

Class of 1954 Senior Thesis Endowment

2022 – 2023 Recipients

Beatrix Bondor '23
Taylor Branch '23
Elizabeth Brennan '23
Sarah Brown '23
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Beatrix Bondor '23 | English



I participated in the Bread Loaf Program at Oxford in summer 2022. I lived and studied at Lincoln College with a group of five other rising Princeton seniors and one English professor for six weeks. I took one master's level poetry class, and the Princeton cohort met formally once per week as a thesis proseminar, where we developed the research questions that would motivate our theses and began doing the research for our projects.

I was also able to do massive amounts of research for my senior thesis! I am an English major, but I was admitted to the creative thesis program, so my thesis was the production of an original collection of poetry. I researched the founding of Virginia and the colony of Jamestown (mostly while at Oxford), and then wrote poems in the voices of historical figures whose experiences I found most compelling. I focused on moments of cultural collision between the English colonists and local native populations.

I am an Orange Key tour guide, and I always talk about how generous Princeton is with its funding for travel and independent work on my tours— please let the alumni know that my experience has been shared with approximately 1,000 campus visitors so far as an epitome of what makes Princeton so extraordinary, indeed the best damn place of all! I also tell them, after giving some examples of famous theses, that “your thesis may or may not clearly change the world, but no matter what, it will change you.” Thank you for supporting Princeton University and for contributing to an experience that not only dramatically changed my independent work for the better but changed the way I see the world. We are so grateful to alumni like you.

Taylor G. Branch '23 | English



My thesis project research, the work of F. J. Haynes and mapping his influence onto American environmental literature, [includes] travel to the Montana State University library and Yellowstone National Park over the course of a week during winter break. My thesis project involves primary source research on the work of photographer Frank Jay Haynes, the first official photographer of Yellowstone National Park and the Northern Pacific Railroad, and how his work on Yellowstone National Park and the Northern Pacific Railroad has been overlooked as a major influence on the environmental writing and adventure tourism literature of Yellowstone and the U. S. National Parks at large. I will trace his influence directly to the work of nature writer John Muir. The Montana State University Library houses a large collection of documents related to his Yellowstone work and importantly contains financial ledgers, copyright documents, and pricings of his photographic work. These financial footprints are essential for demonstrating how his work was commercially relevant and consequently had a broader cultural impact, thus influencing environmental literature on the national parks as writers felt this impact.

Taylor is a Princeton Research Day participant. View her video, “The Romantic Myth of the U.S. National Parks as Constructed by Frank Jay Haynes and John Muir” [here](#).

Elizabeth Brennan '23 | French



[The] week in Paris was truly invaluable for my thesis. Most importantly, I was able to obtain a special research pass to visit the reading rooms of the Bibliothèque Nationale de France (François-Mitterrand.) While there, I researched the regulation of prostitution in Paris in both the 18th and 19th centuries. I saw the Parisiennes Citoyennes exhibition at the Musée Carnavalet. I went to the exhibit in the hopes of learning more about the status of women in the Commune of 1871. Parisiennes Citoyennes did have a number of incredible primary sources related to the role of women in the Commune and, more importantly, related to the Commune’s attitudes towards prostitution. I found countless quotes and consulted many documents that I would never have been able to access online! I also visited Musée de la Prefecture de Police.

Sarah Brown '23 | Anthropology



[Last] summer I set off on an ambitious project of trying to volunteer on a search and rescue (SAR) boat and conduct ethnographic research. While due to recent criminalization and heightened security of this work I did not end up being able to secure an official volunteer position on a SAR vessel, I learned more than I could have imagined about SAR operations, humanitarian refugee work, and border restrictions. I spoke with seven scholars on these themes, two SAR workers, numerous NGO coordinators, as well as a few Greek students. As it started to become clear that the changing environment of SAR restrictions and decreasing humanitarian attention would inhibit me from boarding a ship, my questions morphed to: “What are the large-scale barriers these teams face in providing care? How do these volunteers/non-profit caregivers view migrants in fundamentally different manners than policymakers?” I hope to build upon the knowledge and connections I gained this summer to continue to study the unique challenges of providing medical care in border spaces. *Thank you so much for all your financial and logistical support that made the first portion possible!*

Varun Devraj '23 | Molecular Biology



Research Summary: Chronic stress can lead to adverse health effects, including increased rate of aging, brain damage, and cardiovascular disease (Cohen et al., 2007; Reiche et al., 2004; Ulrich-Lai & Herman, 2009). On an intracellular basis, the stress response has been recently linked to dysfunction of mitochondria. Indeed, it has been reported that chronic stress leads to impaired enzymatic activity of isolated electron transport chain (ETC) complexes and increased production of general free radicals in mouse mitochondria (Guo et al., 2013; Mason et al., 2006). However, the precise impacts of chronic stress in the brain on physiologically relevant mitochondrial parameters, such as coupled respiratory capacity, mitochondrial membrane potential, and specific free radical production, are unknown (Picard & McEwen, 2018). Using brain tissues from the chronic restraint stress (CRS) mouse model, I hypothesize that CRS will lead to compromised mitochondrial respiration and increased nitric oxide (NO) production, reflected in differential expression of the genes linked to these functions in the brain. Overall, the results gained from these studies will provide a greater awareness of how chronic stress impacts mitochondrial functioning in the brain, and more specifically, reveal the possible mechanistic basis by which this dysfunction could be produced. Together, this examination of the linkage between mitochondrial dysfunction and chronic stress will contribute to a more holistic understanding of how stress is transduced into a physiological response that ultimately has implications for an organism's broader health.

Annabel Dupont '23 | Anthropology



The thesis research funding that I received was tremendously helpful for my senior thesis research. As an anthropology major, the funding I received was integral in allowing me to travel to conduct field research over fall break. I am currently researching sustainable urban agriculture and local economies in South Central, Los Angeles, a low-income neighborhood that has historically been considered a food desert. Using the funds I received, I was able to spend the week farming, conducting interviews and working with a local non-profit to study and support regenerative food systems. I really appreciate the support that I received from the Class of 1954 without which my thesis research would not have been possible.

Alexandra Gjaja '23 | English



The funds that I received from the Class of 1954 Senior Thesis Endowment Fund were hugely helpful to my senior thesis work. This summer, I went to England to conduct thesis research at the University of Oxford and participate in the Princeton English Department's partnership with Middlebury's Bread Loaf graduate program. The research I was able to conduct in Oxford led me to the primary sources that serve as the foundation of my thesis. In my thesis I examine two contemporary revisions of Shakespeare's Othello — George Lamming's *Water with Berries* and Toni Morrison's *Desdemona* — to argue that how these writers interact with Shakespeare extends far beyond a simple reversal of his terms of power (which is often the conventional understanding of "writing against the canon"). Neither of these texts are especially well-known and many of the resources I needed on Lamming were much easier to find in the U.K. than they have proven to be back in Princeton. Having the ability to go to Oxford and get a jumpstart on my research, returning home with my primary sources and a much more clearly defined research question, was invaluable to my thesis. I've had the time to really probe these texts for meaning and develop my arguments, ultimately allowing me to produce a thesis that I'm quite proud of. *Thank you so much for providing the funds to allow me this opportunity!*

Gillian Hilscher '23 | Molecular Biology



Gender-affirming medical care has become an increasingly controversial subject of discussion, and although preliminary psychological studies have demonstrated the benefits of such care for transgender individuals' mental health, the biological effects of such treatment have yet to be elucidated. Furthermore, few studies have examined the psychological and biological effects of gender-affirming medical care on populations of transgender youth. Therefore, my senior thesis aims to investigate the effects of gender-affirming care (puberty blockers or hormones) on transgender youth's psychological and biological health through analyses of survey responses, DNA methylation (DNAm), and epigenetic age, the latter two of which are biological markers that have been associated with stress in humans. These measures will be obtained from three timepoints over the course of an individual's treatment in order to assess longitudinal changes.

The funds generously provided by OUR have been used to purchase the arrays that will measure the DNA methylation status of over 850,000 sites within each individual's genome in our cohort. We [prepared] the samples to be analyzed, and [expected] to receive the methylation results from these arrays by the end of January 2023.

Chaya Holch '23 | History



I began my research at the British Library in London, where I worked with cartographic and cheap print materials from the 16th, 17th, and 18th centuries, including works collected in thick and disorganized volumes that are part of the King's Topographical Collection. Among these were the 1675 engraving of the 1421 St. Elizabeth's Day Flood in Dordrecht, the 1629 *Discourse Concerning the Drayning of Fennes and Surrounding Areas*, and Blaeu's early 17th-century map of the Beemster before it was drained. I returned to the library several times during my stay in London, working for many hours in their reading rooms at St. Pancras.

I also spent several days researching at the Warburg Library, both in its main, open-stack collection and in its Photographic Collection. Settling in for a day of research among the squeaky, old filing cabinets (currently housed in a nearby basement due to renovations in the main building) of the Photographic Collection was one of the highlights of a truly extraordinary summer. I also greatly appreciated the famously strange arrangements of books in the stacks of the Warburg and found my research in that collection to be extremely rewarding. I also visited the Courtauld and the Greenwich Maritime Museum, where I learned about sea-faring objects and the history of British imperial relationships with the North Sea and the English Channel, which enhanced my understanding of my thesis' historical context with relation to the nation's entangled relationships with water and dominion.

The next day, I took the train to Ely, where I visited the famous cathedral and its stained-glass museum. After lunch, I set out on a 10-mile hike through the flat, drained fenland landscape. This hike allowed me to appreciate the Isle of Ely's elevation, which, when the land was wet/flooded, was the reason for the community's presence there. Viewing Ely from afar, including from along the medieval Bishop's Way (by which the bishops made their regular journey to their summer home), I could begin to glimpse the remnants of the watery-past of what is now a very dry landscape.

I then headed south to Amsterdam, where I visited the National Maritime Museum and the Rijksmuseum, which houses the most famous flood image of the time period with which my thesis is concerned: the late 15th-century altarpiece painting of the 1421 St. Elizabeth's Day Flood. I also took a day trip to the Zuiderzee Museum in Enkhuizen, where I learned about the culture of the Zuiderzee area before 20th century technological changes to the landscape. In particular, I learned about the area's long history of flood risk and management, which, although no longer central to my thesis, was a very moving experience with regard to thinking about memory, disaster, resilience, intergenerational storytelling, folk culture, and museum studies.

This three-week long research trip was a life-changing experience. I am incredibly grateful to my funders for their support of my senior thesis in the History department and for giving me the opportunity to undertake this research over the summer.

Mel Hornyak '23 | Psychology



Research Summary: This research project is investigating how people make decisions about whether to engage in social experiences based on limited information. Specifically, it asks whether participants would choose to be alone in preference to engaging in interracial interactions, a question that has important implications for intergroup avoidance, social rewards, and diversity interventions (e.g., Paolini et al., 2018, Bagci et al., 2021). The study of social rewards suggests that people will seek out even minimal social experiences (e.g. Tamir et al. 2015), whereas the study of interracial interactions indicates that interracial interactions are often avoided to engage in intraracial interactions (Dixon & Durrheim, 2003; Ramiah et al., 2015), perhaps due to the anticipation of increased cognitive and emotional stress from interacting across race (Richeson et al., 2003). Providing a ‘no interaction’ alternative places these literatures in conversation with each other and is an effective way to tease apart whether participants prefer intraracial to interracial interactions because they are drawn to interracial interactions or because they are avoiding intraracial interactions.

This past summer, I [conducted] two studies examining this phenomenon; one of them completely decontextualized, where the only difference between the interracial and intraracial interaction is the race of the interactions partner, and a follow-up study adding in more elements of a naturalistic social interaction to further query which elements of an interracial interaction specifically lead to avoidance. The proposed experiments would use a similar methodology, where participants would be asked to make a series of choices about how to spend time at the end of the study: with a same-race counterpart, a different-race counterpart, or alone. Most of the expenses, such as the video recording service and the payments for actors and participants, are essential to ensure that participants believe that they will be interacting with another individual (although to reduce both cost and complexity, participants will not actually interact with another participant at the conclusion of the experiment.) Without this sense of verisimilitude, the conclusions we could draw from this research would be far more limited.

Grace Kim '23 | Psychology

Research Summary: Cultural Life Scripts: Does Immigration Lead to Observing Life Through Different Cultural Lenses?

Cultural life scripts are shared semantic knowledge and expectations about the temporal order and timing of major life events in a prototypical life course in a given culture. Many studies found that the reminiscence bump, which appears for the recall of positive and important life events in early adulthood, is supported by the life script account. Previous studies exploring the relationship between immigration and cultural life scripts found that immigration is a significant shift that often involves an adjustment to a new cultural context – which ultimately may change

people's views about a normative life course. However, there is a lack of knowledge about how different immigration generations within the same family may affect how one perceives life through a different cultural lens. This present research investigates whether young second-generation Korean Americans, the parent first-generation Korean immigrants, young Americans with American-born parents, and those American parents observe life through different cultural lenses in terms of cultural life scripts. This [was] studied by examining the life scripts of second-generation Korean American undergraduates at Princeton University, the parents of those students who are first-generation Korean immigrants, American-born undergraduates with American-born parents, and those American-born parents as well. The author [predicted] that first-generation Korean immigrants, despite being enculturated in the American culture, will be drawn to their original culture and will report a less common life script than the American participant group. Further, the second-generation Korean Americans will be drawn closer to American culture over their parents' original culture, thus, reporting a more common life script with the American participant group. Also, it [was] predicted that all three participant groups would report life script events that are mostly positive and expected to occur in early adulthood.

Andrew Matos '23 | English



The support from the Class of 1954 Senior Thesis Endowment Fund made a tremendous impact on my research and my academic experience; I cannot thank the donors enough for their help. With their funding, I was able to spend the summer in the Breadloaf Program at the University of Oxford with five other students from Princeton's English department.

The Breadloaf program is for master's students, so being able to take a higher-level course with older and more experienced adults in my field of study made for one of the most remarkable academic experiences I have ever had. I was able to take a course on James Joyce's *Ulysses* taught by one of the world's leading Joyce experts, which was an opportunity I will cherish forever. Access to Oxford's incredible Bodleian library also let me get a head start on research for my thesis. Now, my thesis project is on utopianism and fantasy in William Morris's *The Earthly Paradise*, but that is only after I narrowed the extent of my research to fit a one-year project. While at Oxford, I began research for a project spanning several English authors throughout the late 19th century, which gave me a clear idea of what I want to research in graduate school. This work made my applications to graduate schools strong enough that I was selected for the master's program I was most interested in and waitlisted for a top Ph.D. program. *The support from the fund made an amazing difference in my work at Princeton and on my career going forward, and I am extremely grateful to have received it.*

Andrea Mejia '23 | Anthropology



Andrea is a fourth-year Anthropology major with a certificate in Latin American Studies. In Havana, as part of SPA342, *Topics in Latin American Modernity: The Culture of the Cuban Revolution*, she studied the University of Havana and her favorite part of the trip was going to Old Havana, as well as La Fábrica de Arte Cubano.

Research Summary: The research took place at the San Isidro General Hospital of Tocoa, Colón [Honduras]. Due to its localization at the center of the city, it receives a variety of patients from surrounding departments, many of which turned out to be diabetic patients. One of the most prevalent issues that arose throughout my time there was the difficulty to navigate the management of their disease. When interviewed, the patients often shed light on the quality of care offered by the hospital. Due to its public nature, the doctors and nurses struggle to provide relief for the patients, as they lack medical supplies and diagnostic tests. These issues (among others) emphasize the suffering and structural violence Paul Farmer [M.D., Ph.D., medical anthropologist] refers to. In addition, the lack of education about diabetes became a hindrance to the patient's management, but also the care that the physician could offer.

Sakura Price '23 | English



Over the summer of 2022 I was selected to participate in the Middlebury Bread Loaf School of English summer session at Lincoln College, Oxford with a cohort of Princeton English majors entering into their senior year. During the program, I took a course called “Imagining Adolescence in Early Modern England” and a thesis proseminar with a Princeton English professor. I began to look into the work of a relatively marginal English poet named Isabella Whitney after my professor noted in a brief aside that Whitney is considered one of the first published English female poets, but that our syllabus was mainly focused on dramatic literature, short fiction, and short prose primary material and would not include poetries.

Because I am interested in book/print history and material culture, I decided that it would be very helpful for me to see Whitney's second volume *A Sweet Nosegay* (1573) in person at the British Library because I wanted to attend to its form in my broader analysis. I compiled a list of primary sources that attended to themes addressed in her works—such as children's primers and pedagogical theory from the late 16th century as well as Tudor legislation surrounding servicelessness and vagrancy—works that took similar form to her poems—such as the genre of mock will and testaments, literary women's wills, and other advice books— and sources she explicitly engaged with such as Ovid's *Heroides* and Hugh Plat's *Flowers of Philosophy* which might also be available at libraries in the UK. My winter break trip to the British Library, Lambeth Palace Library, and archives in Edinburgh were crucial in shaping the direction of each chapter. For instance, in my examination of a mother's will which used the motif of a compass

(and a title page with an image of a compass) to describe the direction that it aims to provide its female readers, I began to consider the verb “to compass” in Whitney’s last poem, her “Wyll,” which is deeply interested in navigation, and yet uses the term only to describe the containment of the city’s walls.

Ashira Shirali '23 | English



Studying the humanities has exposed me to aspects of the human experience, both individual and collective, expressed nowhere else. I find this is particularly true of literature, which allows writers to portray our most well-hidden impulses but also the moving, beautiful and ineffable moments of life.

As an English concentrator with a certificate in Creative Writing, I wrote a novella for my senior thesis. The novella aims to depict the interiority of depression, and this thesis funding allowed me to research melancholia at the Bodleian library at Oxford. I am immensely grateful for the summer of exploration, thinking and travel through the Bread Loaf program. The epigraph of my novella is taken from Joseph Addison’s first edition of *The Spectator*, which I found while perusing various authors’ notes on *The Anatomy of Melancholy* in the Bodleian. That reader had juxtaposed the quote with a similar passage from the *Anatomy*. I found the line a moving encapsulation of depression, apt for my narrator’s worldview. *The funding [I received] for the Bread Loaf program enabled six weeks of deep thinking and writing which enriched my thesis.*

Baeti Tebase '23 | English

Senior thesis plans: The thought of the German philosopher Hegel has had some theoretical importance for my study into the poetry and criticism of T.S. Eliot, the topic of my junior seminar. For a brief time, I had seriously considered researching the British reception of the German philosophers that comprised Eliot’s intellectual background, mainly in the interest of accounting for things lost in interpretation. But this soon felt like downright clerical work, or a work with no working question. At the same time, through thinking with Hegel about the concern of objectivity and the structure of process in Eliot’s poetry, I grew more interested in similar questions within the body of work of Hegel himself, particularly *The Phenomenology of Spirit*. Somewhat reversing the order of influence, I want to look at the literary or expressive extremities of the philosophical text, the only sort of extreme, or limit, conceivable within a philosophy which is in the business of transcending itself. The text has greatly challenged me to consider the basic practice of reading; it seems to repel the type of serial reading that goes from “one thing to another,” in that each thing amounts to a renunciation, a transcendence, of itself, and itself restlessly becomes another. This makes it hard to know where one started and where

one is going and why: “For natural consciousness to entrust itself immediately to science is a new attempt on its part to walk on its head, without knowing what moves it to do so.” But rather than disappearing or otherwise becoming subdued and even unfamiliar, what is transcended finds only a fuller expression of itself; its self-transcending is its truth. This is to say, then, reading always necessarily makes a false start. And it makes a false start by virtue of the fact that, in ordinary experience, language, a universal system of signs, is indifferent to what it signifies and itself restless with associations. This has been one of the most instructive moments within Hegel for me—metaphor is not just a type of figurative language, but language figured, language made possible, language made actual. I haven’t yet come across scholarship that discusses Hegel on these more literary terms—and I would really like to, over time and with the guidance of an advisor—but Hegel’s basic point, at least in the opening movements of his system of science, as I interpret it, is that everyday propositions inhabit the form of metaphor.

One of the things I look[ed] forward to about going abroad [was] getting acquainted with new material; a while ago, randomly scrolling through the Bodleian online catalogue, I hit upon a lesser-known figure in Hegel studies, the Czech philosopher Francis Sedlak, and his amazing and hilarious book, *A Holiday with a Hegelian* (1911)—it struck me as being so out-of-no-where, so understated, so silly, so serious, a reminder of all the reasons for why I do this. I have ranked the course “How to be a Critic” first for this reason, to continue to refine my understanding of the field from wider angles. Most of my research so far has been independent (and limited) just because I haven’t found courses in which Hegel’s main works are taught intensively, much less in relation to a broader scope of theoretical concerns. A challenge with not having ongoing discussions on what I read is that I can easily become too isolated, self-absorbed and uncritical, or worse never even bother to put things in my own words; no interpretation goes on because there’s the sense that there’s no one for whom to interpret; there’s the sense, too, that work is trivial because it gets virtually no institutional recognition. Explaining something to someone is the best way to understand something, something, at any rate, like Hegel; for example, I was able to get through and have a surprisingly penetrating understanding of difficult passages within the *Science of Logic* all because I wanted to say something *interesting* to a professor about it. Maybe this reflects a foundational intellectual immaturity and egotism on my part. If I was reading for myself, and saddled with other properly academic tasks to do, and not least the misgivings with which my person is generally affected, I doubt I’d work as hard to understand something so hard to understand. I was fortunate to develop an independent course with the same professor this fall on Hegel’s *Logic*, a course marked a period of significant growth in both my scholarly interest and... composure. In that sense, this collective engagement people come to have around their interests has been, for me, crucial throughout my college education, and at once the sense of independence in thinking and working on texts as if no one has done it before, aware of but also oblivious to authority, forging one’s unique, perhaps winding, path to understanding, the most empowering.

Isaac Wills '23 | History



I am a History concentrator pursuing certificates in Near Eastern studies and environmental studies. What follows here is a brief summary of my research trip in Cape Town, South Africa this past summer:

“My research trip was very successful. Not only was I able to clarify a research question and topic for my senior thesis, but I also managed to find a prodigious amount of primary source materials that has served as the textual basis for my writing and historical analysis. Provisionally, I had interest in researching protest, civil disobedience, and social cleavage within the Cape Malay/Muslim community of the late-nineteenth and early-twentieth centuries, with a particular focus on burial traditions, grave access, and public health concerns. More specifically, though, I’ve focused on two historical figures—namely, Abdol Burns and Hadje Ojeer Ally. The former was a chief spokesperson in the Cape Malay community throughout the 1870-80s, and he led a series of protests in January of 1886 following the closure of the main Muslim burial ground by the British Colonial Office due to an ongoing public health crisis. His protest turned to riot, however, and he was criminally charged and defamed. Ally, by contrast, was of Mauritian-Indian heritage, and he stood as the Secretary of the subsequent advocacy group for Muslim burial rights called the Moslem Cemetery Board. He would later emerge at the turn of the twentieth century as a staunch advocate for the rights, more broadly, of British Indians—Muslim and Hindu—in Johannesburg under colonial authority. Thanks to Prof. Michael Laffan’s contacts and my own networking efforts, I was able to accrue nearly one-thousand images of primary sources from the Western Cape Archives and Records Service, as well as several hundred scans of *Cape Argus*, *Cape Times*, and *Indian Opinion* newspaper articles dated from 1883 to 1909 from the National Library of South Africa. What was the most extraordinary, though, was that I built a relationship with Dr. Ismet Booley, who is the great-grandson of Ally, and he allowed me to photograph ninety-three pages of minutes that Ally had taken in 1886 in the aftermath of the Cape Malay riots, detailing how the community was responding to the ongoing burial crisis in real time. Even more remarkable is that Ally later went on to become an associate of Mahatma Gandhi in the Transvaal while Gandhi was a lawyer and activist in South Africa for twenty-one years. Dr. Booley allowed me to photograph two letters that Ally and Gandhi co-signed as a delegation to Lord Elgin, the Colonial Secretary for Foreign Affairs in London, on behalf of the Indian community in South Africa. Dr. Booley also had a short letter that Ally wrote to Prime Minister Gladstone regarding the Franchise and Ballot Act in 1893, and the letter confirms that the two men had direct correspondence about this legislative issue. All of Dr. Booley’s records are not in the public record and have not been used for any published research, thus giving me a unique opportunity to tell a new story about protest, violence, non-violence, and interreligious collaboration within the Cape Malay and Indian communities from 1875 to 1909. *I want to thank all of you who funded my research efforts!*”

Juliana Wojtenko '23 | History



Juliana Wojtenko is a senior from Princeton Junction, NJ, majoring in history and pursuing certificates in Russian and Eurasian studies and medieval studies. She grew up singing in church and school choirs and performing musical theater. At Princeton, she sings in the Playhouse Choir and Glee Club and performs with several campus theater groups, including the Princeton Triangle Club and Princeton University Players.

Research Summary: What motivated the movement to harmonize medieval Orthodox liturgical chants in Russia in the nineteenth century? Starting in the mid-1800s, director of the Imperial Church Singers, Alexei Lvov published his collection of new harmonizations of Russian. While his book of harmonizations made the medieval chants much more accessible, Lvov received harsh criticism from the leaders of the Orthodox church for romanticizing traditional chants. Lvov was not the only nineteenth-century composer to attempt to update old chants in the contemporary polyphonic style. Even primarily secular composers like Glinka and Tchaikovsky produced their harmonizations of the Cherubic Hymn. In my senior thesis, I trace the cultural and religious history of the harmonization of Russian Orthodox hymns throughout the nineteenth century, with a particular focus on comparing Cherubic Hymn harmonizations and arrangements. What was so special about this hymn that even secular composers had to tackle it? I [planned] to travel to the Center of Music at Goldsmiths, University of London, to gain access to their extensive collection of manuscripts and recorded material. At this time, it is impossible to visit any archives in Ukraine or Russia, so the Center of Russian Music at Goldsmiths, University of London is the best option I have during my undergraduate career at Princeton to have access to such a wide range of primary sources related to Russian liturgical music history.

Dinie Zheng '23 | Molecular Biology



Dinie is a fourth-year undergraduate molecular biology student and a member of the Conway Lab studying and engineering plant-microbe interfaces.

Research Summary: Like humans, plants have their own specific microbiota inhabited by a variety of microorganisms, such as bacteria, fungi, and viruses (Goodman et al., 2009; Levy et al., 2018). Interactions between the microbiota and the plant hosts are important for plant fitness and phenotype, by influencing nutrient acquisition, improving stress tolerance, promoting plant growth and development, and increasing protections against pathogens and disease (Bulgarelli et al., 2013; Durán et al., 2018; Fitzpatrick et al., 2018; Santhanam et al., 2015; van der Heijden et al., 2016). Several factors have been found to influence the composition of this microbiome, including the innate plant immune system, chemical communication, and various environmental factors (Fitzpatrick et al., 2020). While several factors have been identified to be influential, the underlying genetic mechanisms that govern many of these factors remain unknown.

The funds [were] used towards purchasing the kits and primers necessary to complete TnSeq and BarSeq. TnSeq is a process to link the barcodes with the insertion sites within the genome and this is necessary to characterize the mutant libraries. Mutant library characterization is a necessary step to identify where the mutations are in each mutant of the library, and this information can then be used to relate genes to plant colonization and plant immunosuppression after the mutant libraries are subjected to the assays. BarSeq is a process to sequence the barcodes within the genome, and this [was] used to check that the barcode diversity is high. This is important to be able to ensure that the mutant libraries will have a high number of mutants with good coverage across the genome, which is required to be able to do a genome wide screen.