entails a coordinated set of activities for students that are results oriented, supportive of student movement from school to post-school activities, student-centered, and comprehensive in their instruction (Holtz et al., 2006). For students with ASD, a large component of transitional programming is life-skills training, which includes learning how to cook, clean, and practice personal hygiene. Instruction promotes student involvement in the formation and completion of school goals as a means of fostering self-determination (Kohler & Field, 2006). Both personal goal-setting and student development activities have been shown to promote academic, living, social, and occupational skills, as well as positive post-school outcomes (Blackorby & Wagner, 1996). Another fundamental component of transitional programming is the involvement of families, businesses, and communities in the planning and delivering of education and transition services (Kohler & Field, 2006). Through legislative support, transitional programming has become the new established orientation in education for students with ASD (Individuals With Disabilities Education Act [IDEA] Data, 2006).

Although transitional programs are the current standard in ASD education, they have not been without criticism. First, students with ASD are not always able to express their experiences, interests, and preferences, making personal goal setting difficult (Oregon Department of Education, 2003). In these cases, parent and teacher input is relied on to create student goals. If a teacher is not properly trained to access and formulate the student’s goals and parental input is minimal, the student can be underserved by the transitional program. A good transitional plan will include both short- and long-term goals, iden-
tify the necessary supports, and be very specific to the student's interests, abilities, and desires (Holtz et. al., 2006). However, parents and students may not be aware of the extent of control that they have in developing students' individualized education plan goals (Kohler & Field, 2006). Additionally, there is concern that some programs may over-prioritize future employment skills over literacy skills. Students with ASD often have a difficult time dealing with the multiplicity of meaning in language. For example, they have trouble grasping metaphor and how words such as "great," "awesome," "terrific," and "splendid" can all mean the same thing (Handlem & Harris, 2006). Therefore, some educators assert, students might be better served by a curriculum that focuses on daily communication skills as opposed to job obtainment.

CHALLENGES IN EVALUATION

For several reasons, evaluations of transitional programming in ASD education have rarely appeared in the research literature to date. First, transitional curriculum has emerged largely as a result of recent amendments to the Individuals With Disabilities Education Act (IDEA), leading to an almost overnight widespread adoption of transitional programming (Kohler & Field, 2006). Second, aspects of traditional and transitional programming have been a key concern of a larger debate on the comparative merits of inclusion versus separation of special education students. Researchers have often foregone study of traditional and transitional programming in order to focus on this more generalized topic. Third, only 9% of students with ASD attend specialty schools (IDEA Data, 2006). These specialty schools are more likely than typical public schools to use the terms traditional and transitional to describe their ASD-centered programs. Therefore, in an effort to partially address this gap in the empirical literature, the current study was aimed at evaluating the effectiveness of a school-based transitional program for students with ASD in comparison to a traditional scholastic curriculum.

The aforementioned literature supports the view that, although transitional programs are presently the favored curricula of the education system, both traditional curricula and transitional curricula may provide positive benefits to students with ASD. To determine the effectiveness of one particular transitional program for pupils with ASD, the current study employed a repeated measures, multiple baseline design across participants to examine changes in students' adaptive functioning, receptive vocabulary, and reading efficiency.

HYPOTHESES

First, it was hypothesized that given that the goal of transitional programming is the development of essential life skills, students' performance would increase significantly on a measure of adaptive functioning tasks after changing from a traditional to transitional curriculum. Second, because of the communication practice presented by life-skills experiences, students were expected to demonstrate significant growth in applied academic skill development, specifically the ability to read and pronounce words efficiently.

Finally, although not a formal hypothesis, receptive vocabulary scores were examined, with the expectation that they would not change significantly after the passage from a traditional to transitional curriculum. This was based on measures of receptive vocabulary having been shown to have high concurrent validity with such stable intelligence measures as the Wechsler Intelligence Scale for Children (WISC; Bell, Lassiter, Matthews & Hutchinson, 2001; Dunn & Dunn, 1981). These scores were assessed to ensure that receptive vocabulary did not decrease due to the reduction in literacy and language instruction associated with the curriculum change.

METHOD

PARTICIPANTS

The participants were 15 students from a private therapeutic day school for children ages 4 to 21 with ASD. Student demographic information is reported in Table 1. Fourteen of the students were diagnosed by the school assessment team with an ASD and received an autism classification. One student was diagnosed with an ASD unspecified and comorbid selective mutism. The Functional Emotional Assessment Scale (FEAS; Greenspan, DeGangi, & Wieder, 2001) was used to assess students' functioning levels prior to entering the transitional program. Students were classified as low-, moderate-, or high-functioning based on their FEAS-assessed attachment capabilities, communication skills, and symbolic emotional thinking abilities (Greenspan & Wieder, 2006).

MEASURES

Vineland Adaptive Behavioral Scales (VABS; Sparrow, Cicchetti, & Balla, 2005). The VABS is a parent-report measure of daily functioning and social skills in individuals with developmental disabilities. The VABS produces standard scores on five behavioral domains: communication, daily living skills, socialization, motor skills, and maladaptive behaviors. Based on these scores, the VABS
yields a standardized adaptive behavioral composite score. Research utilizing a large standardization sample found the internal consistency to range from .92 to .98 (M = .95) and 17-day test-retest reliability to range from .91 to .94 (M = .92) in various domains (Sparrow et al., 2005). The scale includes statements such as “Feeds self with spoon; may spill.” Parents can rate the behavior as usually or habitually performed (a score of 2), sometimes or partly performed (1), or never performed (0). Additionally, parents can note when the child has never had an opportunity to perform a particular activity, or if they are unaware if the child has ever performed a particular activity.

Peabody Picture Vocabulary Test (PPVT). The PPVT is a 144-item measure that assesses receptive vocabulary performance (Dunn & Dunn, 1981). It had an average test-retest reliability of .93 over intervals ranging from 8 to 203 days between testing (Dunn & Dunn, 1981). For each item, the assessor states a word that relates to one of four pictures on a page, for instance, “chimney,” and asks the child to point to or say the number of the picture that the word describes. A standardized score is assigned based on the test-taker’s age, grade level, and number of correctly identified responses.

Test of Word Reading Efficiency (TOWRE). The TOWRE measures a child’s ability to pronounce printed words accurately and fluently (Torgesen, Wagner, & Rashotte, 1997). It consists of two subtests that measure sight word efficiency (identification) and phonetic decoding efficiency (pronunciation). The sight word efficiency subset contains 88 items, whereas the phonetic decoding efficiency subset contains 66 items. Test results are standardized to create two subscores, a sight word efficiency (SW) subscore, which measures the number of real printed words that can be accurately identified within 45 seconds, and a phonetic decoding/nonsense word efficiency (NS) subscore, which measures the number of pronounceable, printed nonwords that can be accurately decoded within 45 seconds (Torgeson et al., 1997). The average test–retest reliability for the measure was .87 over 14 days (Torgeson et al., 1997).
PROCEDURE

The study received Institutional Review Board (IRB) approval from Fordham University. All parents gave signed consent for researchers to have access to students’ archival VABS, PPVT, and TOWRE assessment data. Data from three classrooms were analyzed: one transitional classroom that was created in 2009 by placing the highest functioning adolescent students (based on the FEAS) in one classroom, and two traditional classrooms that were converted into transitional classrooms in 2010 and 2011, respectively. The students were assessed both before and after they moved from traditional to transitional classrooms, and the results were compared.

The traditional and transitional classrooms received identical types of literacy and math instruction. More specifically, literacy instruction focused on reading poems, songs, fairy tales, plays, and nonfiction, with the goals of increasing students’ comprehension, fluency, and word recognition. Math instruction focused on the comprehension of money, time and space, number sense, and measurement. The transitional program differed from traditional program classrooms in several ways. First, the transitional program featured three weekly, individualized transitional lessons for each student. These lessons included grocery shopping, doing laundry, monitoring hygiene supplies, working on mapping and public transportation, and budgeting restaurant experiences. Second, the transitional classes went on regular community outings that included exposure to the above experiences. Last, to compensate for these added activities, the 6 hours per week on math instruction and the 6 hours per week on literacy instruction was reduced to 3 hours each. This provided 6 hours per week for individualized transitions lessons and community outings.

Archival VABS, PPVT, and TOWRE data over the course of 3 years were used to determine the effect of transitional education on students’ adaptive functioning, receptive vocabulary, and reading efficiency. VABS interviews were completed at the school by the students’ parents. School faculty orally administered both the PPVT and TOWRE to students. Data were analyzed for only those students for whom both pre- and post-transition assessments had been conducted on at least one test measure, resulting in a sample size of 15 (five in each of the three classrooms) for analysis.

RESULTS

Figure 1 presents the changes in students’ scores on the VABS, PPVT, and TOWRE from pre- to post-transition. Visual inspection suggests little change in adaptive func-
tioning (VABS) and receptive vocabulary (PPVT) scores but considerable increases in reading efficiency (TOWRE-SW and TOWRE-NS) scores.

To further examine the change process, a series of statistical analyses were conducted. First, a one-way between-groups analysis of variance (ANOVA) was conducted to compare the effect of program year of entry on the VABS, PPVT, TOWRE (SW), and TOWRE (NS) traditional curriculum scores. There was a significant effect of year of entry for VABS test scores, $F(2, 9) = 5.57$, $p < .05$. Post-hoc Tukey comparisons could not be conducted because of small sample sizes, but the VABS scores for the first (i.e., 2009) group, $M = 60.50$, $SD = 10.61$, and second (i.e., 2010) group, $M = 64.00$ ($SD$ not calculable because $n = 1$), appeared higher than that of the third (i.e., 2011) group, $M = 51.20$, $SD = 2.58$. These results suggest that students who transitioned in 2009 and 2010 had higher traditional (i.e., pre-transitional) adaptive functioning than did the 2011 group.

Next, a two-way between-group analysis of covariance (ANCOVA) compared post-test differences by year of entry for all students for whom there were the requisite data points, with the contribution of pre-test score as the covariate. VABS results were not significant, $F(3, 1) = 2.32$, $p = .22$. For the PPVT, the ANCOVA was significant, $F(3, 1) = 8.21$, $p < .15$. Post-hoc comparisons indicated a significantly higher score for the 2009 group than for the 2010 group, $p < .002$. For the TOWRE-SW, the ANCOVA was significant, $F(3, 1) = 48.46$, $p < .001$. The 2009 group’s score was significantly higher than both the 2010 group’s score, $p < .05$, and the 2011 group’s score, $p < .01$. The 2010 group scored significantly higher than the 2011 group, $p < .05$. For the TOWRE-NS, the ANCOVA was significant, $F(2, 1) = 46.70$, $p < .001$. The 2009 group scored significantly higher than the 2010 group, $p < .01$. No students were assessed on the TOWRE-NS for the 2011 transition group because no students completed the NS portion of the assessment for both the traditional and transitional administrations during that year.

Paired-samples $t$ tests compared individual test score differences between traditional and transitional programing for all students for whom there were requisite data points. (These are the analyses most relevant to Figure 1.) There was a significant difference in scores between TOWRE (SW) traditional, $M = 46.00$, $SD = 14.63$, and TOWRE (SW) transitional, $M = 89.44$, $SD = 29.95$, test administrations, $t(8) = -5.48$, $p < .001$, with higher transitional than traditional scores. There was also a significant difference in scores between TOWRE (NS) traditional, $M = 48.44$, $SD = 26.95$, and TOWRE (NS) transitional, $M = 94.67$, $SD = 22.43$, test administrations, $t(8) = -11.11$, $p < .001$, with higher transitional than traditional scores. These results suggest that students had a notable increase in their reading efficiency scores after receiving the transitional curriculum, although Figure 1 indicates that that this gain was more consistent for sight words than nonsense words. $t$ tests comparing traditional and transitional scores on the VABS and PPVT were not significant.

**DISCUSSION**

The study’s results supported one of the two hypotheses. The first hypothesis, which was not supported, was that students in the transitional classroom would demonstrate improvements on adaptive functioning (i.e., life skills) tasks, as assessed by the VABS. Considering the school’s emphasis on life skills training in its transitional program, it was surprising that the VABS scores failed to significantly increase. This finding may reflect differences in how the school and the VABS operationalize life skills. Additionally, the transitional curriculum may not provide skills training that translates into higher scores on the VABS in that the three weekly, individualized transitional lessons for each student—a keystone of the transitional curriculum—may be teaching skills that are too specific to be validly evaluated by the VABS. Alternatively, the present results may reflect shortcomings in this school’s transitional curriculum, with the program not properly reinforcing appropriate life skills as it intends. If this is the case, individual skill deficits as assessed by the VABS may be used to tailor the transitional curriculum to better serve students’ life-skill needs.

The second hypothesis was that students would demonstrate significant growth in applied academic skill development, specifically, the ability to read and pronounce words. Reading efficiency (i.e., TOWRE) scores generally increased following the introduction of the transitional curriculum, most consistently for sight word efficiency but also for phonetic decoding efficiency (i.e., nonsense words). One possible explanation for this is that participation in an increased number of life-skills events may result in students more readily acquiring the correct pronunciations of words, especially actual words. By hearing and practicing pronunciations used in context, the students may have more readily and organically picked up on the underlying phonetic rules behind language than they would have through reading exercises in a traditional curriculum. The findings on the TOWRE can be viewed as reassuring in that they indicate that switching to a transitional curriculum need not result in a falling off of academic growth.

As noted above, receptive vocabulary PPVT scores were also assessed. These did not significantly change follow-
This study was not without its limitations. The first was that the total sample size of 15 was relatively small for comparing differences in student assessment scores. Because of the study's longitudinal design, participation was limited by factors such as students graduating or transferring from the school over the course of 3 years or not being administered a particular measure either pre- or post-transition, due to various factors (e.g., unavailability of a parent to complete the VABS). However, the number of participants was still relatively high when compared to the number of participants typical in ASD-related educational research (e.g., Steiner, 2010).

A second limitation was that the researchers were unable to access students’ IQ score data. Access to such data might have allowed for control of the contribution of cognitive aptitude to performance on various measures. For instance, Oliveras-Rentas, Kenworthy, Roberson, Martin, and Wallace (2011) found WISC processing speed scores to be related to communication abilities in students with ASD. Analogously, in the current study, certain component cognitive ability scores (e.g., reasoning and comprehension) might have helped account for receptive verbal and reading efficiency scores.

A third limitation was the lack of a randomized control group to compare changes in students’ assessment scores after receiving the transitional curriculum. The first group of students were selected and placed into the first transitional group due to their relatively high functional emotional assessment scores. In keeping with the school’s mandate to provide the best possible educational care to students, it would have been unethical to prevent students from receiving life-skills training because of program evaluation demands. It should be noted, however, that due to the rapid adoption of transitional programming, finding a school that utilizes both traditional and transitional approaches to education is rare. As such, this study represented an exceptional opportunity to evaluate changes in students’ performance. Additionally, the repeated measures, multiple baseline design across participants employed here is one that is frequently used when randomization is not possible (Huynh & Mandeville, 1979).

The present research appears to be the first to evaluate changes in students’ progress following conversion from a traditional to a transitional ASD curriculum. Given the archival nature of the current investigation, future research in this area might profitably examine changes in students’ skills more systematically and regularly than was possible in the present study, as well as with measures chosen collaboratively by both the researchers and the educational facility.

Another area for further study is program differences in goal completion. As part of the special education system’s individualized education program, all students in special education schools set individualized goals at the beginning of the school year and are tracked on their progress toward achieving these goals (U.S. Department of Education, 2000). In their initial conception of this study, the present researchers wanted to examine differences in the types of goals created by traditional versus transitional education students. Unfortunately, time and access constraints prevented the researchers from doing so. Future studies, therefore, might profitably investigate the goal setting and goal completion behavior of students enrolled in traditional and transitional programs. If possible, assessment testing should occur at regular intervals to best evaluate the effectiveness of curricular changes.

Future research may also benefit from replicating this study with a more heterogeneous sample of participants. There was a high percentage of participants (53.3%) who were low functioning, as categorized by the FEAS (see Table 1). As students who are lower-functioning tend to have a more difficult time than higher-functioning students developing new life skills, it is likely that these students might have been limited in their capacity for growth on the VABS, PPVT, and TOWRE. Additionally, the students participating in this study were 13 years of age or older and had received traditional education for many years prior to the transitional intervention. Future studies could benefit from employing a younger sample that has one having less prior exposure to a traditional education curriculum.

In summary, the present findings provide preliminary support for the positive impact of a transitional curriculum while raising a number of questions for additional research. Although the change to a transitional curriculum was not associated with improvement in adaptive functioning as expected, it was associated with applied academic skill development, specifically the ability to read and pronounce words. It is hoped that further investigation will build upon the current exploratory study in order to elucidate the strengths and weaknesses of transitional curricula and to provide recommendations for their further refinement and development.
REFERENCES


Amy Rose Gembara, is a double major in classical language (primarily Latin) and English with a double minor in medieval studies and theology. In her sophomore year, she began working with Dr. Susanne Hafner with a codicology project studying manuscripts containing the Venerable Bede’s De Natura Rerum. She presented her findings at Longwood University’s Undergraduate Research Conference in Medieval Studies, “Where the Wild Things Are?” in April 2013. Recently, she was accepted into the Jesuit Volunteer Corps and hopes to have a domestic placement within the ministry of education. After a year of service, she plans to attend graduate school, possibly for Theological Studies.

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Amy Rose Gembara, FCRH ’14
Abstract

De Natura Rerum, or On the Nature of Things, is a book on natural occurrences within the universe including weather patterns. The DNR genre began with Lucretius, a Roman poet and philosopher who wrote the first version of this text in his epic poem De Rerum Natura. During the Medieval period, Church Fathers like Isidore of Seville modified Lucretius’ version to explain how the weather works and coordinated it with the ecclesiastical calendar. Bede modified his book from Isidore’s version for an educational manual, and included definitions for topics like rain, hail, and snow. The strategic insertion of relevant non-Bede material within this particular manuscript confirms what other scholars have found about this text, including the intention for educational purposes. The discovery of specific Isidore of Seville and Symphosius passages within the Bede material is unique because no one else has located these exact passages, or connected the three authors before. I will confirm the scholarship on Bede’s De Natura Rerum as an educational manual through my discovery of strategic insertion of relevant non-Bede material in MS Reg. Lat. 123 which currently resides in the Biblioteca Apostolica Vaticana.

SCHOLARS HAVE BEEN INTERESTED in the De Natura Rerum (DNR) genre since Lucretius, a Roman poet who wrote a poem, De Rerum Natura, describing how the universe functioned. Isidore of Seville, a Church Father, wrote a book, De Natura Rerum, with definitions of natural phenomena such as wind and clouds, based on Lucretius’ poem; however, he compiled the information based on scientific knowledge and his own observations. Another Church Father, the Venerable Bede, knew Isidore’s DNR, and revised it to include new information on nature. Bede’s version is well organized and reads like a scientific anthology including definitions, charts, and lists on the occurrence of weather based on the liturgical calendar. The natural occurrence that this project ensued was the chapter entitled “De Grandine” or “On Hail.” The most distinctive finding of all the research on DNR and the “De Grandine” chapter was Manuscript Reginus Latinus 123 (MS Reg. Lat.123) from the Vatican Library. No one has previously commented on the relevance of the additional material containing three authors’ texts working together within this particular manuscript: Bede, Isidore, and Symphosius. The additional components within this Catalan manuscript make it special among the other Bede manuscripts because the connection of all three authors and texts creates a useful educational manual. In this paper, I will confirm scholarship on Bede’s De Natura Rerum as an educational manual through an analysis of this strategic insertion of relevant non-Bede material in MS Reg. Lat. 123.

BACKGROUND ON BEDE, ISIDORE, AND SYMPHOSIUS

Bede, or the Venerable Bede, was a well-known monk in Anglo-Saxon England from the Wearmouth-Jarrow monastery in Northumbria. He lived from about 672-735 CE and is one of the greatest historians and Doctors of the Church. Bede is famous for his Historia Ecclesiastica Gentis Anglorum (The Ecclesiastical History of the English People), but he wrote a number of other scholarly pieces including theological, historical, and scientific works. He began writing his compositions around 700 CE, and De Natura Rerum (On the Nature of Things), written around 703 CE, was one of the first. Bede received inspiration from Isidore of Seville’s De Natura Rerum to write his work, so there are cross-references throughout the manuscript.

Bede had two purposes for writing DNR: “to refute the superstition by setting forth rational explanations of the nature of the universe in general and its more awe-inspiring spectacles in particular (eclipses, earthquakes, thunder and lightning)” and “to foster the pious admiration for the beauty and order of the world.” Bede wrote this work to revise Isidore’s version, which was the first Christian document of reason on natural phenomena based on the Roman poet and philosopher Lucretius’s epic poem De Rerum Natura. When comparing excerpts from both Isidore’s and Bede’s DNR texts, it is clear that Bede drastically expands and revises the material. According to Kendall and Wallis, not only is Bede’s DNR a revision of the others, but his may have been modified for teaching purposes. Bede’s didactic dialogues support the claim that DNR was a teaching manual.³

A close reading of De Natura Rerum makes it clear that there is a particular order to the evidence presented. Isidore presents the material as definitions without labels. Bede organizes and divides the content in a similar order to Isidore’s but with lists of chapters and titles. Scribes following Bede copied the material in a similar fashion.⁴ Since the DNR genre gives a rational explanation of natural phenomena, many modern scholars recognize it as a schoolbook or a didactic manual.⁵ Isidore’s version was the first Christian interpretation of the natural phenomena and circulated in three recensions. The first included
forty-six chapters and held an astronomical poem by King Sisebut, the second added a forty-seventh chapter, “De Partibus Terrae,” and kept the poem, and the third added new material to the first chapter and a new forty-fourth chapter, “De Nominibus Maris et Fluminum.” The astronomical poem was kept out of the third recension. Bede modified the second recension, making it more ecclesiastical and organized; his version included a technical explanation of the solar and lunar calendars, explaining the configuration of the date for Easter. Even though Bede heavily relied on Isidore for his own compilation, he only credits Isidore three times.

Scholars Calvin Kendall and Faith Wallis discuss the reception of Bede's DNR and how glossing and excerpting of the manuscript peaked during the ninth century. According to them, “excerpting digests a text by selecting elements deemed particularly useful or pertinent, while glossing amplifies the impact of a text not only by explaining it, but also by linking it to other contexts, such as religious symbolism.” The practice of glossing and excerpting Bede's manuscript continued even into the eleventh and twelfth centuries and was used in the making of MS Reg. Lat. 123. Kendall and Wallis say that this manuscript, written in 1056 CE in the Vatican City and inspired by Carolingian models, was Abbot Oliva of Ripoll's “encyclopedia of computus, cosmology, and astronomy in four books...with extracts from Hyginus, Isidore, Pliny, and others.” This confirms the insertion of additional material to link everything together for teaching purposes.

Even though scholars have known of Isidore's influences on Bede, there is very little information about the appearance of Symphosius within the text, making this Catalan manuscript unique. The riddles are attributed to the Latin riddle writer Symphosius. There is not much information on who Symphosius was, other than his name. Scholars know that he wrote an anthology of about one hundred enigmas, or riddles, around the fourth or fifth century CE. There are manuscripts containing the one hundred riddles, or Aenigmata; however, the ninety-sixth poem is missing from them. Some people have attempted to recreate this missing riddle, but the original is lost. Scholar Raymond T. Ohl found that Symphosius's writing style inspired poets and authors during the Middle Ages. The most insight he gathered about the purpose of writing the riddles comes from Symphosius's preface. The seventeen-line preface suggests that Symphosius crafted the riddles for a celebration of Saturn's festival. The Riddles engaged the party guests in a contest. Symphosius warns the reader of his poems: “Da veniam, lector, quod non sapit ebría Musa” (Pardon, reader, the indiscretions of a tipsy Muse). Even though there are not many resources on Symphosius, there is enough information to understand some valuable information about his riddles.

Each poem consists of three hexameter lines. Ohl comments on how Symphosius's prosody, or pattern of rhythm and sound, exemplifies his cleverness, especially with his use of rhetorical devices including assonance and rhyme. Symphosius is a “master of alliteration and word play as well.” The poems are most likely pagan and discuss a wide range of themes including animals, plants, food, personal items, tools, and structures like buildings. The material that is most relevant to the Bede manuscript is the riddles on natural phenomena—clouds, rain, and snow.

Another scholar who writes on Symphosius's riddles is Sister M. Charlotte Bonneville. She derives her information from Ohl's work, giving a similar depiction of the riddles. She adds, however, that poets during the Middle Ages followed Symphosius's style, and that the riddles appear within other texts such as Alcuin's Disputatio inter Pippinum et Alcuinum, the Anglo-Saxon riddles of the Exeter Book, and Aldhelm of Malesbury's Epistola ad Acircium or Liber de Septenario et de Metris. Bonneville says that there are approximately five of Symphosius's riddles appearing in Bede's ascetical writings, but there is no detail as to which ones or how they were changed. She finds this information from the Patrologia Latina, a collection of the Church Fathers and ecclesiastical writers published around the nineteenth century CE. She also explains that Aldhelm, the most well-known Latin riddle poet after Symphosius, includes some of Symphosius's riddles in his own book of riddles. So even though Bonneville was aware of Symphosius's riddles appearing in Bede's ascetical writings, she did not know where or which specific riddles were in the texts. The findings of this project are unique because they identify three of Symphosius's riddles within Bede's De Natura Rerum in MS Reg. Lat. 123. The next section of this article will provide details about the specific texts found within the manuscript.

THE MANUSCRIPT: MS REG. LAT. 123

Manuscript Reginus Latinus 123 is in scholar Charles W. Jones's list of manuscripts of Bede's De Natura Rerum. To compare the manuscripts, they first had to be located, and once one became accessible, the next steps were to transcribe and translate Bede's chapter "De Grandine" from each one. After all the necessary information was gathered, vocabulary, grammar, and syntax needed to be compared. Most of them were consistent with slight variations due to the location of the manuscript's production, except for MS Reg. Lat. 123. This manuscript is available to view as a microfilm at Saint Louis University’s Vatican Film...
According to a comment in the margin of folio 118', the manuscript was written “in a beautiful regular writing” around 1056 CE, and came from Santa Maria de Ripoll, a monastery in Catalonia, Spain. The manuscript contains four books on natural science, including one by Bede's forerunner, Isidore of Seville. The entire text of Bede's *De Natura Rerum* is included in the manuscript, with the majority in Book III. The manuscript also contains three texts from Isidore of Seville and three of Symphosius's riddles that corresponded with three chapters of the Bede manuscript. It is 362 mm by 280 mm on parchment from the eleventh century. It is 223 folios with folios 143, 144', and 151' blank.

It is not clear who collected some of this information, but it is attributed to the monk Oliva in the eleventh century, who wrote two letters copied to f. 126-126'. Scholar Richard W. Southern's book on Church history, *The Making of the Middle Ages*, mentions the lineage of the Counts from Catalonia, Spain. He says that Oliba, (or Oliva), son of the Count, was the Bishop of Vich and Abbot of Ripoll and Cuxa. As Abbot of Ripoll, Oliva was in charge of a great family monastery and library. Oliva visited Rome and brought back a Papal privilege that authorized some additions to the monastic services. Oliva was not a scholar himself, but he supported education and conversed with scholars. Southern's account does not mention anything about the manuscript, but it states that Oliva kept a center for learning and scholars.

After carefully looking through the entire manuscript, it appears that the first folio is missing a signature and that the last page is missing. A table of contents appears at the beginning of the manuscript, giving some detailed descriptions of the material within it, including images that supplement the text and missing folios. The most useful table that appears within the manuscript appears on f. 127' listing the content within *De Natura Rerum*, and includes Isidore, Pliny and other classical authors appearing within the text. Other interesting finds include folios 143v-144 and 164-205, which have sketches and color drawings illustrating the text.

Les Manuscrits Classiques Latins de la Bibliothèque Vaticane, a catalogue about the manuscript, lists the possessors of this manuscript: “The Abbey of St. Victor of Marseille since the eleventh century or the twelfth century until the sixteenth century. After the notes of the registered chronicle in the margins of ff. 111'-125' possibly Nicolas Claude Fabri de Peiresc (1580-1637) who registered the notes in the margins of ff. 2, 45, 48, 112, 120-120', 223', and made a copy; Queen Christina of Sweden (corresponds to number 484 in the catalog of Montfaucon).” Queen Christina is one of the last noted possessors of the manuscript before the Vatican obtained it. She gave her entire library as a gift to the Pope. This is how the *Bibliotheca Apostolica Vaticana*, or the Vatican Library, has possession of it now.

The third book of *De Natura Rerum* does not begin until f. 127', which has a table of contents listing the texts within each chapter. The content begins with “incipit capitula liber III De Natura Rerum” (Here begin chapters book III of De Natura Rerum). Chapter XXI, “De Pluviis;” Chapter XXII, “De Grandine;” and Chapter XXIII, “De Nive;” all contain Isidore, Bede, and Symphosius.

The pattern of the same three authors remains constant only in these three chapters within the entire manuscript. There are no other riddles like Symphosius’s within the manuscript either. Folios 135' and 136' are the only pages within the manuscript where Isidore, Bede, and Symphosius are connected. The scribe of this manuscript, presumably under Abbess Oliva's instruction, must have studied numerous authors. He most likely made the connection between Isidore, Bede, and Symphosius, linking all of their similar works together. The additional texts to this predominately Bede manuscript were clearly placed there on purpose for a teaching manual or anthology. The insertion of the definition and scientific explanation and the drawing of everything together with a puzzling riddle form the perfect technique for teaching students or scholars about natural phenomena because they provide all the available information on a given topic in one book. If a student needed to look something up, he could easily find the information in the table of contents and view it. This allowed for more personal use of books, allowing people to read and learn at their own pace.

**FINDINGS**

The first sign that there is something different about this manuscript is the difference in Bede's XXII chapter “De Grandine” (“On Hail.”) The text appearing on f. 136' is introduced by “IS De Grandine XXII” meaning that Isidore's chapter on hail appears first. The first few lines appear below, followed by the translation.

*Simile quoque ratione grandinum coagulatio fit; aquae enim nubium rigore ventorum stringuntur in glaciem atque durescunt. Dehinc glacies ipsa partim fragore ventorum comminuta in fragmine partim solis vapore resulitatis ad terras elabitur.* Quod autem rotunda videtur hoc solis calor facit et mora refrenantis aeris dum per longum spatium a nubibus usque ad terras decurrunt. Figuraliter autem grando perfidiae duri torpore malitiae frigida: nix autem homines increduli sunt frigidi atque pigri et infima.
Indeed, the table of contents located on f. 127r correctly indicates the mistake in the folio 135v, as the scribe corrected the error indicating the page number as 135⁵ rather than 135⁴. However, the scribe did not correct the word “civius” for “ciccius” and “conglaciati” for “conglatzati” in the manuscripts’ “De Grandine” chapters, this one has slight differences in spelling: “conglaciati” instead of “conglatzati,” although the scribe makes a correction indicating the “quam” directly above the mistake.

The material from three of Symphosius’s riddles occur in a particular manner. Symphosius’s riddle nine, “Pluvia” (“Rain”), follows the Isidore and Bede chapter twenty-one, “De Pluviis,” also the “rain” chapter. Riddle ten, “Glacies” (“Ice”), follows the Isidore and Bede material in chapter twenty-two, “De Grandine” or “On Hail.” Riddle eleven, “Nix” (“Snow”), appears within the Isidore and Bede chapter twenty-three, “De Nive” or “On Snow.” And indeed, the table of contents located on f. 127⁷ correctly states that Symphosius’s riddles occur in chapters twenty-one, twenty-two, and twenty-three of De Natura Rerum. These are the only three Symphosius riddles that coincide with Bede’s material and are intentionally placed in this text.

The first Symphosius riddle discovered in this manuscript follows Bede’s definition of hail. It is Symphosius’s riddle ten, “Glacies,” marked by what appears to be Simph in the margin. The riddle reads:

Unda fui quondam, quod me cito credo futuram
Nunc rigidi caeli duris conexa catenis
Nec calcata pati possum nec nuda teneri.

(Water was I once, which quick methinks I’ll be. Now by unbending heaven’s harsh chains bound, when trod upon I cannot last nor when bare be held.)

Isidore, Bede, and Symphosius appear together in Chapters XXI, XXII, and XXIII as well. Chapter XXI begins on folio 135⁵ with IS De Pluviis XXI, continuing with Isidore’s text, then Bede’s description is marked by Bed ut supra in the margin. The final marking on f. 135⁶ is Simphosius. The text following this marking is Symphosius’s riddle IX, “Pluvia” (“Rain”).

Ex alto venio longa delapsa ruina;
De caelo cecidi medias dimissas per auras,
Excipit ecce sinus, qui me simul ipse recipit.

(From on high I come in prolonged downpour fallen; from heaven I have dropped, passed through mid-air; but earth’s bosom has taken me in, as soon as it has retaken me.)

The material that follows both the chapters on rain and hail begins “Bed De Nive XXIII,” starting with Bede’s description of snow. Then “Is Ut Supra” appears in the text, indicating that Isidore’s text on snow begins. Then Symphosius’s chapter XI, “Nix,” appears with a simple raised dot and no text to indicate the beginning of the riddle:

Pulvis aequae tenuis modico cum pondere lapsus,
Sole madens, aestate fluens, in frigore siccus,
Flumina facturus totas prius occupo terras.

(Light dust of water fallen with moderate weight, dripping in the sunlight, fluid in the summer heat, dry in the cold, I, who will make rivers, first occupy whole lands.)

Symphosius’s riddles appear after each scientific definition of their respective natural occurrence and are very poetical in comparison to the useful information provided by Bede and Isidore. Rhetorically speaking, a riddle can be a puzzling statement implying the knowledge of its
subject. So the insertion of Symphosius’s riddles serves as an entertaining but memorable way to remember the material presented. The remainder of the DNR text continues with Bede and some of Isidore’s passages as well.

**CONCLUSION**

No other versions of Bede’s *De Natura Rerum* observed during this research included insertions of multiple authors in this way. The location of three of Symphosius’s consecutive riddles that aligned with three of Bede’s chapters in *DNR* is an important addition to research on the DNR genre. The insertion of these three authors and the way the material is presented suggests that the scribe saw a correspondence between each of the authors’ works. The scribe of this manuscript must have had knowledge of Isidore as well as Symphosius’s riddles in order to interpolate the material into this predominately Bede manuscript. The format resembles an anthology or textbook containing several descriptions of the topic, concluding with a riddle in order to further explore the material. Knowing that Bede and Isidore were used for educational purposes, and seeing that Symphosius’s riddles make sense as an addition to the Bede and Isidore material, the purpose of this manuscript was most likely some sort of textbook or didactic manual. Not only could students develop a better understanding of the material because the text includes various interpretations of each subject, but the material is all available in one location, making it easier to read.

**ENDNOTES**

2. Ibid, 2.
3. Ibid.
5. Ibid, 16.
7. Ibid, 12.
10. Ibid, 41.
13. Ohl, “Symphosius and the Latin Riddle,” 211. According to Ohl, Symphosius’s most effective device is a third-line wordplay on compounds of the same verb.
16. The head librarian, Dr. Susan L’Engle, assisted me with viewing the microfilm of Reg. Lat. 123 and about 10 other microfilms of Bede’s manuscripts originally found at the Biblioteca Apostolica Vaticana.
20. This is my own English translation of the text from the manuscript.
21. This is my own transcription and translation of the text from the manuscript.
22. Ohl, The Enigmas of Symphosius, 43.
23. Ibid.
24. Ibid, 45.
RIFE WITH PROVOCATIVE IMAGES of death and destruction, Inger Christensen’s *Alphabet* is a call to action against the apocalyptic potential of nuclear weapons. Warning mankind against impending danger, *Alphabet* exposes the reality of a nuclear holocaust that threatens humanity with ecological devastation and human suffering. To describe these horrors, Christensen establishes a factual basis from the usage of nuclear weapons on Japan at the end of World War II. Concurrently, an alphabetically ordered progression using Fibonacci’s sequence amplifies the length of each subsequent passage, giving readers more and more insight into the unending horrors of a nuclear holocaust. Finally, Christensen combines her mathematically regulated structure and factual basis to thematically reveal nature’s vulnerability, the permanent effect of its loss, and the future of nature.

Although Christensen effectively develops *Alphabet’s* theme of nature’s susceptibility, she does not adequately highlight the source of her concern over present fears of a nuclear holocaust. Christensen composed *Alphabet* during the Cold War, but she does not directly reference this time period. However, if Christensen’s angst emanates from a tangible event, then the poetic depictions outlined in *Alphabet* find a substantive home in reality.

Fundamentally, *Alphabet* addresses the destructive effects of a nuclear war. For Inger Christensen and her generation, the use of nuclear weapons on Japan at the end of World War II created a lasting impression of horrific devastation. Subsequently, a global anxiety arose over the possibility of nuclear war between the United States and the Soviet Union during the Cold War. Commenting on the relevance of this situation in Christensen’s time, Susanna Nied, who translated *Alphabet* into English, states, “Inger and I were both part of the first generation to grow up under the threat of nuclear war.” Even at the time of *Alphabet’s* translation to English in 2001, the potential for nuclear holocaust maintains its relevance in today’s world with the abundance of nuclear weapons retained by the world’s major countries. Therefore, a global nuclear holocaust is a potential nightmare that remains as much of an issue today as it was at the end of World War II.

As a basis for her poetic interpretation of a nuclear holocaust, Christensen cites the devastating aftermath of the bombings in Japan and the post-World War II nuclear weaponry tests that occurred. In *Alphabet*, Christensen grabs the reader’s attention with figures of the dead: “140,000 dead and / wounded in Hiroshima / some 60,000 dead and / wounded in Nagasaki” (24). Additionally, she goes a step further in detailing the advancements made in nuclear weaponry at the cost of a Pacific island, named Eniwetok: “The cruel experiments / that the Teller group / performed on / Eniwetok…” (31). At the same time, Christensen establishes a systemic structure to better convey her message.

Coupled with the factual effects of nuclear weapons, Christensen employs a mathematical series called Fibonacci’s sequence to maintain the structure of her book. Nied’s note in the opening of the book details the rule behind this system: “The length of each section of Inger Christensen’s *Alphabet*, is based on Fibonacci’s sequence, a mathematical sequence beginning 0, 1, 1, 2, 3, 5, 8, 13, 21…, in which each number is the sum of the two previ-
ous numbers” (7). Therefore, each subsequent section in *Alphabet* becomes larger with more lines and sentences. At the same time, the progression from section to section coincides with the order of the alphabet whereby the first section starts with the letter A and proceeds accordingly. Therefore, the reader is given more understanding of a nuclear holocaust as Christensen’s scenario continuously expands and amplifies to demonstrate *Alphabet’s* themes. According to Margalit Fox of *The New York Times*, Christensen was “concerned with large questions of love, decay, death, and mankind’s relationship to the natural world.”

To introduce her vision of nature, Christensen presents the relationship between nature and the man-made destructive forces that latently exist alongside it. Opening *Alphabet* is a single line that immediately draws focus onto Christensen’s view of nature: “Apricot trees exist, apricot trees exist” (11). While initially limited, the progressing sections of *Alphabet* contextually sharpen and reveal Christensen’s view of nature to have an ecological focus: “Cicadas exist; chicory... / citrus trees; cicadas exist” (13). Moving forward, Christensen uses these ecological precedents to convey the significance of nature’s beauty in its ecology: “The bat’s ears of jade / turned towards the ticking haze; / never has the tilting of the planet been so pleasant” (22). While depicting the presence of nature and its ecological beauty, Christensen constructs her vision with images of benign but ecologically destructive forces such as hydrogen and bromine: “Bracken exists; and blackberries, blackberries; / bromine exists; and hydrogen, hydrogen” (12). As a result of the depiction of nature and potentially destructive forces present in the same space, nature is portrayed in a vulnerable state of existence. More importantly, Christensen thematically portrays the fragility of nature to convey the influence mankind has on its condition.

After establishing the connection between nature and the ecologically destructive forces that threaten it, Christensen unveils the ecological and human loss resulting from the destruction of nuclear war. To present these major impacts, Christensen suddenly throws the reader into a scenario following the factual precedent of the nuclear holocaust experienced by post-war Japan. Through introducing the reader to the resulting ecological destruction, she begins to reveal her vision of nuclear holocaust: “People, livestock, dogs exist, are vanishing; / tomatoes, olives vanishing, the brownish...” (26). In the same way that a nuclear explosion annihilates everything in its path, Christensen portrays an ecologically dire situation with the disappearance of natural images. Moreover, nature’s rapid decline influences not only its own existence, but also the condition of humanity. Christensen thematically portrays the degradation of humanity with images of lost memories and traditions: “It is here in a worn-down province / where no citrus trees bloom / where swallows do not even come...” (37). In showing the loss of nature and its ecology, Christensen also conveys to the reader its detrimental effect on humanity. Through post-apocalyptic imagery, she shows that nuclear war results not only in a loss of nature but also in a permanent degeneration of the human condition.

Ultimately, Christensen uses the increasing volume of each progressing section to signify the continuance of nature into the future despite the indelible mark of nuclear war. Marcus Williamson of *The Independent* describes the presence of Fibonacci’s sequence in *Alphabet* as “representing growth in nature.” Because the rule of Fibonacci’s sequence stipulates that no governing limits exist for it, the numbers will increase to infinity. Even though Christensen ends the book, the size of each section in *Alphabet* will theoretically increase without end, symbolizing endurance into the future.

However, Christensen’s fears over the future of nature and humanity are not explicitly stated in *Alphabet*. Christensen’s motives for its publication drew influence from the Cold War: “The Cold War years were, as Inger once said, ‘very cold indeed. There was not only a sense of impending nuclear holocaust, but also this inexorable proliferation of nuclear pollution...’” (Nied). Even though Christensen’s fears derive from the Cold War, she does not allude to it in *Alphabet*. Nonetheless, if her concerns are valid and a nuclear holocaust occurs, various catastrophic implications will befall nature and humanity.

**REFERENCES**


Detailing his expedition into a heavenly world after suffering a near death experience from a virulent strain of bacterial meningitis, Dr. Eben Alexander argues for a spiritually fulfilling existence beyond death through an omnipotent deity in *Proof of Heaven*. In developing his claim to have experienced divine philosophical nourishment, Alexander chronologically recounts three key points to his claim. First, Alexander asserts the presence of higher or distant ethereal worlds. Second, he posits that the physical human brain blocks perception of higher worlds. Third, according to Alexander’s patient data collected during his near death experience, his neocortex, or physical brain, was paralyzed. To that end, Alexander concludes that because his neocortex was immobilized from meningitis, he was able to perceive a higher world and thus encounter a satisfying metaphysical deity.

Evaluation of Alexander’s claim yields consistency and reason but also a compelling dilemma. Particularly, Alexander’s qualitative account of a higher world coupled with its consistency in paralleling other past accounts bolsters his first point. Consequently, his second point follows through sensible rationale. Finally, if sufficient empirical evidence were present, it would corroborate Alexander’s third point that his neocortex was debilitated. However, while Alexander’s well-described explanation of his experience along with consistency with other accounts of metaphysical encounters and robust acumen support his point that the neocortex bars awareness of higher worlds, *Proof of Heaven* does not present sufficient empirical evidence to buttress the disablement of Alexander’s neocortex. Specifically, Alexander does not present the necessary objective medical data along with other similar patient cases to authenticate the inactivity of his neocortex. Consequently, this creates a dilemma where Alexander’s claim is presently unconfirmed notwithstanding two possibilities for further investigation and eventual affirmation. Finally, if confirmed, Alexander’s claim will have a major impact on the world’s social and cultural milieux.

Reflection on his near-death experience leads to Alexander’s first declarative pillar that ethereal worlds exist beyond the physical world, as revealed to him through a celestial being; he states, “Om [God] told me that there is not one universe but many—in fact more than I could conceive. . . ” (48). After exiting his coma, Alexander carefully details the higher world his near death experience transported him to: “Everything was distinct, yet everything was also a part of everything else, like the rich and intermingled designs on a Persian carpet. . . ” (46). Overall, Alexander presents a strong description of this higher world and its location, which later allows him to point out the similarity between his experience and other past accounts.

After documenting his experience, Alexander searches for any connections between his narrative and other records of near death experiences. While acknowledging that each experience is unique, Alexander notes two common characteristics of near death experiences. First, he cites the shared experience of entering into higher worlds:
“Narratives of passing through a dark tunnel or valley into a bright and vivid landscape—ultra-real—were as old as ancient Greece and Egypt” (131). Second, he indicates the mutual sighting of heavenly deities: “Angelical beings... went back, at least, to the ancient Near East...” (131). Ultimately, corroboration between details of Alexander’s story and other historical anecdotes supports his assertion of higher worlds, which in turn gives rise to Alexander’s second point that the physical brain or neocortex blocks perception of higher worlds.

Given the plausibility of Alexander’s first point, his second point follows from sensibly reasoning through the observed phenomena. Attempting to explain celestial encounters during near death experiences, Alexander first asks, “What caused the otherworldly types of experiences that such people so often report?” (8). To answer this question, Alexander delves into the idea of human consciousness and how it is responsible for observation and perception of the physical world humans inhabit. He notes the inherent cause of consciousness, commenting, “...I did know that they [otherworldly types of experiences] were brain-based. All of consciousness is. If you don’t have a working brain, you can’t be conscious” (8). Concluding that his brain was potentially incapacitated during the coma, Alexander arrives at an important postulate: “I was encountering the reality of a world of consciousness that existed completely free of the limitations of my physical brain” (9). Alexander hypothesizes that if his ethereal confrontations are valid then his physical brain must have been impaired, thus allowing him to experience that world. Consequently, he then investigates the condition of his brain during his coma for signs of function to indicate conscious activity.

After analyzing his own patient data, Alexander asserts that his physical brain was incapacitated. Specifically, he identifies his neocortex, which enables higher cognitive function, as the neurological entity responsible neurological entity for the debilitation of his physical brain. “But in my case,” he explains, “the neocortex was out of the picture [incapacitated]” (9). In particular, Alexander implicates this part of the brain because of its significance in executing uniquely human characteristics, even calling it “the part that makes us human” (8). In conclusion, Alexander charges that because his neocortex was unresponsive and unable to generate consciousness, the occurrences he observed were original and emanated from a celestial deity residing in an ethereal world. However, evaluation of the evidential presentation in Proof of Heaven proves lacking.

Missing from Proof of Heaven is empirical evidence from Alexander’s patient data and other corroborating patient cases. Alexander claims that his scans indicate the inactivity of his neocortex. He explains, “I could see it on the scans, in the lab numbers, on my neurological exams—in all the data from my very closely recorded week in the hospital” (135). However, Alexander does not produce those scans, lab numbers, and exams that he alludes to in Proof of Heaven, nor does he exhibit any substantiating evidence from cases involving similar medical circumstances.

Particularly, Proof of Heaven lacks confirming data from other medical cases because Alexander’s case is the first of its kind. As he states, “Officially, my status was ’N of 1′, a term that refers to medical studies in which a single patient stands for the entire trial”, Alexander concludes, “There is simply no one else to whom the doctors could compare my case” (92). Because no other comparable medical cases exist, outside evidence verifying the incapacitation of his neocortex is impossible to produce, making a sufficient show of evidence currently unavailable. Thus, a problem exists wherein a definitive conclusion is currently unattainable because Alexander’s claim requires more information in order to make more concrete conclusions.

Nonetheless, more corroborating information can be obtained from two avenues. The first step is to wait for other cases to surface in the future. Because these cases arise through chance, time will dictate when the next case consistent with Alexander’s occurs. A second option remains to commence a dialogue between scientists reexamining existing cases for new information. Should that discussion lead to validation of Alexander’s assertions, it will not only sway world opinion on celestial entities, but also shift focus away from our physical reality.

In altering the world’s view on ethereal bodies, this finding would validate the beliefs of religions such as Christianity, Judaism, and Islam. In particular, aspects of Alexander’s claim, such as an afterlife governed by an omnipotent creator through love, overlap with those religions’ ideological pillars of monotheistic deities and focus on joining them in heavenly worlds. Therefore, Alexander’s validated claim would also bolster the religious dogmas of these religions, thereby promoting greater observance of those religions and shift attention away from our physical reality.

While Alexander’s argument expounds love and compassion, it also details an ethereal world that all humans reach after death. Because, upon death, this path is predestined and inevitable regardless of any earthly action, it takes away the importance of addressing issues that dominate our present physical world. Applied to the individual person, a depletion of urgency follows in endeavoring to undertake long-term goals of advancement. In other words, if a guaranteed outcome, such as ascent into an ethereal
world, occurs regardless of action in our physical world, then the individual loses rationale for performing action aimed at self-advancement. To that end, validation of Alexander's claim would significantly alter an individual's path as one ventures through life and ultimately into the heavens.

Overall, Alexander's argument follows a solid line of logic, but does not present enough tangible evidence for affirmation of his claim. Due to the lack of corroborative data available from other sources, two options exist to further investigate this question of legitimacy: wait for more cases similar to Alexander's to unfold or begin a new discussion reexamining old cases in search of more information. Should either one of these methods yield affirmation of Alexander's argument, then support for the world's major religions and a distorting change in focus towards the human afterlife will result, forever altering humanity's perception of our purpose in existence.
Undergraduate Research Accomplishments: Awards

Navena Chaitoo (FCRH ’13) was awarded a 2013 National Science Foundation (NSF) Graduate Research Fellowship to pursue studies in public policy at Carnegie Mellon University in Pittsburgh, PA.

Jeffrey Lockhart (FCRH ’13) was awarded the Student Travel Award for the AAAI Fall Symposium: Artificial Intelligence for Gerontechnology, 2012. Funded by the National Science Foundation. (mentor: Gary Weiss, Computer and Information Science).

Brandon Mogrovejo (FCRH ’15) and Atithi Hassan (FCRH ’15) won 1st Place Poster in the Physical Science category for “Development of Methods for Examining the Size and Distribution of Chondrules in Chondrites with X-Ray Microtomography” at the 21st Annual Collegiate Science and Technology Entry Program (CSTEP) Conference, Bolton Landing, NY, April 2013.

Olivia Monaco (FCRH ’13) won the POLYED Undergraduate Research Award for “Examination of Functional Group Dendritic Structures: Preparation of Mixed Dendrimers for Encapsulation of Pyrene in an Aqueous Environment” at the Fall Philadelphia American Chemical Society National Meeting, Philadelphia, PA, August 2012.

Kathleen Toth (FCRH ’13) spent two summers in the Goodyear design studio designing a tire tread that was patented by the United States Patent Office and selected by Goodyear for the 2014 Ford F150.

Undergraduate Research Accomplishments: Acceptances

Erik Angamarca (FCRH ’14) is a 2012 “Rangel Scholar” and completed the Charles B. Rangel International Affairs Summer Enrichment Program at Howard University in Washington, D.C. in the summer of 2012. Funded by the U.S. Department of State.

Caitlin Bennett (FCRH ’14) completed a Science Undergraduate Laboratory Internship (SULI) at the Brookhaven National Laboratory in Upton, NY in the summer of 2012. Funded by the U.S. Department of Energy.

Victoria Cipollone (FCRH ’14) completed the Summer Undergraduate Research Program (SURP) at the Albert Einstein College of Medicine in Bronx, NY in the summer of 2012.

Danielle Espinoza (FCRH ’14) has been accepted to the Diversity Student Summer Research Opportunity Program (DSSROP) at the Albert Einstein College of Medicine in Bronx, NY for the summer of 2013.

Allison Grossman (FCRH ’14) has been accepted to the Research Experience for Undergraduates (REU) Program in Mathematics and Computational Science at Fairfield University in Fairfield, CT for the summer of 2013. Funded by the National Science Foundation and the Department of Defense.

Necro Henriquez (FCRH ’14) completed the Calder Center Undergraduate Research (CSUR-REU) Program at Fordham University’s Louis Calder Center – Biological Field Station in Armonk, NY in the summer of 2012. Funded by the National Science Foundation.

Justin Henry (FCRH ’14) has been accepted to the Schomburg-Mellon Humanities Summer Institute at the Schomburg Center for Research in Black Culture in New York, NY for the summer of 2013. Funded by the Andrew W. Mellon Foundation.

Michelle Mathios (FCRH ’13) completed the Calder Center Undergraduate Research (CSUR-REU) Program at Fordham University’s Louis Calder Center – Biological Field Station in Armonk, NY in the summer of 2012. Funded by the National Science Foundation.

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