

Brown Sabbatical Research Newsletter



2017

Foreword

This is the fifth edition of the annual Brown Sabbatical Research Newsletter published by the Office of the Dean of the Faculty. Its main focus is on the research by Brown faculty that has been made possible during the past academic year by our sabbatical program (also included are some reports on non-sabbatical research). The word *sabbatical* derives from the Hebrew verb *shabath* meaning “to rest.” In keeping with the ancient Judeo-Christian concept the academic sabbatical designates a time, not of simple inactivity, but of the restorative intellectual activity of scholarship and research.

Brown instituted the sabbatical leave in 1891, 11 years after Harvard had become the first university in the United States to introduce a system of paid research leaves (Brown was the fifth institution in the nation to adopt such a program, following Harvard, Cornell, Wellesley, and Columbia). As these dates suggest, the concept of the sabbatical emerged out of the establishment of the modern research university in America during the second half of the 19th century. A 1907 report by a Committee of the Trustees of Columbia University underlines the fundamental principle on which this innovation was based: “the practice now prevalent in Colleges and Universities of this country of granting periodic leaves of absence to their professors was established not in the interests of the professors themselves but for the good of university education” (cited in Eells, 253). Thus the restorative action of the sabbatical was understood to affect primarily not individual faculty members but the university as an intellectual community and an educational institution. The promulgators of the modern university believed that time for intensive focus on research contributed significantly and directly to the quality of the knowledge and methods transmitted by the university to its students and to the public in general.

For over 120 years Brown has reaffirmed that belief by granting sabbaticals to its faculty. The following publication of sabbatical research aims to provide some indications of the results of these research leaves over the last year. The entries are lightly edited versions of the reports submitted by the individual faculty members themselves. I hope that they will be found interesting and instructive.

Kevin McLaughlin
Dean of the Faculty

Further reading:

Walter Crosby Eells, “The Origin and Early History of Sabbatical Leave,” *AAUP Bulletin* 48. 3 (September 1962): 253-256 (<http://www.jstor.org/stable/40222893>).

**Special thanks are due to Associate Dean of the Faculty Joel Reville and Gaby Delaney of Brown Graphic Services.*

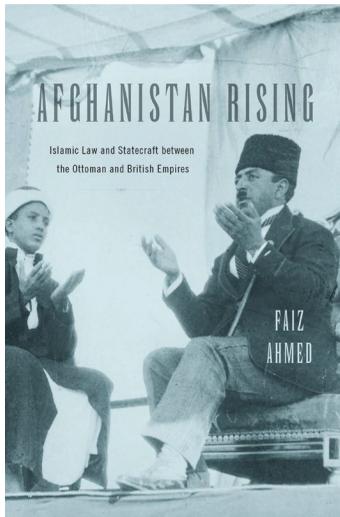
Faiz Ahmed

HISTORY • 2016-2017

Faiz Ahmed spent the academic year and a junior sabbatical as a National Endowment for the Humanities Fellow at the American Research Institute in Turkey. Researching his next book, Professor Ahmed carried out the bulk of his work at the Prime Ministry Ottoman Archives in Istanbul and at the recently opened archives of the Red Crescent Society (sister organization to the International Committee of the Red Cross) in Ankara. Provisionally titled *Ottoman Americana, 1776-1923*, this book explores the social and economic ties between the Ottoman Empire and the United States – as seen through the lives and writings of Ottoman consuls, entrepreneurs, migrant workers, and other kith and kin networks from the Middle East to the American Northeast, and from New England to the Pacific coast. Drawing from unpublished letters, manuscripts, and other transatlantic correspondence primarily in Ottoman Turkish, Arabic, and French, this project seeks rare cultural glimpses and global perspectives of North America from the 18th to early 20th centuries, as well as the socioeconomic and religious underpinnings of the Sublime Porte’s evolving relationship with the American republic.



“Every life has a right over you.” Ramadan message, Sultanahmet Mosque, Istanbul



Harvard University Press, Fall 2017

While in Turkey Professor Ahmed delivered public lectures at Istanbul University and the American Research Institute in Turkey on questions of Islamic law and modernity and the Ottoman Empire’s relations with Central Asia and the Indian Ocean world. He published two peer-reviewed articles on constitutional history in Afghanistan and Anglo-Ottoman debates about citizenship and international law in the *International Journal of Middle East Studies* and the *Journal of the Ottoman and Turkish Studies Association*, respectively. He also benefitted from the time off to complete final revisions for his first book, *Afghanistan Rising: Islamic Law and Statecraft between the Ottoman and British Empires*, which is scheduled for fall 2017 publication with Harvard University Press.



Asia and Europe, East and West: Bosphorus Bridge at Dusk

Scott AnderBois

COGNITIVE, LINGUISTIC, AND PSYCHOLOGICAL SCIENCES • FALL 2016

Professor AnderBois spent his sabbatical primarily at Brown, focused on writing and research. His primary research program examines the conventional meaning of basic sentence types, how these interact pragmatically with discourse context and compositionally with evidentials, discourse particles, and related constructions across languages (principally Yucatec Maya and Tagalog).

One specific project in this vein was work on mirative particles (words like English *oh* which convey sudden realizations). This work has led to conference papers and a longer journal article, “Illocutionary revelations: Yucatec Maya *bakáan* and the typology of miratives,” accepted to appear in a future issue of the *Journal of Semantics*. Beyond providing data from context-relative felicity judgments clarifying the specific mental state these mirative markers encode, the paper is the first to explore the use of mirative markers outside of declarative sentences.

Another journal manuscript entitled “Conjecturals seem like evidentials, but they might not be” concerns the semantics of so-called “conjectural” evidentials. This manuscript, under review at *Linguistics and Philosophy*, examines conjectural evidentials across languages, arguing that these morphemes do not in fact encode information sources as claimed in previous literature, but are instead epistemic modals similar to the English “maybe.” The paper makes this case in part by exploring the similarities and differences between conjecturals and other evidentials and epistemic modals across languages.

AnderBois also continued collecting and analyzing data in both Yucatec Maya and Tagalog on the uses of reportative evidentials across sentence types, including in imperative sentences. The Yucatec Maya data were collected during two field trips to Valladolid, Yucatán, México, in 2016, the latter of which took place adjacent to Form and Analysis in Mayan Linguistics ([FAMLi](#)) 4, an international conference on the linguistics of Mayan languages that AnderBois co-organized with Grant Armstrong (Wisconsin) and Olivier LeGuen (CIESAS).

The sabbatical also allowed time for laying the groundwork of two new long-term collaborative projects. The first of these two projects – Crowdsourcing Mayan Corpora – represents joint work with Ryan Bennett (Yale), Miguel Oscar Chan Dzul (Universidad de Oriente), Robert Henderson (Arizona), Irma Pomol Cahum (Universidad de Oriente), and Kevin Tang (Yale). It aims to promote the development of written and spoken materials in Mayan languages in part by developing tools to flexibly display these materials in different languages and with different kinds of linguistic analyses. The pilot phase of this work is supported by a Richard B. Salomon Faculty Research Award.

The second project, the A'ingae Language Documentation Project, aims to create multimedia documentation of an understudied language of Ecuador called A'ingae (also known as Cofán or Kofán) across a range of different communicative events. This work is done in collaboration with Hugo Lucitante '19, a native speaker of A'ingae and member of the Cofán community as well as other faculty collaborators at Brown (Paja Faudree and Chelsea Sanker) and Wilson Silva at RIT.

Sarah Besky

ANTHROPOLOGY AND INTERNATIONAL AND PUBLIC AFFAIRS • SPRING 2017

Sarah Besky spent the semester working on two book projects. The first, *Market Qualities: Indian Tea and the Composition of Value*, is a monograph that uses the changing taste and material qualities of cheap, accessible black tea to tell a story of colonization, market reform, and scientific knowledge in India. The second is an edited volume entitled *How Nature Works*, which seeks to reinvigorate the anthropology of labor with theoretical insights from posthumanism and feminist theory, particularly from science and technology studies.

For her first book, *The Darjeeling Distinction: Labor and Justice on Fair Trade Plantations in India*, Besky had conducted ethnographic fieldwork on Indian tea plantations, which took her to the offices of the Indian Tea Association (ITA), a guild of tea plantation owners and managers formed in 1888, in Kolkata. There, she found a wealth of historical material on the recruitment and control of laborers on plantations.

The ITA archives also provided the seed of Besky's second book project, *Market Qualities*. Specifically, ITA records on pricing and auctioning provide insight into the history of the Indian tea industry. The primary auction house for tea until independence in 1947 was in London, with satellite auctions in Kolkata and Cochin. The London auction, and with it the ITA branch in London, slowly dwindled in the years after Independence.

In the late 1970s the ITA's London office donated a mass of documents to the British Library. Besky spent the semester working through this archive (2,500 files in all!), as well as through other materials housed at the British Library. This was a rich archive, to say the least. Besky compiled material on a decades-long series of scientific experiments into identifying the chemical constituents that matched up with professional tea tasters' determinations of quality. This material will serve as the basis for a chapter on tea chemistry in her new book. The archive also included correspondences on public debates over the effects of tea tannins on the human body. Besky analyzed marketing campaigns designed to assuage concerns that tannins actually tanned consumers insides. The now popular blend of "PG Tips" emerged from these debates. The archive also included correspondences over standardization in the industry: of language to describe tea, of the machinery to produce it, of the botanical material that would constitute it, and of the means of trading it. Through this research, Besky will use the notion of quality tell a story about social and economic change in India.

Market Qualities combines this archival research with nearly 10 years of ethnographic research on tea auctioning, blending, and tasting in India. The narrative moves from colonial-era debates over how tea's chemical composition affected its flavor, to contemporary claims about the "naturally" embodied ability of tea brokers to discern value through taste. The book documents the scientific, aesthetic, and financial processes by which Indian tea became a global commodity. Along the way, it shows how middle-class Indian men came to dominate the ranks of professional tea brokerage, not just by taking the places of British predecessors, but by working to forge a unique form of masculine expertise. The book contributes to anthropological discussions of value as well to debates in South Asian studies about gender, finance, and postcolonial aesthetics.

In 2016, Besky, along with Alex Blanchette (Tufts), received a grant from the School for Advanced Research (SAR) to co-convene an Advanced Seminar on the topic of "How Nature Works." The seminar, held in fall 2016, and a forthcoming edited collection consider how ethnographies of human interactions with plants and



animals can reinvigorate the concept and critique of labor. Over the course of the semester, Besky co-wrote the theoretical introduction to the edited volume with Blanchette. She also completed revisions on a sole-authored individual chapter. *How Nature Works* initiates a new approach to critical labor scholarship, one that is attuned to a moment when the planet is wracked with both environmental damage – from climate change to mass-extinction – and economic turmoil, in the form of austerity, industrial intensification, and generalized job loss. This volume offers an experimental attempt to both rethink the meaning of human work and to redefine how we can study work in its broadest sense. It highlights the importance of ethnography for developing an approach to life amidst degradation, in ways that are not so heavily determined by human labor.

How Nature Works will be under review in summer 2017. In addition, Besky and Blanchette organized three diverse panels around the theme of “How Nature Works” for the 2017 American Anthropological Association meetings in Washington, D.C. During her sabbatical, Besky also completed revisions for an article, forthcoming in *American Ethnologist*, titled “Fixity and the Domestication of Dispossession: On the Inheritance and Maintenance of Tea Plantation Houses in Darjeeling.” This article is based on previous research conducted in the ITA archives in Kolkata.

Leslie Bostrom

VISUAL ART • 2016-2017

Professor Leslie Bostrom had a very satisfactory sabbatical with several projects accomplished or significantly advanced. She began her sabbatical year with the intention of creating new bodies of work experimenting with watercolor and drawings on plywood.

In September she exhibited five new “Monster Flower” oil paintings in the Atrium Gallery in the Granoff Center.

She created a new body of work, culminating in a show in Seoul, South Korea, in February. She chose to make very large watercolors (36'x36' and larger) addressing the idea of Freud's Uncanny; images of familiar landscapes which, because of the introduction of some “weird” element (a man with his pants down, bombers, vultures, etc.) become strange and frightening. As she has for many years, Bostrom used large flowers in the foreground as a kind of decoy and joke; decoy because the viewer has to peer around them into the picture; joke, specifically a feminist joke, because of the history of flower painting and illustration which was mostly done by females and therefore relegated to a lesser or “genre” category of painting.

In February Bostrom took six of these large watercolors to Seoul, South Korea, and showed them at VIDI Gallery, in the Myongdong District. Two of the watercolors were purchased. The show received some notice in a well-known Korean art magazine.

While in Korea Bostrom also lectured about her work at Hanseo University and toured the art departments of Seoul National University and Hongik University, both prominent schools in Seoul, with the idea of establishing a link with the Department of Visual Art here at Brown.



Another new body of work was shown in the “Project Room” gallery at University of Rhode Island in March. The “Project Room” is a small gallery devoted to experimental work. For the show Bostrom made drawings on irregularly shaped pieces of plywood using acrylic paint, ink, pencil, and charcoal. The subject matter continued the investigation of the Uncanny. As a result of this show the curator of the Main Gallery at URI asked her to mount a one-person show there in March 2018.

Before her sabbatical Bostrom had planned a printmaking project with Reza Farkondah and Ghada Amer for September 2016. Because of family emergencies the project was postponed. It was rescheduled for April 2017 and the three spent six days in the Brown Works on Paper Center making monotypes and large lithographs. Bostrom acted as “master printer” for the two artists and with the participation of several students, they pumped out at least 50 works on paper, some of which were donated to the Bell Gallery Collection and the Department of Visual Art. The model worked fantastically well and can serve as a model for future printmaking adventures at Brown.

An ongoing project is the book “The Seminar,” which Bostrom is working on in collaboration with the Pembroke Center. The project uses her drawings of the Pembroke Seminar to illustrate the book. The first step in this process was to get all of the drawings scanned into the computer. She finally finished locating and selecting the drawings around mid-year and then had them scanned. There were 434 drawings in all. The next step is to select the best ones and pair them with essays for the book. Bostrom is working with Brown professor Suzanne Stewart-Steinberg on this project.

Finally, last year Bostrom proposed to curate a show to hang in the summer of 2017 in the Cohen Gallery in the Granoff Center. The show, entitled “The Flower Show,” addresses the many ideas and forms in the depiction of flowers in painting, prints, and photography. The show includes Robert Kushner, Taryn Simon, Beatriz Milhazes, Wendy Edwards, Susan Lichtman, Andy Warhol, and the Starn Twins. It opened June 15.

Stuart Burrows

ENGLISH • 2016-2017

Stuart Burrows spent his sabbatical year 2016-17 year in Paris, completing his book *The Third Person: Identity and Temporality in Henry James*, to be submitted to Cambridge University Press this fall. The book argues that James’s work revolutionizes the way the modern novel conceives of the idea of change, preparing the way for the modernist experiments with temporality evident in writers such as Virginia Woolf and William Faulkner. Making this argument entailed reading James within a broad literary and philosophical context, most particularly that of the French novelists such as Émile Zola and Honoré de Balzac, whose novels he knew well, and the theoretical work of Gilles Deleuze.

Burrows published four articles during his sabbatical year. “The Privatization of Public Life: Free Direct Discourse in *Persuasion*,” an examination of the public sphere in Jane Austen, was published by *Romantic Circles* in fall 2016; “Noir’s Private ‘I,’” a study of Raymond Chandler, appeared in the spring 2017 issue of *American Literary History*; “Billy Budd, Billy Budd,” a reading of Melville’s novels informed by various

debates within analytic philosophy, was part of the edited collection *Melville's Philosophies* published by Bloomsbury Press in 2017; and “The Queen’s Twins: Sarah Orne Jewett’s Society in the Abstract” and “Rethinking Regionalism: Sarah Orne Jewett’s Mental Landscapes,” an overview of American literature at the turn of the 20th century, appeared in the spring 2017 issue of *J19: The Journal of Nineteenth-Century Americanists*. He also organized a panel on personhood and literature for the 2018 MLA conference in New York.

Rebecca Louise Carter

ANTHROPOLOGY AND URBAN STUDIES • 2016-2017

Extending from a junior sabbatical in spring 2016, Professor Carter spent the 2016-2017 academic year as a Fellow at the Radcliffe Institute for Advanced Study at Harvard University, where she focused on several writing projects.

She made significant progress on her book manuscript, *Prayers for the People: Homicide and Humanity in the Crescent City*, completing an introduction and five of six chapters. The book is a historical and ethnographic study of the social and religious work of African American residents in New Orleans who mourn and memorialize the dead, primarily the young black men who are most frequently the victims of homicide. Based on fieldwork within several Christian congregations (from 2007-2009), the book focuses primarily on the anti-violence ministries of a black Baptist church in the Central City neighborhood. Identifying a larger system of social death and erasure, particularly well illuminated in the decade since Hurricane Katrina, the book documents how clergy and parishioners develop and revise specific religious and moral frameworks to recover and guide African American being and becoming in the present and future city. The book examines in particular their inventive practices of social and spiritual relatedness, which support the church’s broader humanistic vision of a beloved community for the 21st century, founded on religious ideals for human value, equality, and social justice.

In a second and related writing project, Professor Carter completed and published an article entitled “Life-in-Death: Raising Dead Sons in New Orleans,” which appears in *Ethnos: Journal of Anthropology*. In this article, Carter focuses on the social and religious work of black women at two Christian congregations in New Orleans, comparatively examining the impact of homicide and the responsive and relational practices that give shape to subsequent practices of mourning and memorialization. Against the assumption that those who live and die at the urban margins are passive or powerless in their ability to bring about change, the article examines the ways in which residents simultaneously inhabit and transform conditions of vulnerability, violence, and death, highlighting in particular their assertions of value and membership, in the kingdom of God if not yet in the inclusive, just, and sustainable city they envision.

A third project took an auto-ethnographic and reflexive approach, with the completion of another article-length manuscript entitled “The House in *Time* (Magazine): The Mediation and Remediation of Disaster in



New Orleans.” This manuscript was submitted, *Visual Anthropology Review* and, after an initial peer review, is currently being revised. It explores the social life and meaning of the photograph, particularly its role in the mediation and remediation of disaster. It focuses on a photograph of a fire in New Orleans, which destroyed several homes in the immediate wake of Hurricane Katrina (including the home of the author’s immediate family members). Carter argues that the photograph, published in *Time* magazine, reinforces negative stereotypes that effectively silence the histories and experiences of the mostly African American homeowners. She then traces a process of remediation, following residents as they claim the image, altering its form and representation in an ongoing process of social recovery.

During her leave, Professor Carter gave three invited lectures on her research – at the University of Chicago (Department of Anthropology), at the Radcliffe Institute at Harvard, and at Tufts University in the Department of Urban and Environmental Policy and Planning. In these and in other places, she engaged in many enjoyable and productive exchanges, which have led to the development of several collaborative and interdisciplinary research and teaching projects.

Holly Case

HISTORY • 2016-2017

Professor Case spent the year as a visiting fellow at the Institute for the Human Sciences (IWM) in Vienna, Austria. Her primary goal was to complete and submit her book manuscript, *The Age of Questions*, a history of the emergence and trajectory – across the 19th and 20th centuries – of the Eastern, Jewish, woman, social, worker, Polish, and many other “questions.” The book wonders why the issues of the time were framed as questions and whether there a family resemblance between them. Following initial submission in the fall, she undertook revisions based on the readers reports, which were completed in March. The book is scheduled to appear in early 2018 with Princeton University Press. She presented on various aspects of the book project at the IWM, Ludwig-Maximilian University of Munich, the ASEES annual convention in Washington, D.C., the Wien Museum, NYU, Charles University in Prague, and the European University Institute in Florence.

During the year Case also undertook research in the Haus-, Hof- und Staatsarchiv (state archives for the Habsburg period), and the National Library in Vienna, both for the aforementioned book project, as well as for an ongoing project on consular jurisdiction and how it was used to alter the international system during the 19th and 20th centuries.

In addition to the aforementioned scholarly work, Case wrote a number of articles for general-audience venues, including a piece on [“The New Authoritarians”](#) for *Aeon* magazine, which attempts to answer the question “Why do today’s leaders expect so little of their citizens?” by explaining the difference between the strongmen of our time (Putin, Erdoğan, Orbán, et al.) and those of the 20th century (Stalin, Hitler, Atatürk, et al.). For the journal *Current History*, she wrote a piece on [“Shape-Shifting Illiberalism in East-Central Europe.”](#) And over the course of the year she published several essays/columns for *3 Quarks Daily*: on a young Hungarian street artist and activist, [Suzi Dada](#); on the [Central European University](#) in Budapest, which is threatened with dissolution by the right-wing populist government in Hungary; on the [insanity defense](#) in historical perspective; on the late sociologist and philosopher [Zygmunt Bauman](#); on a Croatian diplomat, [Vladimir Židovec](#), who worked for the fascist government during the Second World War; and on what a famous [Grimm fairy tale](#) reveals about our grim perspective on the future.

Starting in September, she and another fellow at the IWM (Piotr Kubasiak) initiated a reading and discussion group known as the Wiener Kreis (Vienna Circle), which met two to three times a month over the course of the year at a group member’s house to discuss readings on a variety of themes, from current controversies surrounding political correctness and freedom of speech, to the intersection of politics and theology in papal speeches, to the work of Nobel Prize-winning writer Svetlana Alexievich.

This summer, together with Joachim von Puttkamer of the Imre Kertész Kolleg in Germany, she plans to co-convene a *Sommerfrische*, or intensive summer reading and discussion group around the theme of “Thinking of the Future.” The discussions will take place in Moldova, July 9-16, where student participants from the U.S. and Europe will convene for a week to discuss texts by authors representing various genres and disciplines, from the fiction of H.G. Wells, to the philosophy of Hegel, to the writings of Oliver Sacks on neurology, to selections from various religious texts (the Bible, Quran, and the Analects of Confucius).

Michelle Clayton

HISPANIC STUDIES AND COMPARATIVE LITERATURE • 2016-2017

Professor Michelle Clayton spent the 2016-2017 academic year on sabbatical in Paris, carrying out research for a manuscript-in-progress, *Moving Bodies of the Avant-Garde*. The manuscript, which looks at the understudied role of dance in the historical avant-gardes, explores shifting conceptions of dance as it moves from the domain of entertainment to the domain of knowledge (scientific and artistic) in the early years of the 20th century. Studying the movements of dancers onstage and off, and on tours across a broad geographical horizon, it maps out the ways in which dance becomes a vehicle for thought, for engaging with different publics and cultures, and with the past and present of a nation, not to mention with other art forms. Committed to mirroring the practices of interdisciplinarity and transnationalism at the heart of the avant-garde project, the book also reveals the extent to which a broad variety of artists, writers, and thinkers in the early 20th century engaged with dance in their works as both image and practice – figures such as Sonia Delaunay, Gertrude Stein, and Francis Picabia. All three of these, along with Diaghilev's Ballets Russes and affiliated artists and composers, spent part of the first world war in Spain, and Professor Clayton's research this year has confirmed her sense of the centrality of Spain – and specifically of Spanish dance – to rethinkings of movement in the avant-garde years. This centrality is emblemized in the figure of Antonia Mercé, “La Argentina,” whose aesthetic innovations were taken as breaking new ground across a variety of disciplines and borders, and who took the starring role in a collaborative lecture with French poet Paul Valéry, “Philosophy and the Dance”, in 1936, just a few months before her untimely death.

Much of Professor Clayton's research this year has focused on the archives of La Argentina and her contemporaries, at various sites in Spain (e.g., Madrid's Fundación Juan March) and France (primarily the Bibliothèque-Musée de l'Opéra de Paris), but she has also explored other figures associated with innovations in movement, from the little-known (the Belgian dancer Akarova) through the under-studied (Dada artist Sophie Taeuber-Arp) to the globally-recognized (Charlie Chaplin). Both the time and the resources made available by the sabbatical leave have resulted in a broader and richer view of the contacts between these cutting-edge figures and with other disciplines, allowing Professor Clayton to draw out little-suspected connections between dance, film, painting, sculpture, architecture, literature, and music. At the same time, access to the performance scene in Europe has allowed Professor Clayton to shore up her understanding of contemporary dance culture, and to start sketching out a new project on the ways in which dance now is grappling with the legacy of the avant-gardes. She is currently drafting an article, for instance, on the work of Spanish flamenco artist Israel Galván, who is giving striking form to dance's ongoing engagement with the transdisciplinary avant-gardes, represented in the figures of Vaslav Nijinsky, Vicente Escudero, or Stephane Mallarmé (via Marcel Broodthaers).

Much of Professor Clayton's current work involves rescuing dance from the archives, bringing its traces to life, and finding its energies in the present, through criticism and through practice. She is further grateful to have had the unusual opportunity to think about her research into dance and interdisciplinarity from the other side, via her participation in a 10-week-long exhibition by Tino Sehgal at Paris's Palais de Tokyo in the fall of 2016, in a piece entitled “These Associations.”

Jonathan P. Conant

HISTORY • 2016-17

With the assistance of a Charles A. Ryskamp Research Fellowship from the American Council of Learned Societies and a post-tenure sabbatical leave, Jonathan Conant spent the 2016–2017 academic year working on his second book, *The Carolingians and the Ends of Empire, ca. 795–840*. This project seeks to rethink early medieval perceptions of the nature, aims, and responsibilities of empire in light of contemporary interactions across the religious, cultural, and linguistic boundaries of eighth- and ninth-century Europe and the Mediterranean. Under the Carolingian royal family, the Frankish kingdoms – roughly the territory of modern France, western Germany, and northern Italy – witnessed the first effort to rebuild a complex society on a large scale in Western Europe after the collapse there of Roman imperial power 300 years earlier. Conant's research centers on the interests and ambitions of the first two members of the Carolingian house to lay claim to the imperial title: Charlemagne (768–814) and his son and successor Louis the Pious (814–840). Though the story of Carolingian rulership has long been told as the story of the lands under immediate Frankish domination, Conant contends that their connections to the Islamic world, Byzantium, the Christian kingdoms of northern Spain and Anglo-Saxon England, and pagan Northern and Central Europe were also central to the Carolingians' understanding and exercise of imperial power. Even more, Charlemagne and Louis understood that in laying claim to the imperial title, they were also shouldering the burden of defending the universal Christian community, irrespective of the frontiers of effective political power. In the early Middle Ages, Conant argues, empire was no longer simply a matter of territorial control; it was a question of ideological authority, even across political boundaries, above all within the scattered communities of the Christian faithful.

Conant spent 2016–2017 conducting research on this project in the rich manuscript and print holdings of the Bibliothèque nationale de France in Paris. In addition, the support of the inaugural Loyola University Chicago–John Felice Rome Center Faculty Fellowship allowed Conant to consult the manuscript holdings of the Biblioteca Apostolica Vaticana in Rome in summer 2016. Being based in Europe also allowed Conant to visit in person a number of sites in France, Germany, the Netherlands, and Rome that provide iconographic, architectural, or archaeological evidence of the Carolingian ideology of empire or of the political, economic, cultural, and religious contacts between the Frankish kingdoms and their neighbors. Conant delivered a number of lectures on his research in Rome, Budapest, and Prague.

Conant was also involved in a number of smaller scholarly projects in 2016–2017. He contributed a paper on the Vandals to the forthcoming Wiley-Blackwell *Companion to North Africa in Antiquity* (edited by R. Bruce Hitchner) and prepared an article on the involvement of bishops in the liberation of captives in the late antique Mediterranean, which is presently under peer review. Finally, he has been invited to present a keynote address to the Asia-Pacific Early Christian Studies Society conference on Early Christian Responses to Conflict in Melbourne, Australia, in September 2017.

Hal Cook

HISTORY • SPRING 2017

The chief reason that Professor Cook took leave from teaching during the spring was to accept an invitation to lecture in Paris during the month of March. He held the position of Professeur invité at the École des Hautes Études en Sciences Sociales, Paris, where he had been invited by the Centre Koyré (for the history of science). Cook wrote and delivered four new papers based on his current work: “Producing Commensurability and Translation: Methods from Early Modern Dutch Commerce”; “Early Modern Dutch Empire and the Proofs of the Existence of Mermaids”; “Cartesian Physiology and the Threat of Medical Materialism”; “Making Things Work: The Dutch Revolt and the Practical Sciences.” In addition, he presented a paper based on his forthcoming book to a seminar at the C.N.R.S. Institut d’Histoire moderne et contemporaine, Paris: “Descartes’ youth: libertine military engineer?”

Before heading for Paris, in February Cook completed a final revision of the book manuscript and it was entered into the pre-publication editing system at the University of Chicago Press. It will be titled *The Young Descartes: Nobility, Rumor, and War*. In May the copy editing was completed. Page proofs should arrive at the end of the summer, with publication slated for early 2018.

Cook also completed revisions and proofs on two articles that should appear this year: “Early Modern Science and Monetized Economies: The Co-Production of Commensurable Materials,” in *Wirtschaft und Wissen: Expertenulturen und Märkte vom 13. bis 18. Jahrhundert* (Göttingen: Vandenhoeck & Ruprecht); and “Problems with the Word Made Flesh: The Great Tradition of the Scientific Revolution in Europe,” for a special issue of *Journal of Early Modern History*, ed. J.B. Shank.

Five additional articles were completed and accepted for publication, currently awaiting final comments from the editors or final revision: “Science and Technology,” for *The Cambridge Companion to the Dutch Golden Age*, ed. Helmer Helmers and Geert H. Janssen (Cambridge University Press, expected 2017); “Sciences and Economies: Historiographical Reflections,” for edition of *Osiris*, ed. Lukas Rieppel et al.; “Souls and Bodies: Descartes’ Corporeal Mind in Motion,” for *Cartesian Ingenuity: Embodied Cognition in the Philosophy of René Descartes*, edited by Richard Serjeantson, Raphaële Garrod, and Alexander Marr (Oxford University Press); “Afterward,” for *Empires of Things: Scientific Networks in the Early Modern World*, ed. Paula Findlen; “Non-Western Medical Traditions,” for Dutch textbook on medical history intended for medical students, edited Eddy Houwaart and Frank Huisman.

This summer Cook plans also to complete the introduction to, and editing of the papers in, an edited volume on *Globalizing Chinese Medicine in the 17th Century: Translation at Work*, in *Clio Medica* Book Series (Brill and the European Association for the History of Medicine and Health). This will complete the work for a publication that resulted from a conference held at Brown, with support from the dean’s office, in October 2014.

In June Cook visited the University of Utrecht to participate as a Visiting Fellow in a project on “Creating a Knowledge Society in a Globalizing World, 1450-1800,” funded by the Netherlands Institute for Advanced Study (NIAS) and Royal Netherlands Academy of Arts and Sciences (KNAW). The coming meeting is to gather the contributors for planning and coordinating research; it will also include a period of about a month of common time spent together at NIAS in Amsterdam in June 2018.

Akilah Dulin Keita

BEHAVIORAL AND SOCIAL SCIENCES • SPRING 2017

For the spring 2017 sabbatical, Dulin Keita presented her program of research at several institutions, worked to forge new collaborations, nurtured existing relationships, expanded upon areas of research interest, developed grant submissions, and furthered her research program.

Dulin Keita gave two invited talks. First, at the invitation of Julia Fang, Associate Professor of Biostatistics and Health Services Research at the University of Massachusetts (UMASS) Medical Center, Dulin Keita delivered a presentation on mixed methods in the Department of Quantitative Sciences. Second, at the invitation of Jaimie Davis, Associate Professor of Nutrition at the University of Texas (UT) – Austin, Dulin Keita delivered a presentation on the perceived risk and protective factors for childhood obesity in the Department of Nutritional Sciences. She also forged two new collaborations with UT Austin faculty.

Dulin Keita was able to develop several new collaborations that have resulted in grant submissions. Specifically, Dulin-Keita and Chanelle Howe, Assistant Professor of Epidemiology at Brown University, forged a new collaboration with the Chief Science Officer of the Jackson Heart Study. This collaboration led to using Jackson Heart Study data and data from other cohort studies for a grant proposal to explore resilience and cardiovascular disease. Dulin Keita and Howe will serve as multiple principle investigators. Dulin Keita also forged new relationships with several University of Connecticut faculty which led to planning and submitting an R01 grant proposal to conduct a dietary intervention with Southeast Asian families. Dulin Keita and Howe also resubmitted an R01 related to resilience and HIV.

Additional collaborations forged over the course of the sabbatical have resulted in a new resilience working group being established in the Brown University School of Public Health. This working group is co-led by Dulin Keita. There are plans to develop several manuscripts from this working group. Also, she was invited to spend two weeks at the University of Southern California (USC) to obtain skills in visualization of dietary data using innovative technologies. This visit was scheduled to occur during the summer of 2017.

Paja Faudree

ANTHROPOLOGY • 2016-2017

Professor Paja Faudree spent the 2016-17 academic year in Oaxaca, Mexico, where she was Visiting Scholar at the Biblioteca de Investigación Juan de Cordoba, an affiliate of the Universidad Nacional Autónoma de México (UNAM). She was funded by a sabbatical leave from Brown and by grants from the National Science Foundation, the Wenner-Gren Foundation, and the American Philosophical Society.

She worked on two major projects. The first involved ethnographic and archival research for her forthcoming book, and drafting the manuscript itself. Entitled *Magic Mint: A*

Linguistic Ethnography of the Global Salvia Trade, the book will be published by Duke University Press. It centers on global commerce in *Salvia divinorum*, a hallucinogenic plant long used ritually in the Mazatec-speaking area of Oaxaca. In that region – the only in the world to which the plant is endemic – indigenous people have been cultivating the plant for centuries. In recent years, however, salvia has become a global commodity; one of the world's newest “drugs,” its potent effects are “advertised” by thousands of YouTube “trip videos.” It has become the site of new pharmaceutical research as well. Because salvia’s value is wrapped up with marijuana and other hotly debated drug commodities, the salvia trade is linked to pressing social issues surrounding drug policy and criminalization. In addition, the book uses the salvia case to mount an ethical critique of global markets by documenting the impact of salvia’s rise on people from the region. The book shows how local people’s ties to the plant are systematically erased through the decontextualizing logic of global capitalism and dominant regimes governing intellectual property rights, attesting to the fundamental dispossessions and silences upon which global trade is based.

Professor Faudree also advanced a second research project focused on political activism, indigenous languages, and digital media. At its center will be a new book titled *CyberRevival: Indigenous Languages and “Digital Activism” in Mexico*. Based on ethnographic interviews, participant observation, archival research, and media analysis conducted since 2011, the book makes visible the largely unheralded rise of “digital activism” in Mexico and the profound consequences of this development for the political standing of indigenous people as well as for academic research. The book views “digital activism” as the emergence of novel and evolving ways that indigenous people use digital media to promote the vitality of their languages – thus taking a deliberately capacious perspective that encompasses activities ranging from the apparently quotidian to the aggressively



Procession to the annual Mazatec language song contest in Santa Maria Chilchotla, Oaxaca

political. The book argues that through these diverse means of embracing new media, people are subverting received narratives about the place of indigenous people in the digital future while simultaneously transforming the possibilities for indigenous activism. In addition to the book, other initiatives emerged from this research. In collaboration with regional leaders, Professor Faudree is designing a publication for local audiences that documents the emergence of song authorship in Mazatec and its unique place in national language revival efforts – a history that, ironically, is being erased by precisely the use of digital media that boosted the movement's popularity. Professor Faudree also began producing CDs by indigenous musicians who write and perform in their language, aiming to allow them to sell their work directly to the public. Finally, the poems and song texts collected for the book will be the basis for an anthology of Mexico's unknown indigenous authors, a project for which she will be seeking translation grants and other support over the next year as she works towards publishing an edited volume of their work.

Professor Faudree also spent the year moving both older and new articles through the publication pipeline. Finished publications from this period included articles in the journals *Popular Music and Society*, *Colonial Latin American Review*, *Comparative Studies in Society and History*, and *Anthropology News*, and book chapters in the volumes *Global Latin America: Into the Twenty-First Century* and *Language and Materiality: Theoretical and Ethnographic Explorations*. She also advanced another major publication project: *Performing Indigeneity in the Americas*, a volume of essays she is editing that will appear as a special issue of *Anthropological Quarterly*. Finally, she completed three articles that are under review, or will be shortly, at major anthropology journals: one on the digital activism project (*American Ethnologist*), another concerning the salvia trade (*Anthropology Today*), and a third on the pragmatics and politics of Mazatec whistle speech, a linguistic register that has had unique appeal to scholars (*Journal of Linguistic Anthropology*).

Professor Faudree laid groundwork for new work that will occupy her in coming years. One project, based in both the U.S. and Mexico, concerns how linguistic differences are implicated in health care disparities. Involving collaborative work with healthcare providers, translators, language activists, and others, the research aims to identify and analyze the policies and practices that produce and naturalize linguistically based impediments to healthcare, with the ultimate goal of informing how medical personnel care for patients from diverse linguistic backgrounds. Another project, the Kofán Collaborative Project, was launched in collaboration with colleagues at Brown. It will involve documenting and collecting texts in the Amazonian indigenous language Kofán, aiming to provide materials that Kofán people can use to further community agendas. That project involves collaboration with Brown students, as will another Professor Faudree launched this year in collaboration with visual artist Gregory Thielker. Centering on Thielker's artistic exploration of the border wall between Mexico and the U.S., the project will entail a spring 2018 exhibition in Brown's Granoff Center for which students under Professor Faudree's direction will provide ethnographic audio materials. She will also be involved in planning concurrent programming at the Watson Institute, where she is a Faculty Fellow.

Finally, despite being on leave, Professor Faudree remained heavily involving in service and mentoring responsibilities at Brown. Most notably, she served all year as one of five members of the Native American and Indigenous Studies Initiative Steering Committee, as it began shaping the Initiative's future, most notably through the yearlong search to hire a new director. Other notable items in this category included serving on a departmental search committee, working closely with her numerous undergraduate and graduate advisees, and reviewing manuscripts for scholarly journals and presses.

Dmitri E. Feldman

PHYSICS • FALL 2016

Professor Feldman took advantage of his sabbatical to focus on his research on topological matter. Much of the research was done in collaboration with Moty Heiblum's group at the Braun Center for Submicron Research at the Weizmann Institute of Science in Israel, where Feldman spent a portion of his leave. Feldman also enjoyed productive participation in the program "Symmetry, Topology, and Quantum Phases of Matter: From Tensor Networks to Physical Realizations" at the Kavli Institute for Theoretical Physics at UCSB.

The joint research with the Weizmann team was focused on the quantum Hall effect. The search for the tiniest building blocks of the world is generally associated with high energy physics and accelerators. Surprisingly, it is easy to make a case that studies of quantum Hall effect at low energies have led to some of the most fascinating discoveries of the smallest particles in the universe. For example, electrons are not supposed to have smaller parts in the Standard Model of elementary particles and indeed are never seen to decompose into smaller particles in accelerator experiments. At the same time, in quantum Hall systems a free electron fractionalizes into free particles of smaller electric charge, known as anyons. Besides their importance for basic science, anyons hold much promise for application in topological quantum computing.

A well-established feature of the fractional quantum Hall effect is a very precise quantization of the electrical conductance, which reduces to a combination of universal constants. Similar quantization has long been predicted for thermal conductance but has never been observed. Such an observation was eventually achieved in a joint paper, submitted during Feldman's sabbatical leave: M. Banerjee, M. Heiblum, A. Rosenblatt, Y. Oreg, D. E. Feldman, A. Stern, and V. Umansky, Observed quantization of anyonic heat flow, *Nature* 545, 75 (2017). The observed difference of the filling factor $2/3$ from the other filling factors was unexpected and revealed important differences between the transport of electricity and heat. An extension of this work to higher energy states in the second Landau level may have major implications for quantum information processing.

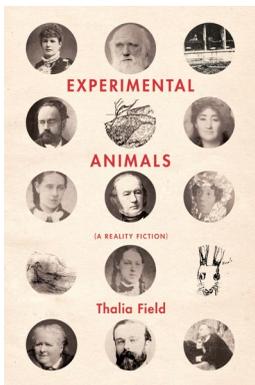
Another joint work with the Submicron Center involved an observation of unexpected electron pairing in interference experiments. Feldman proposed an explanation of some of the data within a picture of neutral excitations. Further experiments have confirmed the picture. Feldman and his colleagues are preparing a paper about this phenomenon: I. Sivan, H. K. Choi, R. Bhattacharyya, M. Heiblum, D. E. Feldman, D. Mahalu, and V. Umansky, "Unexpected Electron Pairing in the Quantum Hall Regime."

The crucial experimental technique for both projects is the measurement of current fluctuations, known as shot noise. Electrons strongly interact in the fractional quantum Hall effect, but attempts to explain the observed noise with strongly-interacting models have failed. Surprisingly, a simple model of noninteracting fractionally-charged particles provides a good fit for the data. In a joint paper D. E. Feldman and M. Heiblum, "Why a noninteracting model works for shot noise in fractional charge experiments," *Phys. Rev. B* 95, 115308 (2017) Feldman was able to explain the success of that model by deriving an expression for the noise from basic principles of statistical mechanics. This puts the standard empirical formula on a firm footing and reveals its limitations.

The discovery of topological insulators has greatly enriched the field of topological matter. Two-dimensional heterostructures, based on topological insulators, exhibit deep connections with Quantum Hall physics. Much is known about electric transport in such heterostructures, but thermal transport is not well understood.

During his sabbatical, Feldman investigated thermal transport in structures that allow transformation of two types of fermions: Majorana and Dirac in D. S. Shapiro, D. E. Feldman, A. D. Mirlin, and A. Shnirman, “Thermoelectric transport in junctions of Majorana and Dirac channels,” *Phys. Rev. B* 95, 195425 (2017). Interesting oscillations of thermoelectric and heat currents were predicted.

Connections of topological matter with quantum information and systems in periodic fields motivated Dr. Feldman’s work on entanglement in spin systems. A toy model revealed unexpected failure of standard methods in the problem of periodic time-dependent fields: E. B. Feldman, D. E. Feldman, and E. I. Kuznetsova, “Floquet Hamiltonian and Entanglement in Spin Systems in Periodic Magnetic Fields,” *Appl. Magn. Res.* 48, 517 (2017). The extension of this work will be relevant for topological Floquet materials.



Thalia Field

LITERARY ARTS • 2016-2017

Thalia Field published her sixth book, *Experimental Animals (A Reality Fiction)*, in November of 2016. Over 17 years of research, translation, and writing contribute to the unique place of this novel in Professor Field’s work. Depicting, through original source material (letters, ephemera, journal articles, news clippings) the dramatic origin of the experimental laboratory in mid-19th-century Paris, the novel begins with a focus on the dysfunctional marriage of Claude and Fanny Bernard, and opens into the wider societal arguments that emerge from the animal body in pain at the heart of experimental method. Familiar historical figures (Hugo, Zola, Darwin, Cobbe) take up surprising and contradictory roles in a story about the people at the heart of modern ideas of “progress” and those who have challenged its presumptions. Literary experimentation, film, women’s and animal rights, the abolitionist movement, and revolutionary fervor combine to make this a unique view of a time that resonates strongly today.

Featured in *TANK* magazine and *Brooklyn* magazine as something to watch for in the 2016 literary scene, Field presented *Experimental Animals* in significant press and interviews, articles, and events accumulated around the book’s release. Highlights include a “lost chapter” from the book, commissioned and published by NY’s *BOMB* magazine in their winter 2017 edition; a benefit for the NonHuman Rights Project and NRDC at The Kitchen in January, and a featured podcast on *Between The Covers* in May. The book appeared on several important “best of” lists for 2016, and Professor Field presented the book at the Nineteenth-Century French Studies Conference at Columbia College-Chicago and the University of Iowa, and she will continue to tour performances of the book at Seattle’s Hugo House, Hobart and William Smith Colleges, and the Universities of Utah and Alabama.

In addition to this major publication, Field prepared several shorter works, in particular a chapter for the forthcoming anthology, *Animal Comics* (Bloomsbury, London), edited by David Herman. She continued her engagement with Brown’s burgeoning Animal Studies initiative, and has begun work on a two-part fiction, *Hi Adam/Weird Hill*. Other ongoing projects that were able to receive sustained attention this year include the almost-complete second collaboration with French author Abigail Lang still tentatively titled, *Leave to Remain*, and a new multimedia work in song and collage, “PlaceHolders.”

Richard Fishman

VISUAL ART • 2016-2017

The plans for Fishman's work during this period were envisioned as a continuation and culmination of sculpture he began a number of years ago with the advent of the Elm Tree Project.



In December 2003, one of Brown's oldest elm trees contracted Dutch elm disease, and had to be removed. Its base was removed from the ground; its trunk cut into slices, becoming raw material. The work examined a tree's dismantlement and reassembly, exploring the cycles of creation, destruction and resilience we see in life, art, and desire.



The elm is a storied tree. During Aeneas' descent into the underworld, Virgil describes the elm, found along the River Styx, as huge and shadowy, its leaves dotted with empty dreams.

Opening September 2017 the Bell Gallery will present Fishman's work which began with the Elm Tree Project and continues with the most recent work continuing the conceptual and material elements inherent in his long-held vision. A belief in the knowledge held in limits, of points reached and nearly broken. "The struggle for existence at the edge of extinction" (Thomas Malthus).

This tree is now a series of shadows of its former self: fragments left alone or rejoined to their wholes, cross-sections worked and hung resurrected, or reassembled into full and heavy slabs. The elm's limbs and trunk stand side by side, impossibly rejoined, its own rebirth and death occupying the same space at the same time. A belief in the materiality of the elm, and its demand to be turned over and over and explored.

A belief in the possibility of renewal.



Omar Galárraga

HEALTH SERVICES, POLICY, AND PRACTICE • FALL 2016

Omar Galárraga, PhD, is a Health Economist working in the Department of Health Services, Policy, and Practice at the Brown University School of Public Health. His research focuses on the design and use of behavioral economics interventions for behavior change, particularly as it relates to prevention and treatment of HIV and other sexually transmitted infections (STIs); the evaluation of health reform initiatives including universal health care coverage; and the cost-effectiveness of public health interventions. He spent his sabbatical semester as visiting faculty at Harvard University sponsored by the Harvard Center for Population and Development Studies. The Center's mission is to improve global well-being by better understanding the interaction of demographic changes with social and economic development. The goal is to produce population-based evidence that better informs policies needed to create resilient and healthier societies.

With colleagues at Brown and at the University of Cape Town, Dr. Galárraga led the preparation of a new R-01 grant to explore the use of behavioral economic innovations to increase the correct and continued use of dual protection methods (against unplanned pregnancy and HIV) among young women in South Africa. This work presents an excellent opportunity for interdisciplinary and international collaboration in a setting undergoing unparalleled scale up in terms of HIV prevention and treatment in sub-Saharan Africa.

With funding from NIH and PEPFAR, Dr. Galárraga also started working on a project to develop evidence for implementers and ministries of health in sub-Saharan Africa to make informed decisions about health care delivery for persons living with HIV and cardiovascular disease and/or diabetes mellitus. Specifically, using data from Kenya and South Africa, Dr. Galárraga and his team started studying the burden of non-communicable disease (NCD) among people living with HIV, and the effects and cost-effectiveness of integrated care that provides treatment for both HIV and NCDs. They will continue to work on modeling the burden of comorbidities, the effects of integrated care, and the cost-effectiveness at the population level.

While on sabbatical, Dr. Galárraga published a book chapter entitled “*Male Sex Workers: HIV Risk and Behavioral Economics*” in the Oxford [Handbook](#) of the Economics of Prostitution, published by Oxford University Press. In addition, he published several peer-reviewed articles related to his health economics research in Mexico, Kenya, South Africa, and the U.S., including:

- “The Impact of Social Health Insurance on Diabetes and Hypertension Process Indicators among Older Adults in Mexico,” *Health Services Research*, [HSR](#)
- “Costs along the service cascades for HIV testing and counseling and prevention of mother-to-child transmission,” *AIDS*
- “At Federally Funded Health Centers, Medicaid Expansion Was Associated With Improved Quality Of Care,” [Health Affairs](#)

Finally, Dr. Galárraga made guest lectures and presentations at Harvard University, at the Harvard Center for Population and Development Studies, and at the Massachusetts Institute of Technology (MIT), at the Northeastern Universities Development Economics Consortium (NEUDC) on “Conditional Economic Incentives to Reduce HIV/STI Risks among Male Sex Workers in Mexico City.”

Huajian Gao

ENGINEERING • SPRING 2016

Professor Gao spent a one-semester sabbatical leave during spring 2016 split between a number of relatively short visits at the Institute of Metal Research of the Chinese Academy of Sciences (IMR), Tsinghua University, Hong Kong Polytechnic University, and MIT.

At IMR, Gao worked with Professor Ke Lu and Professor Lei Lu on a joint research project investigating the mechanical properties and deformation mechanisms of recently synthesized ultrafine-grained metals with a high density of nanoscale twin lamellae that act as subgrain microstructures. Professor Ke Lu at IMR is currently the leading the experimental researcher on synthesis, characterization, and measurement of nanotwinned metals in the world. Gao worked on modeling and simulations to help reveal how the deformation behaviors of this kind of material depends on the internal microstructures and associated characteristic length scales (i.e., grain size and twin boundary spacing).

At Tsinghua University, Gao initiated a collaborative project with Professor Xiaoyan Li from the Department of Engineering Mechanics and Professor Hui Wu from the School of Materials Science and Engineering on a newly discovered phenomenon called giant elasticity in nanocrystalline ceramic nanofibers. Previously, it was known that some shape memory alloys can recover large mechanical strains up to 10% via martensitic phase transformation. For ceramics, this mechanism is normally suppressed due to their brittleness and propensity for cracking at strains typically less than 1 percent. The collaboration between Gao and Tsinghua collaborators has led the discovery of a type of giant elasticity in nanocrystalline ceramic nanofibers with recoverable strains exceeding 100 percent! Currently, an intense effort is being dedicated to understanding the underlying physical mechanism for this very surprising discovery.

In addition, Gao has initiated a series of collaborations with Professor San-Qiang Shi from the Department of Mechanical Engineering at Hong Kong Polytechnic University and Professor Pedro Reis from the Department of Civil and Environmental Engineering at MIT on mechanics of 2D materials. 2D materials are crystalline materials consisting of a single layer of atoms. These materials come in a wide array of chemical compositions, crystal phases, and physical forms, and are anticipated to enable a host of future technologies in areas that include electronics, sensors, coatings, barriers, energy storage and conversion, water purification and biomedicine. While each of these promising applications emphasizes a different aspect of 2D materials, they all require structural reliability and resistance to failure of the materials. Recently, it has become clear that, while 2D materials can achieve ultra-high strength with nearly perfect atomic structures, they are typically very fragile against fracture. This is an important concern as large scale fabrication will inevitably introduce cracks in 2D materials. The intrinsically brittle nature, inevitable cracks and corrosive environment make fracture one of the most prominent concerns in industrial applications of 2D materials. The collaboration that Gao initiated with Hong Kong and MIT collaborators is aimed at developing methods of tailoring mechanical and physical properties of 2D materials through topological design. Upon returning from his sabbatical, Gao received the great news that his NSF proposal on 2D materials has been funded with the starting date of September 1, 2016. What a great timing!

The collaborations Gao initiated during this sabbatical have resulted in the preparation of a couple of high-profile publications that are currently under review.

Phil Gould

ENGLISH • 2016-2017

Over the course of 2016-2017, Professor Phil Gould began a new book project on American literature and the Civil War State. This study offers a literary history of the U.S. Civil War by focusing on the radical transformations in the powers and functions the U.S. federal government assumed almost immediately in 1861. Combining literary analysis, political history, and legal and political questions about sovereignty (in what the philosopher Giorgio Agamben has called the “state of exception”), Gould asks how and why literature, conceived broadly, provides an important arena for reconsiderations of what one historian, describing the Lincoln state, calls “the Second American Revolution.” This involved of course the expansion of the wartime state’s mobilization of the military, but it also raised legal and ethical questions about the nature of the “Constitution” at a time of political crisis, Lincoln’s suspension of habeas corpus, the widespread censorship of newspapers and periodicals, and the meanings of treason and loyalty. These issues – censorship, treason, and propaganda – structure the study’s larger arguments, and it accordingly reads across a wide array of political and cultural discourses, including not only legal and political pamphlets, political sermons, and public epistles (the most famous of which were authored by Lincoln for the U.S. press) but also Southern satire about Lincoln and the Republican Congress, the writings during the campaigns for the election of 1864, and Democratic Party protest literature written principally against Lincoln’s policies of imprisoning those who critiqued his administration.

As the study has taken shape, it has focused on questions of the meanings of silence and discourse in the public sphere of politics, and it analyzes in detail the responses the war elicited from canonical writers such as Hawthorne and Melville, as well as African American autobiographers like Elizabeth Keckley and Charlotte Forten, and lesser-known Civil War literary figures such as John William DeForest and Louisa May Alcott. The major intervention is to reorient 19th-century American literary studies from its traditional concerns (indeed obsession) with the “nation” and “national belonging” to more pointed issues involving state power, civil liberties, and the uncertain boundaries between “military necessity” and civil rights in American public life during wartime.

Gould has drafted an essay on “Hawthorne and the State of War,” a version of which he presented in an invited lecture at the University of Wisconsin-Madison. This draft essay was the focus on two recent presentations at the Massachusetts Historical Society’s Early American History Seminar and the Washington Area History Seminar, sponsored by the English and history Departments at the University of Maryland–College Park. He is in the process of drafting a second chapter/essay on Hawthorne’s Civil War-era writings, and has begun to draft notes and preliminary outlines on separate chapters on Alcott and DeForest.

Gould notes his good fortune in having been able to make great use of the John Hay Library’s excellent Special Collections to conduct much of the research thus far, particularly the Hay Lincoln Collection. In addition, the American Antiquarian Society has been a highly useful research library for this project.

In addition to this project Gould gave an invited lecture at the University of New Hampshire’s Eighteenth Century Studies Group on “Propaganda and the American Revolution: The History of a Political Concept, 1940-2016.” He hopes to make part of this work applicable to the new course he is teaching in 2018, with Professor Seth Rockman (history), on the American Revolution.

In addition to these activities, Gould presented work and organized panels for the MLA convention and Meeting of the Society of Early Americanists. He also wrote the response to a special issue of *Early American Literature* devoted to the loyalists during the American Revolution.

Alex Gourevitch

POLITICAL SCIENCE • 2016-2017

Professor Alex Gourevitch spent his year of leave as the William Bentinck-Smith Fellow at the Radcliffe Institute for Advanced Study, researching a book on the right to strike. The broad aim of the book is to develop an argument for why workers have a right to strike, what they can do as part of the exercise of that right, and what this means for law and politics. The broad argument that he developed is that workers have a right to strike because they have the right to resist the oppression they face in typical, actually existing, liberal-capitalist economies.

For most of the year, Gourevitch focused on research and writing. The research broke down into three main areas: comparative labor law, labor history, and the political philosophy of protest and disobedience. In the area of labor law, Gourevitch worked with a number of research assistants to look at how different countries categorize and regulate the employment relationship. The key discovery was that in all advanced capitalist countries, the typical employee is understood to be a “subordinate,” subject to the commands of the employer without many rights of control over those commands. This legal discovery served as part of the argument that Gourevitch developed, arguing that workers are oppressed – subject to unjust limitations on their freedom and forms of uncontrolled authority. In labor history, Gourevitch researched the development of the right to strike and its relationship to liberal conceptions of law and legal order. And in political philosophy, Gourevitch read the literature on civil disobedience in order to develop an argument about what is distinctive about strikes as a form of social disruption.

The main results of Gourevitch’s research were a series of essays that serve as drafts for various chapters in the book. One essay, presented in the fall and submitted in the spring, argues that putting the legal experience of striking in conversation with the civil rights movement shows us how alongside “civil disobedience” there is a



This poster by Gourevitch’s research assistants describes his main argument regarding the right to strike and its contemporary relevance.

distinct tradition and concept called “radical disobedience.” Another essay, presented throughout the year and submitted to a journal in late spring, develops the core of Gourevitch’s argument for the right to strike. The basic idea is that the large majority of worst-off workers cannot go on strike with any reasonable chance of success without violating some of the basic liberties – of property, contract, and association – that liberal societies protect. But if we limit strikes to respecting those liberties, then the right to strike is meaningless to most workers. We need a theory of why the right to strike might have priority over those liberties, in the case of labor disputes, and the article gives an answer. Namely, that workers have a right to strike to resist the oppression they face in the economy and that oppression is in part a product of those other liberties that they violate. Alongside these two essays, Gourevitch also wrote a third article laying out the fraught relationship between liberalism and the right to strike. While many liberal societies have recognized in law that workers have a right to strike, they have surrounded it with so many limitations as to render it of little value. This is a sign of the difficulty that liberal theory has in dealing with class conflict. This article, too, was to be submitted by the end of June.

Paul Guyer

PHILOSOPHY • SPRING 2017

Professor Paul Guyer spent his sabbatical as the Daimler Fellow at the American Academy in Berlin, working on a book on the intellectual relationship between Immanuel Kant and Moses Mendelssohn. These two great exponents of the German Enlightenment met only once, in the summer of 1777, but they had certainly come to each other’s attention by 1764. In that year, the Berlin Academy of Sciences published Mendelssohn’s prize-winning essay on the question whether metaphysics has the same prospects of certitude as mathematics, along with Kant’s runner-up contribution. After that, the two philosophers were often looking over their shoulders at the other, and Kant in particular was often replying to Mendelssohn in his work even when he did not make that explicit. Guyer’s book will trace this relationship across the full range of topics involved, from philosophical method to metaphysics proper, philosophical theology, the politics of religion, and aesthetics. Although Mendelssohn is often thought of as a late adherent of the rationalist school of German philosophy going back to Leibniz and Wolff and Kant is thought of as adding a necessary dose of empiricism to this tradition, Guyer’s conclusion is that Kant was ultimately the better rationalist, with a sounder account of both the strengths and the limits of human reason, while Mendelssohn was the better empiricist, with a fuller account of the human experience of art, religion (and even mathematics!). This is particularly important in the case of the politics of religion, because while both Mendelssohn and Kant were strong proponents of freedom of religion from government intervention, and Kant has a stronger abstract argument for this position, Mendelssohn has a better sense of the inevitable plurality of human religious practices and therefore of the practical need for a strong public commitment to equality of religious opportunity.

During the semester, Guyer completed drafts of all the material needed for the book except for two earlier papers that he will incorporate into it (about 300 pages), and he expects to revise and polish the material during the coming year. Guyer also wrote six other papers, some related but some on unrelated topics, such as a paper on the similarity of John Rawls’s account of primary goods to Kant’s theory of rights, which Rawls

himself did not use in his own “Kantian” theory of justice but which could have made the logic of his position clearer. In addition to his public lecture at the American Academy on Mendelssohn, Kant, and religious liberty (which, once posted on the Academy’s website, received more hits than any other fellow’s lecture), Guyer also gave a dozen public lectures, conference presentations, and seminars at universities in Germany and elsewhere in Europe, including the main Berlin universities as well as Frankfurt and Halle in Germany and Lisbon and Florence. A number of these lectures were drawn from his Mendelssohn-Kant material, and gave him feedback that will be very useful in the final revision of the material. One lecture in particular concerned a different topic, Kant and the philosophy of architecture, and put Guyer in touch with the community of architectural theorists in Berlin. This will prove of great use when he co-teaches a Comparative Humanities seminar on architecture and philosophy with Dietrich Neumann in 2018-2019.

Meredith Hastings

EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES • 2016-2017

Meredith Hastings had a productive year advancing her research and scholarship, traveling to scientific meetings and workshops, leading activities to advance gender diversity in the earth sciences, mentoring and growing her research group, and laying the foundation for future research activities. In addition, she contributed to reviewing (too many) articles and research proposals from a variety of journals and organizations such as the National Science Foundation. Overall, it was a busy and fruitful year, and she is grateful for the sabbatical opportunity, especially on the heels of successfully advancing to Associate Professor in 2015.

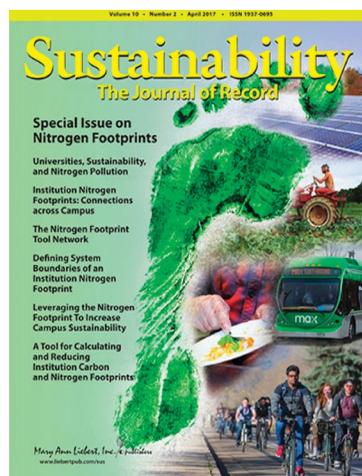
Hastings’s research is centered on understanding the impacts humans have (and have had) on the composition of the atmosphere, and the influence of the atmosphere on the biosphere. The atmosphere is full of nitrogen (as N₂) that is largely unreactive, but both natural and human-driven processes add reactive nitrogen to the Earth system. Hastings’ interest in reactive nitrogen (particularly nitrogen oxides) extends from its connections to influencing air quality (e.g., smog) to the biogeochemical cycling of nitrogen in the earth system via formation of nitric acid, a major component of acid rain and a source of biologically available nitrogen. Hastings’ research group is focused on using the isotopic composition of reactive nitrogen to investigate variations in sources, chemistry, atmospheric transport, and deposition.

This year, Hastings and her research group submitted eight different pieces of work for publication in peer-reviewed journals. Wojtal et al. (*Journal of Visualized Experiments*, 2016) was the result of a senior thesis by Paul Wojtal (’16, Chemistry) that advanced a new method developed in Hastings’ laboratory to be field deployable. This method was then used to fingerprint the isotopes of nitrogen oxides associated with vehicle emissions in the U.S. (Miller et al., *Journal of Geophysical Research-Atmospheres*, 2017). Another senior thesis, by Tess Carter (’16, Chemistry), a Royce Fellow and an IBES Voss Environmental Fellow, resulted in a publication detailing nitrogen deposition effects on forest lichens and trees (Carter et al., *Ecosphere*, 2017). This work included collaboration with scientists from the EPA, U.S. Global Change Research Program, U.S.

Geological Survey, and USDA Forest Service. Hastings is also interested in how reactive nitrogen has changed over time using nitrate trapped in ice cores from Greenland, Antarctica, and mountaintop glaciers in the tropics. A paper in collaboration with Nathan Chellman '12 reports on a record from central Greenland that covers the last 300 years of deposition, and distinguishes the impact of coal and oil burning in the recent past (Chellman et al., *Cryosphere Discussions*, 2016). The paper is controversial because its findings dispute at least two other published studies.

Another project focused on measuring gaseous reactive emissions via the production of biochar from chicken manure. The purpose of this project was to compare and contrast the impact of producing biochar, in terms of greenhouse and air quality related gases, to the potential benefits or “savings” of greenhouse gases when using biochar as a soil amendment in agricultural settings. (Gaseous emissions and runoff from agricultural lands is a major source of air and water pollution.) A manuscript is currently under review in *Sustainable Chemistry and Engineering*.

Two publications (Hastings et al. and Castner et al., *Sustainability: The Journal of Record*, 2017) were a fulfilling outcome of Hastings' efforts as part of the [Nitrogen Footprint Network Project](#). Hastings led the involvement of Brown as part of the first cohort of institutions to calculate their nitrogen footprint – quantifying Brown's contribution to the release of nitrogen pollution into the environment. A special issue of *Sustainability: The Journal of Record* was dedicated to the [Nitrogen Footprint project](#). Hastings' article details the experience of coordinating efforts across an institution to understand our impact on the environment; Castner's article (and Castner '14 is coordinator of the N-print project at University of Virginia and also produced a senior thesis with Hastings!) details and compares the results of the ten different institutions in the first cohort. The Nitrogen Footprint is now part of Brown's continuing institutional sustainability efforts.



Scientific workshops, conferences, field work and invited seminars took Hastings to: Telluride, CO; University of Toronto, Canada; Missoula, MT; Washington DC; Breckenridge, CO; San Francisco, CA; Honolulu, HI; Columbia University; Stanford University; and York, England. The trip to Montana was part of a NOAA-led laboratory experiment that took place in October-November 2016 at the Missoula Fire Science Laboratory. One of Hastings' externally funded projects is a study on how wildfires in the U.S. impact air quality. As part of a large collaboration amongst the individual scientists funded, the purpose of the laboratory study was to measure a variety of gas and particle emissions from controlled burns, in preparation for field measurements to take place in the summer of 2018 and 2019. The experiment was the subject of an [NPR report](#) in December.

As a co-founder and current Vice-President of the non-profit Earth Science Women's Network (ESWN), Hastings is also working to promote and advance diversity in the Earth Sciences. The mission of ESWN is to provide support, community, and mentoring for women in the geosciences through online forums, in person networking opportunities, and professional development workshops. For example, Hastings organized and facilitated a suite of activities aimed at early career, diverse scientists during the 2016 American Geophysical

Union Fall Meeting in San Francisco, CA – the largest conference of its kind with over 24,000 Earth and space scientists, educators, and students in attendance. Hastings also contributed to an article in press at *EarthZine* entitled “Building Community to Advance Careers and Catalyze Institutional Change: Lessons from the Earth Science Women’s Network.” In January 2017, the efforts of ESWN were recognized with a Special Award from the [American Meteorological Society](#).

In an effort to establish a foundation for new research activities in the coming years, Hastings worked to recruit undergraduate researchers for the summer (via UTRAs and the Leadership Alliance), a new graduate student for fall 2017, and a visiting Ph.D. student from China. A researcher from the Chinese Polar Research Institute also visited Hastings lab for two months to analyze samples of surface snow and ice cores from Antarctica. The two are currently collaborating on two manuscripts as a result of that work. An equipment grant funded by IBES led to the installation of a precipitation collector on Brown’s campus, which Hastings will be using to study year-round nitrogen deposition in an urban environment and quantify its input to surrounding Narragansett Bay.

The time during sabbatical also afforded the development and submission of four different grant proposals to the National Science Foundation. Three proposals (in different ocean basins) are focused on tracking the influence of ocean-atmosphere interactions on the deposition of reactive nitrogen into the ocean’s biogeochemical system. A fourth proposal stems from Hastings work with board members of ESWN, and aims to tackle sexual harassment in the geosciences (“ADVANCE Partnership: From the Classroom to the Field: Intervention Training to Address Sexual Harassment in the Geosciences”). In sum, it was a busy and productive year, which will continue to bear fruit in the coming year.

James W. Head, III

EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES • FALL 2016

Professor James W. Head spent his fall 2016 sabbatical on campus and during this time he was able to continue to meet regularly with his graduate student advisees and to make a priority of guiding a large number of research papers through to completion.

The thrust of his sabbatical efforts was focused on continuing research projects where he had an opportunity to undertake the synthesis of two important areas of planetary geoscience research and to explore a third critical area in order to formulate his research strategy for the coming years.

During this sabbatical Professor Head collaborated with Professor Lionel Wilson, University of Lancaster, UK, focusing on planetary volcanology. They have formulated a theoretical framework for the generation, ascent, and eruption of basaltic magma, the most common rock type on the Earth-like planets, including Earth. The strategy in doing this was to provide a quantitative interpretive framework for the many observations that were being acquired by multiple NASA and international spacecraft missions to the Moon, Mercury, Venus and Mars. This tidal wave of new data could not only be placed in this interpretive

framework, but also provided the opportunity to test the predictions of these models, and refine them. Head has already initiated this effort for the Moon and published two papers: Head and Wilson, 2017 “*Generation, ascent and eruption of magma on the Moon: New insights into source depths, magma supply, intrusions and effusive/explosive eruptions (part 2: observations)*,” *Icarus*, 283, 176-223; Wilson and Head, 2017 “*Generation, ascent and eruption of magma on the Moon: New insights into source depths, magma supply, intrusions and effusive/explosive eruptions (Part 1: Theory)*,” *Icarus*, 283, 146-175). In order to accomplish this further, Professor Head will plan an extended visit to Lancaster University during the coming academic year, and Professor Wilson will reciprocate with a visit to Brown.

Professor Head was also able to focus on the area of the nature and evolution of the climate of Mars, and has completed and published a number of studies that document different aspects of the climate of Mars and its characteristics during the three major historical eras of Mars: the young Amazonian, and the more ancient Hesperian and Noachian. His studies are facilitated by 1) the field program in the hyperarid, very cold Mars-like climate of the Antarctic Dry Valleys, and 2) the understanding and utilization of general circulation models for the atmosphere of Mars, in collaboration with Professor Francois Forget, Laboratoire de Météorologie Dynamique (LMD) in Paris, and Professor Robin Wordsworth, Harvard. Over the last several years, collaborations between the labs have increased substantially, with students and postdocs moving from one lab to the other to complete complimentary projects. In this context, Professor Head was invited by a major journal to publish a synthesis of the geological evidence for climate history in each of the major periods of Mars and visits to the LMD would facilitate the completion of these syntheses in the coming academic year. Furthermore, Professor Head has been focused on a particularly crucial aspect of the climate history of earliest Mars, and the question: Was Mars “warm and wet” or “cold and icy”? He and his students and colleagues have made excellent progress in addressing this question, and Professor Head has been invited by the editor of *Nature* to write a review article on this question, as it is one of the most significant in evolution of the planet Mars. It also pertains to the question of whether or not life ever arose on Mars and if so, in what environments might this have happened. Professor Head was also invited by Professor Forget to visit LMD and work on these important issues and plans to do so during the upcoming academic year.

Professor Head also spent his sabbatical continuing international outreach and encouraging future international research in planetary geoscience. For many decades he has been interacting with the Soviet Union, and now Russia, in their lunar and planetary exploration program. Started in the era of President Howard Swearer and Center for Foreign Policy Development Director Mark Garrison, this collaboration has been phenomenally successful, resulting in dozens of joint papers, analysis of Soviet lunar samples and Venus data in Brown laboratories, and dozens of students travelling to Moscow to learn about their colleagues and share their planetary geological scientific research. Recently, the People’s Republic of China has made lunar and planetary exploration a major national priority, and is in the midst of an assertive robotic exploration program that will lead to Chinese Taikonauts exploring the Moon in the coming decades. Professor Head was invited to visit China (June 2016) in conjunction with assisting in the selection of landing sites for their upcoming missions and planning future exploration. Fortunately as with the relationship with the Soviet Union/Russia, Head and his colleagues do not deal in the design or utilization of any instruments or technology that relates to national security; the information exchange is purely geological. The community of lunar and planetary scientists in China is young and inexperienced, but very highly motivated. Thus, Head is in a unique position to

positively influence their choice of landing and exploration sites, and the choice of terrains to explore and return samples. As in the case of the Soviet Union, Professor Head anticipates that his input will be rewarded with the opportunity to analyze the returned data and samples, and share these with other scientists in the United States. The goal of accepting these invitations is to build bridges to the future, both for our research in Planetary Geoscience at Brown, and for the broader international community. An example of the results of these interactions is the publication of two research papers in professional journals: Basilevsky, A., J.W. Head, et al (2015), *Geologic characteristics of the Luna 17/Lunokhod 1 and Chang'E-3/Yutu landing sites*, *Planetary and Space Science*, 117, 385-400 and Qiao, L., J. W. Head III, et al (2017), *In a pit crater on the Moon: Extrusion of waning-stage lava lake magmatic foam results in extremely young crater retention ages*, *Geology*, 45, 455-458.

Professor Head also participated in several conferences, and presented invited talks on his research including: OVPR, Brown; Harvard; University of New Mexico; A Day on College Hill, Brown; Human to Mars Summit, George Washington; Macau University, China; Summer School for Planetary Science and Exploration in East Asia, Exploration in East Asia, Wuhan, China; Center for Lunar and Planetary Sciences, Institute of Geochemistry, Chinese Academy of Science, Guiyang, China; National Space Science Center, Chinese Academy of Sciences, Beijing; Icelandic Summer School, Akureyri, Iceland; American Center, U.S. Embassy, Moscow; 2nd Annual Paul Lowman Memorial Lecture on Comparative Planetology, Goddard Space Flight Center, as well as an interview for a BBC documentary, *Volcanoes of the Solar System*, with Stuart Blackburn.

Christopher S. Hill

PHILOSOPHY • 2016-2017

Christopher Hill gave talks at several venues in the U.S., India, and Sweden. He twice addressed audiences at Ashoka University, and also gave colloquium talks at MIT, Nehru University, and the University of Pennsylvania. In addition, he gave talks at three conferences – a philosophy of perception conference hosted by the University of Pittsburgh, a philosophy of science conference hosted by the Universities of Lund and Pittsburgh, and a Long Island regional conference at Suffolk County Community College. The talks were concerned with issues in epistemology, the philosophy of consciousness, and the philosophy of perception. Hill was also one of three speakers at a symposium on introspection hosted by SynTalk, an educational internet show based in Mumbai.

Hill organized a conference at Brown entitled “Pleasure, the Reward System, and the Perception of Value.” Half of the speakers were philosophers, and half were cognitive scientists or neuroscientists. Two of the guest speakers came from the University of Cambridge, and the rest came from Harvard, Princeton, Rice, the University of Colorado, the University of Michigan, and Virginia Polytechnic University. Audiences consisted of philosophers and scientists from Brown and the Boston area.

Hill finished four articles that have been published or await publication: “Perceptual Relativity” (*Philosophical Topics*), “Comments on Bill Brewer’s ‘Perceptual Experience and Empirical Reason’” (*Analytic Philosophy*),

“Insects – Still Looking Like Zombies” (*Animal Sentience*), and “Consciousness and Memory” (*Oxford Handbook on the Philosophy of Consciousness*). Two other papers, one on the philosophy of Thomas Reid and another on unrevisable propositions, are under review. He also co-edited a volume of *Philosophical Topics* with Brian McLaughlin (Rutgers) that appeared in April. The title is *New Directions in the Philosophy of Perception*. It contains 14 papers by established figures and rising stars. In the spring semester, Hill was primarily concerned with research for a book on concepts. He plans to address epistemological questions about concepts (e.g., Is it possible to obtain a priori knowledge by analyzing concepts?) and also metaphysical questions (e.g., Under what conditions can two people be said to possess the same concept?).

Hill continued to serve as DGS for the Philosophy Department while on leave.

Jeff Hoffstein

MATHEMATICS • 2016-2017

During his year-long sabbatical, Professor Jeff Hoffstein divided his time between two different areas. The first was cryptographic. With Joe Silverman, Hoffstein has an NSF grant, in collaboration with Berk Sunar at WPI, to study homomorphic encryption. The foundation of this is an idea that Hoffstein and Silverman came up with while funded by their previous NSF grant that introduces an entirely new approach to homomorphic encryption, and in fact, to a number of other cryptographic constructions. The two have submitted a patent, through Brown University, for the basic idea, and they hope that this may eventually prove to be valuable to Brown. Basically, homomorphic encryption enables the following scenario: a person, department or entity possesses a vast amount of sensitive data. The data needs to be kept private, but computations need to be done on the data that are beyond the capacity of the entity to perform. Alternatively, the data needs to be merged with other private data from other entities, and the entire collection of data needs to have computations performed on it. The ultimate objective is to achieve a practical system where data is encrypted, then computations are performed on the encrypted data, and finally the decryption of the computations on the encrypted data is identical to the answer that would have been obtained if the computations had been done on the original data. The objectives are simple. The execution has not been achieved in a remotely efficient way by anyone yet, and that is what Hoffstein is aiming to change. With his collaborators, he has written and submitted (to one of the three major cryptography conferences) the following paper on this subject: Fully Homomorphic Encryption from the Finite Field Isomorphism Problem, Y. Doroz, J. Hoffstein, J. Pipher, J. Silverman, B. Sunar, W. Whyte, and Z. Zhang.

The authors are in the process of completing a paper, based on related ideas, in which they create the most efficient quantum computer-resistant digital signature scheme to date. This should be done shortly, and they are hoping to have it integrated into their vehicle to vehicle security software package [Aerolink](#).

They also published, on the subject of their NTRU cryptosystem, J. Hoffstein, J. Pipher, J. Schanck, J. Silverman, W. Whyte, Z. Zhang, “Choosing Parameters for NTRUEncrypt,” *Proceedings of RSA 2017*, Cryptographers Track, Springer Lecture Notes in Computer Science.

The other direction Hoffstein has pursued is a project he began in the fall of 2008. He has spent the years since then developing a number theoretic structure to answer questions about moments of automorphic L-series, a subject that it is very hard to describe without becoming extremely technical. Hoffstein has published one very long paper with a former Ph.D. student, laying the foundations of this subject. Hoffstein's main efforts in the last eight years have been toward solving a major problem in the field. He began collaborating with Min Lee on this problem in 2011, when she arrived at Brown as a Simons postdoctoral fellow. He believes that they have finally solved this problem, and is writing up a paper that gives the solution. If the proof holds up, this will be a major contribution to the field and a vindication of the technical machinery he created to enable this approach.

Chanelle J. Howe

EPIDEMIOLOGY • SPRING 2017

Professor Chanelle Howe spent her sabbatical as a Visiting Assistant Professor at the Harvard T.H. Chan School of Public Health. During her time at Harvard, Dr. Howe focused on building new collaborations with researchers at Harvard and other institutions as well as growing her research program. As a quantitative epidemiologic methodologist and infectious disease epidemiologist, Dr. Howe's research program focuses on improving understanding of potential sources of bias as well as better characterizing, adapting, and illustrating the use of advanced quantitative methods to promote accurate inference based on observational studies in the published literature. Dr. Howe is also interested in identifying the best targets for effective interventions to reduce persistent health disparities. Such disparities include inequalities in HIV disease by race/ethnicity as well as socioeconomic and neighborhood-level factors.

During her sabbatical, Dr. Howe published 3 HIV-related manuscripts, two as first author and one as a second author, where Dr. Howe mentored the first author. One of the first authored publications appeared in the journal, *AIDS and Behavior*. The *AIDS and Behavior* paper systematically reviewed and summarized the literature on potential neighborhood-based disparities in sexual risk behaviors for HIV infection among adult women in the United States and highlighted the critical need for future longitudinal studies in this important research area. The second first-authored paper was accepted for publication in the *American Journal of Epidemiology*. This second paper presented a conceptual and methodological framework for evaluating the impact of intervening on specific targets to reduce HIV racial/ethnic disparities in adulthood. The second-authored paper was published in *AIDS Care* and demonstrated that transitioning from the tuberculin skin test to the interferon-gamma release assay for screening for latent tuberculosis infection among HIV-positive patients improved adherence to national latent tuberculosis infection screening guidelines at an HIV primary care clinic in Philadelphia.

In addition, manuscripts that Dr. Howe served as the first or a co- author on were either submitted or underwent revisions after receipt of a revise and resubmit during the sabbatical period. Dr. Howe also actively worked towards submitting another three manuscripts. She had one grant application awarded that in part

supports modifying existing methods for performing causal mediation analyses. She submitted an abstract to present the details of the aforementioned modification at the 50th Annual Meeting of the Society for Epidemiologic Research. This abstract was co-authored with researchers at several institutions including new collaborators at Harvard and Stony Brook University and has been accepted for an oral presentation that will take place in Seattle in late June of 2017. Dr. Howe also initiated the process to obtain approval to start another new HIV-related collaboration with researchers at Harvard, SUNY Downstate Medical Center, UNC-Chapel Hill, and other institutions.

Dr. Howe also worked on two grant proposals that also involve new collaborators; one of which has been submitted and the other will be submitted by the end of June 2017. She also prepared to begin data collection for her multi-site, NIH-funded study where she serves as the Principal Investigator. Dr. Howe also attended the Atlantic Causal Inference Conference in May of 2017 that was held in Chapel Hill, North Carolina. During this conference she continued to foster new methodologically focused collaborations with researchers at Johns Hopkins and elsewhere.

William Keach

ENGLISH • SPRING 2017

The focus of Professor Keach's work during this sabbatical was a book-in-progress, *The Ruins of Empire and Romantic Cultural Property*. Keach is in the finishing stages of this book and was engaged for much of the time in drafting a chapter called "Cockney Cultural Property" (the most prominent writers in this chapter are Keats, Hunt, Hazlitt, and Lamb). He also spent about a month going back into a completed chapter called "Philosophical History and the Anti-Antiquarian Impulse: Gibbon and Volney" to revise and extend a section on French and British representations during the Napoleonic period of the ancient Syrian city of Palmyra. Palmyra has been in the news steadily over the past two years because of ISIS's destruction of major architectural monuments there. The current situation is linked in complicated ways to Constantine Volney's influential 1791 book *The Ruins: or, Meditation on the Revolutions of Empires*, which was translated into English three times between 1792 and 1802, and to other literary accounts of Palmyra from this period.

Keach spent most of May in Rome, doing research related to the substantial part of his book that deals with British responses to the Napoleonic expropriation of Italian art and antiquities and with Napoleon's annexation of Rome and the Papal States in 1809-1814. Most of this research was done at the Bibliotheca Hertziana and at the library at the Villa Medici. Keach was invited by the doctoral program in British and American literature to give two lectures related to his current research at the University of Rome "La Sapienza."

Savvas Koushiappas

PHYSICS • 2016-2017

Professor Koushiappas works mostly in dark matter physics and cosmology. He spent his sabbatical at the Institute for Theory and Computation at the Harvard-Smithsonian Center for Astrophysics and at the Institute for Computational Science at the University of Zürich, Switzerland as part of a Pauli Institute visiting professorship.

During his sabbatical he completed three publications, made significant progress on three other publications and began collaborations with colleagues in both institutions. In addition, he participated at the New England Cosmology Workshop and gave invited talks at Carnegie Mellon University, the Theoretical Division at Los Alamos National Laboratory and a series of lectures at the University of Zurich/ETH-Zürich.

In a paper published in collaboration with the VERITAS collaboration (an International collaboration between nineteen institutions), he and his ex-graduate student, now a postdoc at Imperial College-London, Alex Geringer-Sameth, showed that atmospheric Cherenkov telescopes can be used to place the most stringent to-date constraints on the annihilation of massive dark matter particles. This work stemmed from years of work between Geringer-Sameth and Profesor Koushiappas and the application of their work to VERITAS allowed for the first time a joint analysis of multi-data sets in the search for a dark matter signature at very high dark matter masses.

In a paper with collaborator Avi Loeb (Harvard) he showed that primordial black holes with masses of order 10 times the mass of the Sun cannot be contributing to more than few percent to the dark matter density in the universe. This is a very important result because it shows that primordial black holes are now severely constrained not only on scales of order the mass of the Sun (which for years have been constrained by microlensing experiments), but also on the “sweet” spot of order tens of solar masses. The significance of this sweet spot in black hole mass is twofold: first, black holes of order tens of solar masses have been the least constrained so far, and second, black holes of that mass have been proposed to explain the experimental evidence of gravitational waves.

In addition, in another paper with collaborator Avi Loeb they showed that there is an absolute maximum distance of expected baryonic sources of gravitational waves. This result is very robust as any violation of this limit has extremely important consequences in all of physics and cosmology: it will rule out the standard cosmological model, even with the presence of simply parametrized non-gaussianities, and in addition it will be a clear indication of the presence of primordial black holes in the very early universe.

With collaborators at the University of Zürich Koushiappas is currently exploring cosmological implications of lepton universality deviation in the Standard Model of particle physics, as well as new approaches on numerical simulations of warm dark matter (that is dark matter with thermal velocities that has implication in the large scale structure). In addition, he has also made significant progress in three other publications: two related to the dark matter content and interpretation of a potentially significant evidence of gamma-ray emission from the dwarf galaxy Reticulum II, and one related to decaying dark matter in the very early universe, a project that constraints p-wave annihilating dark matter interpretations of Galactic gamma-rays.



Overall, this sabbatical year was very useful for Professor Koushiappas' work as it started new collaborations and research directions as well as strengthened his current work.

David Laidlaw

COMPUTER SCIENCE • 2016-2017

David Laidlaw dedicated his leave to advancing his research program in scientific visualization and virtual reality, or VR. In one collaborative effort, he and colleagues in the Department of Evolutionary Biology have been using visualization of fluid-simulation data of dinosaur footprint generation to try to understand both the biological topic and the value of VR in studying it.

This study of the value of VR is one thread of Laidlaw's research; it motivated the development of Brown's room-sized VR display known as the Yurt over the past five years. In addition to scientific analysis using VR, he spent substantial effort during his leave on making the Yurt and other VR functionality more usable. These efforts included studying software tools that can help scientists and other users be productive, helping to improve the quality of the display and computational assembly that makes up the instrument, and interacting with potential users from within and outside of Brown about how VR might help them accelerate their science. Several manuscripts from these VR-related efforts are in review or revision as of June 2017.

Two other nascent collaborations involve big-data visualization and brain tumor analysis from MRI. In both cases, the goal will be to make complex and voluminous data easier and faster to analyze visually.

In another research thread, Laidlaw is interested in the perceptual and cognitive processes that underlay scientific inquiry and visual analysis. To that end, he and collaborators looked at cognitive biases and mechanisms that might be able to reduce them during the analysis process. This work resulted in several more manuscripts in review or revision.

Work on analysis of brain diffusion MRI datasets for studying HIV and aging continued during the leave, resulting in several additional publications and pending manuscripts.

Three of Laidlaw's Ph.D. advisees completed their degrees at Brown during this leave and are moving forward in their careers.

Jung-Eun Lee

EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES • FALL 2016

Jung-Eun Lee spent her sabbatical at Brown focusing on research. Her central research questions are how ecosystem functioning modulates terrestrial precipitation across multiple timescales – diurnal, seasonal, interannual, millennial, and geological – and how these variations modulate precipitation. During her sabbatical, she worked on improving the understanding of ecosystem-climate interaction, writing a review article on how climate and plants coevolve, and studying climate dynamics of the ice age cycle.

To improve the representation of ecosystem-climate interaction in a climate model, Professor Lee has been using chlorophyll fluorescence. Her research group updated the representation of fluorescence in a climate model. She has also been mapping how diurnal productivity varies using surface flux tower and fluorescence data, emphasizing spatial gradient of afternoon water stress. With her former postdoc Xi Yang, she submitted an article on how Californian drought has been influencing the productivity of four different biomes in California.

Along with Professor Kevin Boyce from Stanford University, Professor Lee has submitted a review article on the evolution of the terrestrial flora from the Proterozoic through to the Neogene. They reviewed the plant evolution at three distinct scales – the overall evolution of floral composition, the evolution of plant physiology, and the evolution of landscape occupation both spatially and seasonally – all in the context of how the vegetation may have influenced climate through time and which deep-time transitions may be the most fruitful for future study.

The proxy record of global temperature over the past million years strongly corresponds to eccentricity (100-kyr) and precession (23-kyr) signals, although annual mean insolation at a given location is not significantly influenced by these parameters. Professor Lee's study shows that precession along with eccentricity can induce a substantial variation in global temperature because the growth of sea ice is asymmetrical between northern and southern hemispheres, with limited sea ice growth potential outside of the Arctic Circle. The hemispheric asymmetry of the sea ice response decreases under warmer climates as mean Arctic and Antarctic sea ice decreases, diminishing the precession and eccentricity signatures and explaining the mid-Pleistocene transition toward the dominant obliquity signature (40-kyr). This work was published in January 2017, and Brown communication office wrote a [press release](#).

Dore Levy

COMPARATIVE LITERATURE AND EAST ASIAN STUDIES • 2016-2017

During the fall semester of her sabbatical Dore J. Levy was the Distinguished Visiting Professor of the Humanities at New York University in Shanghai, China, courtesy of Provost Johanna Waley-Cohen. She looked forward to this as an extraordinary opportunity to be a resident of Shanghai and conduct research

based in China. Even more extraordinary, however, was the opportunity to visit, integrate, and support the mission of a truly 21st century university. Here, diversity is no byword – it is a fact. She gave several lectures on various aspects of traditional Chinese culture, was available to students and faculty as a resource, including conducting teaching evaluations and providing mentoring for junior faculty in the Humanities to show how it's done at Brown. Here is a link from N.Y.U. Shanghai describing Levy's activities in further depth: <https://shanghai.nyu.edu/news/set-stone>

Art and Life in The Story of the Stone has been a very long-term project, but is drawing to a conclusion. Levy received a grant from the China Initiative to cover research on garden culture and design in China, which allowed her to complete her parallel study of the depiction of the passage of time in Chinese narrative art.

Levy enjoyed thoroughly a talk with Gillian Kiley, writer for the humanities and social sciences for in the Office of University Communications, who published [an article](#) on her teaching and research.

Michael Littman

COMPUTER SCIENCE • 2016

Professor Michael Littman's main efforts while on sabbatical were associated with publications, proposals, presentations, and the press.

Littman published core reinforcement-learning work ("Near Optimal Behavior via Approximate State Abstraction") at the Proceedings of The 33rd International Conference on Machine Learning. He also expanded his collaborations with behavioral scientists at Brown, MIT, and Washington State, publishing papers on norms and multi-learner interactions ("The Impact of Outcome Preferences in a Collection of Non-Zero-Sum Grid Games" at an AI workshop, and "Feature-based Joint Planning and Norm Learning in Collaborative Games" and "Coordinate to cooperate or compete: Abstract goals and joint intentions in social interaction" in the Proceedings of the 38th Annual Meeting of the Cognitive Science Society), training machine learners using human feedback ("Learning behaviors via human-delivered discrete feedback: Modeling implicit feedback strategies to speed up learning" at the Autonomous Agents and Multi-Agent Systems journal and "A Need for Speed: Adapting Agent Action Speed to Improve Task Learning from Non-Expert Humans" in the Proceedings of the 2016 International Conference on Autonomous Agents & Multiagent Systems, "Curriculum Design for Machine Learners in Sequential Decision Tasks" in Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems), and learning from examples ("Showing versus doing: Teaching by demonstration" in Advances In Neural Information Processing Systems). Other ongoing work on end-user programming, and MOOCs also was published.

Littman participated in grant proposals to NSF, RICTA, Amazon, DARPA, and ONR, including spearheading a large-scale NSF Expeditions proposal on social machine learning that is still under review. He spoke about his work at the International Joint Conference on Artificial Intelligence and the International Conference on Machine Learning in New York City, and gave colloquia at Harvard CS and MIT BCS. He

also presented his opinions on AI safety at a White-House-organized meeting at CMU and another meeting organized by NYU. He was invited to speak at events organized by Bloomberg in San Francisco and Facebook Research in New York City.

Scientific American blogs published an op-ed he wrote to try to quell some fears about AI after a learning program beat the best human beings in the game of Go. Littman gave follow up interviews to *Tech Insider*, RTL Z (Netherlands), Columbia radio, *The Good Life Magazine* (France), *ARDesign*, *Techradar*, and *Business Insider*. He was also interviewed for the Brown Alumni Magazine and appeared in a hyperbolically titled list of “RI’s 50 greatest living people” after appearing as a “genius” in a national ad for Turbotax.

Simin Liu

EPIDEMIOLOGY • FALL 2016

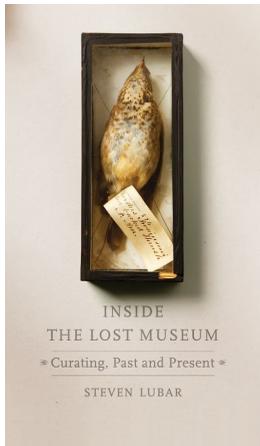
During Professor Liu’s sabbatical, he visited colleagues at several leading academic institutions. To advance the mission of global engagement in research and teaching in the field of cardiometabolic health, Professor Liu gave several public lectures at Universities and conference venues in Europe and Asia, including the University of Cambridge, University of Parma, University of Naples Federico II, Chinese Academy of Medical Sciences and Fuwai Hospital in Beijing, Chinese Center for Diseases Control (CDC), Harbin Medical University, Guangdong General Hospital and Academy of Medical Sciences, Chinese University of Hong Kong, and Hong Kong University. While in Europe, he also worked with colleagues in developing strategies to raise public awareness for the importance of food and nutrition for human and environmental health particularly in identifying research priorities in nutrition and public health for the EU framework project. In China, he also devoted further effort advancing several long-term collaborative research and teaching projects including the completion of a special issue for the *Journal of Diabetes* that attempts to summarize recent advancement in understanding the biological, nutritional and environmental endocrine disruptors for cardiometabolic outcomes. Returning to the United States, Professor Liu spent the second half of the Fall at his alma mater at Harvard’s Chan School of Public Health where he co-taught an experimental core course in genetic epidemiology. He will surely take the lessons learned this past year outside of Brown to engage his students and colleagues at Brown this coming fall.

While this semester-long sabbatical has proved to be extremely productive for Professor Liu’s research and mentoring activities, Professor Liu also made use of the sabbatical time providing service to the American Heart Association (AHA), the leading professional society where he has been involved extensively with his trainees and colleagues around the world. His dedication to mentoring was recognized by the AHA with its excellence in mentoring award at the annual scientific meeting in New Orleans. Having been part of AHA for nearly twenty years, he was very pleased to receive this recognition from colleagues and trainees reaffirming his belief that doing science is most fun as a communal experience and that all should get involved (regardless of being in the margin or at the center stage of one’s scientific career) contributing to the process of truth seeking

2016 was a very productive as Professor Liu maintained much of his usual research activities while visiting colleagues, deepening and building many collaborative relationships across disciplinary and national boundaries to reach many aspiring young scientists and professionals in public health. One can equate his sabbatical journey to that of Marco Polo, generating knowledge and goodwill while nurturing the development of a global network for both individual and population health from one end of the Silk Road (Xi'an/ Guangzhou) to the other (Rome) and beyond. He is very grateful to Brown University for the privilege of this sabbatical renewal.

Steven Lubar

AMERICAN STUDIES, HISTORY, HISTORY OF ART AND ARCHITECTURE • 2016



The cover of Inside the Lost Museum: Curating Past and Present features an Olive-backed Thrush that was once on display in the Jenks Museum in Rhode Island Hall. Photo by Howard Chu.

Professor Lubar used his sabbatical and his Guggenheim Fellowship to complete his book, *Inside the Lost Museum: Curating, Past and Present*, write several shorter articles on related topics, and begin work on a new book project.

Inside the Lost Museum had its start with a project sponsored by the Brown's 250th anniversary celebration, a reimagining of the university's 19th-century Jenks Museum of Natural History. That project offered an innovative way to describe the work of museums, and the sabbatical offered an opportunity to research and write a book that used the Jenks Museum, and the history of museums more generally, to explain why and how museums do the work of collecting, preservation, interpretation, research, and teaching. The book uses a behind-the-scenes look at museums to argue for the centrality of art and artifacts

in museum work. It also argues that museums can move beyond a simple use of objects to embrace the telling more complex stories, and doing work of wider cultural use.

Harvard University Press will publish *Inside the Lost Museum* in August.

The sabbatical also provided the opportunity to expand material researched for the book into articles and websites. [An online companion to the book](#), offering a timeline with many images is available. A special issue of the *Museum History Journal* on "lost museums," co-edited with Brown colleague Lukas Rieppel and graduate students Kathleen Duffy and Ann Daly, included not only an introduction to the topic, but papers by two Brown graduate students on lost museums at Brown. *Panorama, The Journal of the*



Skiascope in use, from Benjamin Ives Gilman's Museum Ideals of Purpose and Method, 1918



Mice, including about a dozen collected in 1855 by John Whipple Potter Jenks, in storage at Harvard's Museum of Comparative Zoology. Photo by Lukas Rieppel.

Association of Historians of American Art, will publish “Looking through the Skiascope: Benjamin Gilman and the Invention of the Modern Museum Gallery” in its next issue. As part of this paper, Lubar built and tested a skiascope, probably the first constructed in a century. Still in the works: an article on the mice that Professor Jenks collected in 1855, now at museums across the United States.

Finishing *Inside the Lost Museum* allowed a head start on a new project. *Ten Skills that Made America* (a very preliminary title) will explore the nature of skill and technological change by considering the ways in which Americans learned a variety of skills including flint-knapping, plowing, spinning, welding, telegraphy, and automobile repair. The project will be hands-on, teaching-intensive, starting with a course in fall 2017 that will offer students a chance to learn skills as they read about their history. It will also lead to a collaboration with the RISD Museum as a Mellon Fellow working on an exhibition in 2018 on “repair.”

Mark Lurie

EPIDEMIOLOGY • SPRING 2017

During his sabbatical, Dr. Lurie, an infectious disease epidemiologist, aimed to further strengthen his research and training collaborations with the University of Cape Town, South Africa. Dr. Lurie spent a considerable amount of time in Cape Town, where he is an honorary Associate Professor in the Division of Social and Behavioural Sciences in the School of Public Health and Family Medicine. Time in Cape Town included attending to current active projects as well as developing several new projects and NIH proposals.

He continued work on his three active NIH-funded projects. In the first project fieldwork commenced on a study, examining the impact of migration on care-seeking behavior for people infected with HIV as well as non-communicable diseases. The second project entitled iALARM, aimed at improving men's movement through the HIV treatment cascade, continued its data collection and intervention development phases. Fieldwork also continued in SASH, a research and training program aimed at mentoring and training the next generation of South African social scientists able to effectively address the HIV epidemic.

Dr. Lurie also submitted multiple new NIH applications. The first grant includes a new collaboration with Emory University focusing on tracking and molecular methods to measure the impact of migration on transmission of extremely drug-resistant TB in KwaZulu/Natal, South Africa. Dr. Lurie's team also submitted a new Ro1 application with the University of Cape Town to conduct additional research in the area of the HIV treatment cascade and to train and mentor two young South African scientists. An additional training grant was submitted to continue our training and mentoring work in SASH. Finally, a new NIH application aimed at exploring the possibility of using community-based models and treatment support groups – both important components of the current HIV/AIDS strategy – for the management and support of those impacted by other, chronic and non-communicable diseases like obesity and diabetes.

Kristina Mendicino

GERMAN STUDIES • SPRING 2017

During the course of her sabbatical term, Professor Mendicino took advantage of her time on leave to write two lengthy chapters for her current monograph on the question of the new in 19th-century French and German writing, *News, History, Ad Infinitum: Scripting the New in Heine, Baudelaire, Marx, Nietzsche, and Benjamin*. Both chapters are devoted to the oeuvre of Charles Baudelaire – to the ways in which his poems, prose, and art criticism address novelty as both a theological and a modern, technological problem. The readings that Mendicino performs expose how the temporalization that the ‘new’ entails disrupts, again and again – and each time differently – the chronometric and historical orientations that would allow for clear distinctions to be drawn between old and new testaments, former and current news items, outdated or updated subjects and objects. In this respect, however, Baudelaire’s interventions in modern writing rigorously call into question all progressive, cyclical, and evolutionary models of historical timing in ways that might be called ‘new’ in a sense that differs from any that had come before. Mendicino’s work on these chapters motivated her decision to spend a portion of her sabbatical in Paris, performing research at the Bibliothèque nationale, whose resources have proven invaluable, also for the research that she has also begun for her fifth and final book chapter, which will address the early writings of Karl Marx and selections from *Das Kapital*.

Aside from these activities, the sabbatical term afforded Mendicino the time to finalize several articles that have been accepted for publication in peer-reviewed journals, all of which are scheduled to appear this year: “Newswriting, Historiography, and the Controversion of the Present (After Heine),” in *diacritics* 44.3 (2016): 2–35; “Before Truth: Walter Benjamin’s ‘Epistemo-critical Prologue,’” in *Qui Parle* 26.1 (2017): 19–60 and “Undoing-Creation-Anew: On Else Lasker-Schüler’s *Der Siebente Tag* and the Neue Gemeinschaft,” in *Modern Language Notes* 132.3 (2017). Beyond these older pieces, she also completed during the months of April and May a new article in German that was solicited for the first handbook devoted to the oeuvre of Friedrich Gottlieb Klopstock, which will appear in the Metzler-series in 2019. In this piece, she developed a reading of the segment of Klopstock’s prose oeuvre that includes and surrounds *Die Gelehrtenrepublik* (1774).

Furthermore, the sabbatical term has been devoted to translations that have allowed Mendicino to engage with the work of highly respected senior colleagues in the intensive way that only translation allows. During the first part of the sabbatical term (January – February), she translated into English two chapters from Gerhard Richter’s *Verwaiste Hinterlassenschaften: Formen gespenstischen Erbens*, and has now just begun a lengthy translation project of Werner Hamacher’s “Was zu sagen bleibt: On Twelve and More Ways of Looking at Philology.”

Looking towards the coming semester, Mendicino also spent a portion of her sabbatical preparing a successful proposal for a seminar at the German Studies Association in collaboration with colleagues from Baltimore and Zürich (Rochelle Tobias and Philippe Haensler, respectively), which will be devoted to Edmund Husserl’s writings on phenomenology and literature.

The momentum that her sabbatical term has given her research is something that could not have been achieved without the time that the leave semester granted. Mendicino looks forward to furthering her research over the duration of the summer, completing her most recent translation project and a first draft of her book manuscript.

Ralph Milliken

EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES • FALL 2016

Professor Milliken spent the fall semester developing his research program at Brown by focusing on several projects related to the distribution and role of water on planetary bodies. Specifically, Professor Milliken continued to expand his work in understanding the nature of water on the Moon. Previously thought to be a 'dry' body, important discoveries over the past decade have shown that the Moon does indeed have detectable water in the form of OH and/or H₂O at its optical surface. Recent work in Professor Milliken's group has shown that this water is globally distributed but exhibits enhanced signatures towards the lunar poles. Current data suggest the primary source for this water is implantation of H⁺ from the solar wind, and analysis of orbital reflectance data by Milliken's group has shown that some of this 'water' comes and goes during the course of a lunar day. These findings have important implications for understanding the nature of chemical reactions on the surfaces of airless bodies, and they raise the possibility that larger water ice deposits thought to exist in permanently shadowed regions at the lunar poles may result from long-term migration of water at lower latitudes.

Professor Milliken also spent time during the semester working with groups at the Jet Propulsion Laboratory and an industry space exploration company on instrument development for identifying and quantifying OH/H₂O on the Moon. In August, NASA announced an opportunity for groups to propose instruments to fly on a planned Korean orbiter mission to the Moon, with proposals due in fall 2016. The goals of the proposal request were very narrow and focused on the detection and quantification of OH and H₂O in permanently shadowed regions at the lunar poles. Though numerous data have hinted at the existence of ice deposits at the lunar poles the data remain somewhat ambiguous. However, determining the presence, form, and amount of such water reservoirs is a critical step in assessing resources for a long-term human presence on the Moon, and the successful completion of this task would close out an existing 'strategic knowledge gap.' Professor Milliken took part in the development of two instrument proposals and leveraged his previous work in quantification of water using reflectance spectroscopy to demonstrate how state-of-the-art technology in near-infrared spectroscopy could be used to directly address these questions from lunar orbit.

The collaborations that Professor Milliken developed with JPL and an industry partner during this effort were very fruitful and have lead him to think of several ideas for future instrument and mission proposals focused on mapping OH/H₂O on other planetary bodies, including asteroids. Professor Milliken also spent his sabbatical developing new methods to better quantify water on dark objects using near-infrared reflectance data. He expects this to have important implications for mapping volatiles on dark, primitive, C-type asteroids such as those that will be explored by NASA's OSIRIS-REx mission and Japan's Hayabusa2 mission in the coming year, and he is particularly excited to have been invited to join the latter team as a collaborator this past year.

Vesna F. Mitrović

PHYSICS • FALL 2016

The academic purpose of Professor Mitrović's leave was twofold. First, to advance her work on modulated superconductivity and other exotic magnetic field-induced superconducting phases carried out in collaboration with the NMR group at the Grenoble National High Magnetic Field Laboratory (GNHMFL) and NHMFL. Second, to perform proof-of-concept experiments (designed to demonstrate the feasibility of a novel spin-sensitive non-invasive technique to probe topological states of matter and/or correlations in 2D systems, e.g. graphene) in her laboratory at Brown.

During her stay in Grenoble, Professor Mitrović performed necessary experiments to allow detection of multi-quanta vortices in the high field modulated superconducting phase. Currently, Professor Mitrović has two manuscripts that are in preparation for submission to *Nature Physics* and *Physical Review Letters*.

The biggest breakthrough during her leave was finalization and publication of the work reporting important insights into quantum theory of magnetism in *Nature Communications* ("[Magnetism and Local Symmetry Breaking in Mott Insulator with Strong Spin Orbit Interactions](#)"). The importance of this work in the broad field of quantum material research is best summarized in the *Materials Research Society Bulletin* article, entitled "[NMR confirms strong spin orbit interactions drive magnetic quantum phase transition](#)."

Mitrović has obtained significant preliminary results demonstrating the feasibility of a novel non-invasive technique to manipulate spin in topological states of matter. She has been collaborating with Professor J. B. Marston (Brown, physics) on the development of theoretical models to understand this phenomenon. These efforts were recognized by the Keck Foundation, where she was invited to submit a Phase I proposal.

Ourida Mostefai

COMPARATIVE LITERATURE AND FRENCH STUDIES • 2016-2017

Professor Mostefai dedicated most of the sabbatical year to advancing her new project entitled "Writing Exile: Citizenship and Displacement in Revolutionary Europe." This book focuses on the representation of emigration in the European novels of the late 18th century. Focusing on the figure of the *émigrés*, the counterrevolutionary exiles, Mostefai analyzes the debates surrounding the French Revolution as seen through the prism of emigration. In the fall semester she had the privilege of being a member of the Cogut Seminar: this appointment provided her research space and support in an atmosphere of intellectual exchange and collegiality. She was also invited to present her research in progress at Johns Hopkins University and participate in a seminar on the French Enlightenment.

Mostefai served as faculty lecturer for the Brown Alumni Association on two trips in Italy and Cuba, lecturing respectively on Italy and the Grand Tour and the rediscovery of Antiquity in the Enlightenment and on the development of the sugar industry in Cuba and the impact of the abolition of slavery in Saint-Domingue.

Mostefai also worked on the nomination committee of the American Society for Eighteenth-Century Studies, on the executive committee of the MLA, and was a member of the Forum on History and Literature. She co-organized two conferences: the inaugural conference on Islam for the French Center for Excellence at Brown University and the Rousseau Association Colloquium at the University of Florida.

Finally, Mostefai was promoted to the rank of Officer in the *Ordre des Palmes Académiques* by the French Ministry of Education France and invited to deliver the annual lecture at the Société Jean-Jacques Rousseau in Geneva.

Pura Nieto Hernández

CLASSICS • 2016-2017

During her leave from Brown, Nieto spent the fall semester in Uppsala, Sweden, where she was invited to teach a graduate seminar on Archaic Greek Poetry (one of her specialties) for the graduate program at the University of Uppsala. While in Uppsala she was invited to participate in an event called “Antiquity Day” at the University of Umeå (Sweden), where she offered a lecture on “Philo of Alexandria and the Allegorical Interpretation of Myths.” As part of the same event she also taught a two-hour seminar on the poetry of Pindar. In the month of October she was invited to participate in the conference on “El coro, un personaje singular,” that took place in Valencia (Spain). Nieto presented a paper entitled “Coros femeninos en Píndaro.”

In Uppsala Nieto found a very young and energetic department of Greek studies. She had fruitful interactions with many of its members, both faculty and students (one of the faculty members even attended her class), and participated actively in the many activities of the department and other related areas dealing with antiquity, such as philosophy and religion.

From February to June Nieto was in Paris, where she attended a multitude of events and met an extraordinary array of scholars. During these months she was completely devoted to research on various topics, ranging from Homer to Pindar, mythography and Philo of Alexandria. She also presented her work at universities abroad. In January she gave a lecture in Salamanca (Spain) with the title “‘Los dioses le llaman Janto.’ La sagrada Troya y sus ríos,” in the cycle on “Rivers in Antiquity,” organized by the local section of the Spanish Society of Classical Studies. Then, in March, she was invited to visit the Charles University in Prague (Czech Republic), where she gave two presentations: one on Homer (“The Intimacy of Battle and a Lion’s Heart”) for the Society of Friends of the Classics, and the other on Pindar (“Female choruses on Pindar”) for the department of Greek and Latin. Finally in April she was invited to the University of Barcelona (Spain), where she lectured on Homer.

Over the course of these months, she completed three articles (on Homer, on Pindar and on mythography) and two book reviews. She also began three new papers, on which she has made substantial progress, as well as on her book project on Representations of the Female in Pindar’s Poetry. She continued to work with several doctoral students at Brown (she is supervising the thesis of one of them), and maintained her sophomore advising duties.

Tara Nummedal

HISTORY • 2016-2017

Tara Nummedal spent the year in Berlin, where she worked on two major research and writing projects, as well as several smaller ones. She completed her book manuscript, “The Lion’s Blood: Alchemy, Gender, and Apocalypse in Reformation Germany,” which uses the dramatic tale of Anna Zieglerin’s rise and fall at a ducal court in the 1570s as a point of entry into the intersection of science, gender, and religious culture in Reformation Germany. One of the few women alchemists for whom there are sources, Zieglerin practiced alchemy in her own laboratory, recorded her recipes involving a golden oil called the lion’s blood, and attracted the support of a German duke for her alchemical work. At the same time, she articulated an eschatological program in which she, as a “new Virgin Mary,” would use the lion’s blood to repopulate the world in preparation for the Last Days. In positioning her body and her alchemy at the center of a spectacular cosmic drama, Zieglerin offers an opportunity to explore the porous boundary between science and religion in the era of the Reformation. Nummedal also expanded on some of the themes of this book in an essay, “Corruption, Generation, and the Problem of Menstrua in Early Modern Alchemy,” which will appear in 2017 in an interdisciplinary collection of essays, *Blood Matters*, edited by Eleanor Decamp and Bonnie Lander Johnson.

During the winter months, Nummedal was a [Visiting Scholar at the Max Planck Institute for the History of Science](#) in Berlin (Max-Planck-Institut für Wissenschaftsgeschichte), Department II. While at the Max Planck Institute, she worked on the second major focus of her sabbatical, [Project Atalanta](#), a collaborative project with Donna Bilak (Columbia University) and Brown’s Digital Publishing Initiative. This publication will incorporate a digital collection of scholarly essays on Michael Maier’s musical alchemical emblem book as well as a multimedia, electronic edition of the text itself. Although the group was a bit dispersed in 2016-17, they made substantial progress in developing the collection of essays and, in particular, envisioning the digital form and content of the digital edition of *Atalanta fugiens* itself. While at the Max Planck Institute, Nummedal drafted an essay entitled “Sound and Vision: The Alchemical Epistemology of Michael Maier’s *Atalanta fugiens* (1618),” which she presented in research colloquium for Department II. This essay argues that the German alchemist’s extraordinary work marshaled all of the technologies of the early modern book to invite his readers (and viewers and listeners) to activate all of their senses and reflect on the relationship between books and other bodily forms of knowing in early modern alchemy. It will appear as an essay as part of Project Atalanta.

Finally, Nummedal worked on two smaller projects. The first, an essay on the “Habsburg Renaissance,” will appear in the first volume of the *Cambridge History of the Habsburg Monarchy*, edited by Graeme Murdock and Howard Louthan. The second is *Faraway Friends: Science and Sentiment in the John Abbot Drawings at the Alexander Turnbull Library*, co-authored with the art historian Janice Neri and entomologist John V. Calhoun. This book, which will be published with the University of Alabama Press, is an edition of a set of 103 [drawings of insects and plants of Georgia](#) by the English artist-naturalist, John Abbot (1751-c.1841), with an extended introduction. Nummedal joined this project when Neri passed away in October 2016. She and Calhoun will now complete Neri’s work and see the book through to publication.

Because Nummedal was based in Europe this year, she was invited to share her research at universities in Oxford, Utrecht, Cambridge, Florence, Lucerne, Vienna, Prague, and of course Berlin. She was pleased to have the opportunity to renew longstanding scholarly relationships, as well as to develop new ones with colleagues and students in Europe.

Michal Oklot

SLAVIC STUDIES • 2015-2016

Professor Michael Oklot spent his sabbatical leave writing new chapters and conducting archival research for the manuscript of his second book provisionally titled: *The Rozanov Effect: A Discrete Presence in European Modernism*. This monograph is on a major Russian writer and philosopher Vasily Rozanov (1856-1919). In his manuscript, Oklot approaches Rozanov in the context of his affinities with European 20th-century writers indebted to the Romantic tradition, whose aesthetic, ethical and political views were shaped by the organic metaphor, and whose ideas in many cases coincided with the nationalistic ideologies of the 1920s and 1930s. Yet, as Oklot argues, Rozanov's poetics and his unique writing style, at the same time, kept destabilizing such ideological discourses constructing, what he calls, "weak subjectivity" and the aesthetic and ethical proposition at whose center are the concepts of weakness and passivity; on the ontological dimension Rozanov's aesthetics revives new modes of materialist in art. As he demonstrates in his manuscript, systematic reconstruction of Rozanov's organicism helps to identify a significant branch of Russian literature and philosophical thought which counter the narratives of power and knowledge. These questions gain a particular urgency today when the world facing radicalization of the ideological discourses in Russia and the rest of Europe, which more and more openly turn to the organicist ideologies of the first decades of the 20th century.

Working on the manuscript, Oklot made research-related trips to Russia. He worked in the State Archives and the Library of Russian Philosophy and Culture – A. F. Losev's House in Moscow, Russia. In Moscow, he also had an opportunity to discuss his manuscript with renowned Rozanov scholars. During his research stay, Oklot accessed the materials that have been recently restored, archived, and made available at the Russian State Archives in Moscow. They include a previously unpublished manuscript which appears to be Rozanov's major philosophical and methodological statement. Oklot had an initial conversation with the Northwestern University Press, which is expecting his manuscript for review this summer.

Oklot also started a couple of new projects. He was invited by the Istituto Universitario di Architettura di Venezia to give a lecture and conduct a seminar on aesthetic theories of Andrei Bely and on the representation of the city of Venice in his artistic prose and travel literature. It was a valuable experience giving him an opportunity to address the questions and problems generated by the literary text to the faculty and students of architecture, urban planning, and industrial design, and show them how the literary text can stimulate thinking about the contemporary urban space and the problems encountered by the contemporary city (Venice and St Petersburg) e.g., security, surveillance, migration, or refugee crisis. Oklot is hoping that this stimulating collaboration with his colleagues from IUAV will develop into a more rigorous collaborative project.

In Moscow, Oklot also conducted research related to his new project on the aesthetics and poetics of the Russian realism in the 1920s and 30s, which he contextualizes in the traditions of materialist thinking in politics, philosophy, and culture. (In particular, he is interested in the theoretical works of one of the key figures of Russian 20th-century literature Andrei Bely (1885-1934).) The first outcome of this research project was an article devoted to the poetic tropes and philosophical concepts Andrei Bely discussed in his critique of realism in art. In October 2015, Oklot delivered its abridged version (under the title “Andrei Bely and Modernist Reevaluation of Allegory”) at the international conference, “Andrei Bely and the Changing World” organized by the Institute of the World Literatures of the Russian Academy of Science and the Moscow State Museum of Andrei Bely. Its long version has been published in January 2017, in the collection of essays published by the Institute of World Literatures of the Russian Academy of Science and the University of Belgrade; all the contributors are leading international scholars of Russian modernism and Andrei Bely.

In Poland, Oklot started to work with Professor Agata Bielik-Robson (a professor of Jewish Studies at the University of Nottingham and the Institute of Philosophy at the Polish Academy of Science) on organizing the international conference on German and Russian messianic philosophies in the context of modern Jewish thought. Tentatively, they are planning to organize this conference in spring 2018 either at Brown or Nottingham University.

Besides this project, Oklot had been conducting archival research at the Literary Arts division of the Centre of Modern Art in Warsaw, and meeting and interviewing Polish contemporary poets and literary arts curators in relation to the second edition of the Modern Polish Poetry and Translation he hopes to organize at Brown. (The first edition took place in spring 2014 being financed by Creative Arts Council at Brown.)

Oklot also worked at the library of the Institute of Literary Studies of the Polish Academy of Science, preparing a text – *Krons: the Real Life of Witold Gombrowicz* – for the collected volume of essays on a Polish modernist writer Witold Gombrowicz *Gombrowicz désesparé/Gombrowicz bewildered* to be published by Presses de l'Université du Québec and the Polish Academy of Science. The collection includes essays by the leading Gombrowicz scholars from France, Poland, Germany, Canada, and the U.S.

In addition to the aforementioned two articles, Oklot wrote and co-authored three more (all of them are in press forthcoming this year): “Nabokov and Psychoanalysis” (co-author with Matthew Walkers) in *Nabokov in Context*, ed. David M. Bethea and Siggy Frank. Cambridge: Cambridge University Press; “Nabokov and the Detective Fiction” (co-author with Matthew Walkers) in *Nabokov in Context*, ed. David M. Bethea and Siggy Frank. Cambridge: Cambridge University Press; and “Eisenstein Reading *Dead Souls*” in *Reading with Eisenstein*, ed. Luka Arseniuk and Ada Ackerman. Caboose Press.

Graham Oliver

CLASSICS • 2016-2017



Graham Oliver's sabbatical year was supported by a Loeb Classical Library Fellowship award and a generous grant to cover travel costs from the Arete Foundation.

The inscribed decrees of Athens provide the central body of evidence for the decisions of the Athenian government in the Classical and Hellenistic periods (5th to 1st centuries BCE). The period under study, 321-301 BCE, shortly after the death of Alexander the Great, was a turbulent time in Athenian history that saw two oligarchic revolutions and a period of revived democracy that was rebuilt under the threat of invasion by external powers. In the years between 307 and 301 BCE the Athenians set up and inscribed on stone more of these state decisions than at any other time in the history of the city which makes these years particularly fascinating because of this intense epigraphical output.

The majority of Professor Oliver's sabbatical was spent working on materials that will form a new authoritative edition of these inscribed Athenian state decrees under the aegis of the Berlin Academy's *Inscriptiones Graecae* project that dates back to the early 19th century. The decrees are preserved on stone monuments most of which are conserved in museums in Greece, typically as fragments of the original monument. A large majority of the documents have been "copied" onto paper impressions (squeezes).



This year, Oliver spent time in Princeton's Institute for Advanced Study, Berlin, and Oxford to undertake work for the inscriptions project and to consult squeezes that relate to his corpus and so supplement the work that he had already undertaken in reading and transcribing the documents from the original stone fragments. The epigraphical project will produce a new up-to-date edition and synthesizes all the known material that has been published since the last edition appeared 100 years ago.

Oliver's drawing of a fragmentary inscribed list of Priests from Hellenistic Halicarnassus, CIG 2655 (= Syll.3 1020)

During the year, Oliver has also presented papers at international conferences, co-organized a major conference at Brown, and completed papers for publication. In October 2016 he presented a paper on a Priests' List from Late Hellenistic Halicarnassus. In November 2016 he offered a survey of long-term economic growth in the pre-modern economy of Athens from c. 800 BCE to c. 1820 CE as part of a workshop in Berlin on economic growth in the ancient world, the publication of which should come out in 2018. In January 2017 he gave a paper titled "1000 years of evolution? The adaptation and survival of the Greek polis" in a panel on Early States at the American Historical Association meeting in Denver. In May 2017 he co-organized with Professor John Bodel the Annual Meeting of the Association of Ancient Historians which is the major conference for Ancient Historians in North America. Brown hosted the event which was generously supported by several academic departments, institutes, and programs at Brown, and the C. V. Starr Lectureship Fund. Other papers have been finished during the year and submitted for publication allowing Oliver to catch up with various projects that have needed completion including "People and cities: economic horizons beyond the Hellenistic polis," in H. Börn and N. Luraghi (eds), *The Polis in the Hellenistic World*, and "The Alexander Romance and Hellenistic political economies," in R. Stoneman, K. Nawotka, and A. Wojciechowska (eds), *The Alexander Romance in History and Literature (Ancient Narrative Supplement)*.

Don Operario

BEHAVIORAL AND SOCIAL SCIENCES • FALL 2016

Professor Don Operario's sabbatical allowed him to focus on three main activities: developing a new international research collaboration, initiating a newly funded NIH research project, and planning a new graduate degree program.

During the beginning of the sabbatical period, he submitted a grant to the NIH-Fogarty program that was entitled "Brown University and the University of the Philippines Training Program for the Prevention of HIV in Vulnerable Populations." The overarching aim of this five-year grant is to train emerging scholars, faculty, and health service providers from the University of the Philippines in evidence-based HIV prevention and intervention programs in order to lay a sustainable foundation for HIV public health practice in the Philippines, where one of the fastest growing HIV epidemics in the world occurs. This grant was recently funded and will be implemented starting summer 2017. In concert with this grant submission, he conducted a systematic review of the literature on epidemiological trends in HIV in the Philippines (in partnership with a team of Brown undergraduate and graduate students, and with collaborators from the Philippines).

Dr. Operario also spent the semester initiating a newly awarded five-year NIH grant that involves a mixed-methods longitudinal study of substance use, prescription and non-prescription hormone use, and mental health among young transgender men and women. This project, which takes place in San Francisco, will follow a sample of 240 transgender men and women over two years (five data observations) to examine trajectories in health outcomes in this population.

Dr. Operario finalized and submitted, for administrative review, a new proposal for a Master's degree in Global Public Health. Planning this proposal involved consultation with faculty from across the University who are involved in global health scholarship, as well as reviews of similar programs at peer institutions. The proposal has been reviewed and approved by the Graduate Council and Academic Priorities Committee, and is pending further review. The estimated start date for the proposal is fall 2018.

John Papay

EDUCATION • 2016-2017

John Papay spent the past year on leave via the Spencer Foundation/National Academy of Education post-doctoral fellowship and a Wriston Fellowship from Brown. These fellowships supported two primary research projects. The first (with Molly Hannon) examines the impact of being identified as a low-performing school in need of improvement (Level Four) on school and student performance in Massachusetts. In spring 2010, thirty five schools in the state were identified as Level 4 based on their performance and improvement over the past four years. Identified schools received support and increased accountability, and were eligible to apply for additional funding. Papay and his colleagues leverage two complementary but distinct sources of variation to estimate the impact of Level Four identification using both difference-in-differences (exploiting variation within-school over time) and regression-discontinuity designs (exploiting variation within-time across schools). With both approaches, they find quite large impacts on student achievement, on the order of 0.4 standard deviations in mathematics after four years. Estimates suggest that these improvements resulted from improved human capital policies and improved performance of existing teachers.

The second project (with Caitlin Richard) explores the effectiveness of teacher evaluation and support systems in improving teacher effectiveness. Over the past decade, policymakers have transformed the process of evaluating teachers U.S. public schools, seeing improved educator evaluation as a central means of school improvement. Papay and his colleagues explore how specific features of the evaluation system, as experienced by teachers in a given school, relate to improvements in teacher effectiveness over time. They find wide variation across school sites in the amount and quality of feedback that teachers receive about their instructional practice from the teacher evaluation system. Preliminary findings suggest that teachers who receive more differentiated feedback, who receive feedback from more different sources, and who receive feedback earlier in the year improve at greater rates than their peers.

Samuel Perry

EAST ASIAN STUDIES • 2016-2017

Professor Samuel Perry spent the fall of 2017 as an ACLS Fellow at the Centre for Research in the Arts, Social Sciences and Humanities at the University of Cambridge, where he wrote two chapters of his next book manuscript, *From Across the Genkai Sea: Japanese Literature and the Korean War*. The book is a cultural history of the years following Japan's Second World War defeat when the Korean War procurement industry revived Japanese fortunes and effectively realigned the country and its cultural productions within a newly reconfigured U.S. empire. Building off of research Perry conducted in his first monograph, *Recasting Red Culture in Proletarian Japan* (2014), *From Across the Genkai Sea* explores works of literature written by members of the Korean community living in Japan, members of the ideologically divided Japanese Communist Party, and former Japanese colonialists, as well as chroniclers of camp town life and the working class, whose writings offer eloquent testament to the kind of competing visions of a peaceful, postwar era that were ushered in by the U.S. Occupation. It also offers a new way of seeing this moment of Japanese cultural history and the sediments of Japan's "concurrent colonialisms" that helped to shape Japanese discourse on the Korean War. A book chapter called "Early Narratives of Japan's Korean War," first shared at a conference held at the University of Cambridge, will soon be published in an edited volume called *The Reconstruction of East Asia, 1945-1965*.

While continuing his work on this monograph in the spring of 2017, Professor Perry also spent time in Seoul, South Korea, finalizing the contours of an anthology project he has been working on for the past two years: *A Century of Queer Korea: A New Anthology of Korean Literature*. Edited and translated by Perry, and to be issued concurrently in both English and Korean, this new anthology of Korean literature will be the first of its kind published in any language to shed light on the long history of sexual minorities in modern Korea, from the period of Japanese colonization through the age of homonormativity. After discovering many works never studied or reprinted before, Perry has also written an introduction to the volume and completed draft translations of ten stories and essays to include in the two volumes, which encompass a variety of queer experiences related to love, gender, identity, and sexuality, from the perspectives of male, female, cis- and transgendered Korean writers. The oppression of sexual minorities in South Korea has become increasingly visible in recent years, and this anthology project marks a significant step in giving voice to the queer community in South Korea. The two volumes will be published by the Modern Language Association (MLA) as a part of their Text and Translation Series, which aims to make important texts and high-quality translations available to students and faculty members. A related outcome of this line of Perry's research will be a newly planned interdisciplinary workshop called "Queer Korea: Gender, Health and Cultural Representation," to be held at Brown in the spring of 2018.

Jill Pipher

MATHEMATICS • 2016-2017

In the fall semester, Professor Pipher divided her time between research and meeting with graduate students, and preparation for her new position as Vice President for Research. In the spring semester, she was an Eisenbud Research Professor at the Mathematical Sciences Research Institute (MSRI), where she concentrated her time on research during the Harmonic Analysis program. Two of her graduate students, A. Barron and L. Li also had the opportunity to visit and participate in the Institute's activities.

Pipher's research in analysis and partial differential equations (PDE) focuses on linear elliptic and parabolic equations with non-smooth coefficients. The study of solutions to such equations is important for the non-linear theory as well as the study of classical equations, such as Laplace's equation or the heat equation, in domains with rough boundary. Jointly with M. Dindos (University of Edinburgh), Pipher made a breakthrough in understanding the regularity of solutions to complex-valued equations which should lead to several publications. In November, she completed one paper: *Regularity of solutions to complex divergence form equations, and solvability of the Dirichlet problem*, with M. Dindos.

The paper was subsequently improved as a result of discussions with S. Mayboroda at MSRI. It was revised and submitted for publication in February. In addition, the three (Pipher, Dindos, and Mayboroda) are presently completing another manuscript on regularity and Neumann boundary value problems in the case of complex coefficients.

A third project, joint with Dindos, *Perturbation of complex coefficient p -elliptic operators*, should be completed by the fall. Pipher made some progress on a graduate level book in multi-parameter Fourier analysis, which is joint with B. Wick, Washington University. The goal is to complete this in 2018; two publishers have already expressed interest.

In addition to the work in harmonic analysis and PDE, Pipher also continued research in cryptography. She contributed to the development of some new ideas of Hoffstein and Silverman in homomorphic encryption, resulting in a paper which has been submitted to one of the major annual cryptography conferences: *Fully Homomorphic Encryption from the Finite Field Isomorphism Problem*, by Y. Dor oz, J. Hoffstein, J. Pipher, J. Silverman, B. Sunar, W. Whyte, and Z. Zhang.

In February, 2017, the following appeared in a major industry research/applications conference: J. Hoffstein, J. Pipher, J. Schanck, J. Silverman, W. Whyte, Z. Zhang,

"Choosing Parameters for NTRUEncrypt," *Proceedings of RSA 2017*, Cryptographers Track, Springer Lecture Notes in Computer Science.

Massimo Riva

ITALIAN STUDIES • 2016-2017

During his leave, Professor Massimo Riva worked on the project of a digital monograph, [one of two pilot projects](#) selected for the Brown digital publishing initiative, funded by the Andrew W. Mellon foundation in collaboration with the Brown library. The project (entitled *Italian Shadows. The Virtual Life of Casanova and Other Tales of Imaginary and Forgotten Media*) proposes an archaeology of virtual reality and consists of five “epistemological tales,” or case-studies, set in the 18th and 19th centuries.



Figure 1. Michele Giovanni Graneri,
Il Mondo Nuovo, ca. 1760

Designed, or adopted, for entertainment and education, these curious devices shared a fundamental attribute: they allowed the user /spectator to see the world in an entirely different dimension by impacting sensory perceptions in ways not dissimilar from those of our contemporary digital media, thus foreshadowing fundamental aspects of our contemporary digital culture (virtual travel, social voyeurism, phantasmagoric consumption, vicarious participation in global historical events). With the invaluable help of a team of librarians, editors and designers provided by the Brown library, Riva hopes to complete and publish this project (both in print and online) in 2018. His research led to libraries, archives, museums, cinemathèques, and private collections in Italy, France, the U.K., the Czech Republic and Portugal. Indeed, one of the most exciting dimensions of this experimental project is an array of collaborations with museums and archives, including the Museum of Cinema of Turin, the Museum of Pre-cinema of Padua, the Civic Archaeological Museum of Bologna, the

Focused on Italy as an imagined country and on historical figures of Italian modernity, each tale features a digital simulation of a popular 18th- or 19th-century optical spectacle: an imaginary journey into a peepshow box known in 18th century Venice as “il mondo nuovo” (the new world); a magic lantern play featuring the life and travels of the Venetian adventurer Giacomo Casanova; a 3D reconstruction of the legendary 1821 exhibit of Pharaoh Seti’s tomb at Egyptian Hall, in London, as conceived by amateur field archaeologist and showman Giambattista Belzoni (a.k.a., the “great Belzoni”); a moving panorama lecture tour of the English provinces in the early 1860s, celebrating the achievements of Giuseppe Garibaldi, the Italian national hero; and a mini-grand tour in 3D of Southern Italy (Naples and Sicily), based on an 1890s Underwood & Underwood stereoscopic kit.



Figure 2. *The life of Casanova as a magic lantern show* (Museum of Pre-cinema, Padua)



Figure 3. A Stereoscopic Journey to Italy

Civic Museum of Mantua, the Bristol Museum in the U.K. and the Binetroy collection in Versailles, France. Not only have these institutions have agreed to provide primary materials for the project but potential collaboration also includes partnerships with the Brown library in the organization of future exhibits.

While doing research abroad, Riva was invited to lecture about his work-in-progress at the Universities of Pisa, Bologna, Edinburgh, Oxford, and Charles University in Prague. Also related to his project, during the month of February, 2017, he was a resident fellow at the Center for the Study of Cultural Memory at the School of Advanced Study of the University of London, where he organized [a workshop on digital publishing](#), attended by scholars, librarians and publishers. Back in the U.S., in March, Riva shared and discussed a draft chapter of his monograph at the Brown Italian Studies colloquium and was invited as a keynote speaker at the annual graduate Romance Studies conference of the University of North Carolina at Chapel Hill.

During the sabbatical year, Riva also acted as resident faculty director of the Brown University Center in Bologna, Italy and in this capacity he contributed to organizing the celebration of the 35th anniversary of the Brown exchange agreement with the University of Bologna and the launch of a new Brown-Bologna lecture series. Riva's publications in process also include the guest-editing of a special issue of the journal *Humanist Studies and the Digital Age* with the proceedings of the conference "Scholarly Networks and the Emerging Platforms for Research and Publication" held at Brown in 2015, due to be published in fall 2017. Among other professional recognitions: Riva was invited to become a member of the Community of Experts of the European Science Foundation, and Riva was nominated for the Charles Speroni Visiting Chair in Medieval and Renaissance Studies at UCLA, which he declined.

Seth Rockman

HISTORY • 2016-2017

Professor Seth Rockman spent the year as a research fellow at *IGK Arbeit und Lebenslauf in globalgeschichtlicher Perspektive* – known as *re:work* – at the Humboldt University in Berlin. This institute brings together historians and ethnographers to pursue individual research projects while collectively exploring themes in global labor history. Fellows presented their research in weekly seminars and at a year-end conference. Being in Germany also provided the opportunity to share findings with colleagues at the Institute for European Global Studies at Universität Basel and at Europa-Universität Viadrina in Frankfurt (Oder). The presentation in Basel was a collaboration with Professor Sven Beckert (Harvard), who was Rockman's co-editor for *Slavery's Capitalism: A New History of American Economic Development* (University of Pennsylvania Press, 2016).

Rockman's year was devoted to drafting a book entitled *Plantation Goods and the National Economy of Slavery*, a study of the economic ties between industrializing New England and the expanding plantation frontier in the 19th-century United States. The story is told through everyday objects – hats, hoes, shovels, axes, boots, and clothing – manufactured in places like Massachusetts and Connecticut and consumed in places like South Carolina and Mississippi. Combining insights from slavery studies, material culture studies, and business history, the book will highlight enslaved people not merely as consumers of these goods but also active participants in their design – especially as a number of New England firms traveled to southern plantations to conduct what we would now call R&D. A good deal of the book takes place in southern Rhode Island, where numerous families found livelihoods weaving and sewing textiles for enslaved people to wear.



Numerous families in North Brookfield, Massachusetts, supplemented their farming income by making shoes for slaves. “Not one dollar in fifty, passes through our hands that is not probably derived from this source,” observed the town’s longtime Congregational minister in an 1854 local history. And eighty years later, elderly women and men in Arkansas and Texas recalled the “bachelor brogans” they had received as enslaved children. Courtesy of the North Brookfield Historical Society, photograph by the author.

The year also provided the opportunity to prepare several articles for publication. “The Paper Technologies of Capitalism” opens a forum in *Technology & Culture* and emerged from an exhibition and workshop hosted at the John Carter Brown Library several years ago. “Negro Cloth: Mastering the Market for Slave Clothing in Antebellum America” will appear later this year in *American Capitalism: New Histories*, a volume published by Columbia University Press. “Innovation, Alienation, and the Russet Brogan” is part of a proposed volume for University of Chicago Press tentatively entitled *A New Materialism? Rethinking the History of Global Capitalism at the Nexus of Culture and Political Economy*. Finally, Rockman drafted a new article on the relationship of coerced penal and pauper labor in New York and Rhode Island to the elaboration of American plantation slavery and the expansion of U.S. imperial reach into the Pacific during the first decades of the 19th century. That essay is currently out for peer review at a journal.

Jacob Rosenstein

ENGINEERING • FALL 2016

Professor Rosenstein's research focuses on extending concepts from microelectronic circuit design to new experimental applications in bioelectronics and chemical sensing. He used his fall semester junior sabbatical to focus on new and ongoing research projects. Of particular note, Rosenstein began a new collaborative project together with Professor Chris Rose, applying signal modulation ideas from wireless communications systems to chemical sensor networks. This project received an OVPR Seed Award, and has been followed by a successful bid for external funding. Another ongoing research interest relates to high-performance instrumentation for nanopore single-molecule sensing, which has been making inroads into the DNA sequencing market. The Rosenstein Lab recently published a new technique for high-performance nanopore experiments, which uses a micron-scale liquid contact to improve device characteristics, reducing background noise, increasing speed, and accelerating data collection. Rosenstein additionally published a new high-voltage CMOS silicon chip design for patch clamp electrophysiology, which highlights the many continuing opportunities for silicon microelectronics in the life sciences.

Christopher Schmid

BIOSTATISTICS • SPRING 2017

In January, Professor Christopher Schmid embarked on the first sabbatical of his 25 year research career. He was excited finally to have time to work on his book, catch up on the latest research, and read books that had sat on his shelf for years. And with it came the promise of no departmental teaching and no need to sit on committees. "Just make sure you get away" was the advice he received, "find a nice quiet spot, maybe even one of those exotic places that non-academics equate with sabbaticals."

As an applied statistician, Schmid's work involves helping medical researchers carry out their studies appropriately and report them accurately to their funders and to the public. On the side, he develops new techniques that make those studies easier and more informative and as a professor he trains the next generation of statisticians to work collaboratively with other scientists. This work involves long-term grants and collaborations that cannot be put aside for extended periods to write books. Studies need to progress; collaborators need support; staff need management.

Now it's June, the sabbatical is almost over, the report is due, the semester is done, summer awaits. It went all too fast and in the end it was hard to carve out a lot of time to write and the books still sit on the shelf waiting to be read. So what did Schmid do? He wrote some grants, reviewed grants in study sections, participated in several conferences, worked on research projects, performed editorial duties and helped students write theses.

Schmid did manage a bit of writing on *The Handbook of Meta-Analysis*, a textbook to be published by Chapman and Hall/CRC Press in their *Handbooks of Statistics Series*. Meta-analysis is the set of statistical tools

used to combine data from different studies. It is one of the key techniques in scientific research, used in health, psychology, education, ecology, economics and many other scientific disciplines to summarize the results of a body of research. But the exotic location turned out to be Cambridge and Bristol, England, working with Schmid's co-authors.

Another major project was getting the Clinical Study Design, Epidemiology and Biostatistics Core of the new \$20M Advance-CTR Center off the ground. The goal of Advance-CTR is to transform clinical and translational science in Rhode Island, linking together medical research at Brown and URI with the Lifespan, Care New England, and VA health systems. As director of this core, Schmid had to hire staff, recruit faculty, assess local needs, plan educational programs, coordinate training, review proposals, and attend many, many meetings.

Schmid also directs the Evidence Synthesis Academy, a five-year project funded by a large grant from the U.S. Agency for Healthcare Research and Quality to develop educational training programs in evidence synthesis for professionals who need mid-career training in comparative effectiveness and patient-centered outcomes research. The Academy is the educational arm of the Center for Evidence Synthesis in Health, one of 12 Centers in the School of Public Health. It continues to develop several new courses and convert others to an online format that will be available for free to the public by the end of the summer. A good chunk of time was spent teaching four courses to 150 students at the Centers for Disease Control in Atlanta.

Schmid continued research into N-of-1 trials, single subject clinical trials in which patients alternate in a randomized fashion between two different treatments while measuring outcomes of interest. These trials are becoming popular as people develop the tools, resources and expertise to self-experiment and monitor their own health. Currently, Schmid is working on several N-of-1 studies.

The first, called the PREEMPT trial, is now in its fifth and final year testing a variety of treatments among patients with chronic pain. In this trial, patients in the N-of-1 arm choose two treatments to compare and working with their doctors design a study and record data for four to twelve weeks. At the end, they meet and decide on a future treatment plan. The main aim of the trial is to determine whether these patients feel better after six months compared with a control group who do not do an N-of-1 trial. Schmid and his collaborators have developed a statistical package that runs along with a mobile smartphone application to analyze and present results on the comparative effectiveness of the N-of-1 trials to an individual patient. They are also interested in combining all of the N-of-1 studies that form a treatment network to see if they can rank treatment efficacy. This new method is the subject of a Ph.D. dissertation.

Schmid also worked on three other N-of-1 research projects that will each embed an analytic engine inside a mobile health device. One will investigate the relative effectiveness of two different diets in children with inflammatory bowel disease with participants alternating on and off the diets every eight weeks, twice each. A second study will help patients with atrial fibrillation find what triggers their attacks by using a series of N-of-1 studies to turn potential triggers (e.g., caffeine or alcohol) on and off and comparing their outcomes with those from a control group that is not using N-of-1 trials. Third, Schmid is working with colleagues to help the public radio station in New York City, WNYC, to plan a behavioral intervention study using N-of-1 trials on listener volunteers. WNYC envisions thousands of listeners trying interventions such as increasing exercise levels or using deep breathing to improve quality of life measured by outcomes such as amount of sleep and levels of anxiety that they would record daily on their phones.

Nidia Schumacher

HISPANIC STUDIES • SPRING 2017

Professor Nidia Schumacher's semester of leave focused on four elements: Research in Translation Studies, research in heritage language teaching and learning, supervision of a senior medical school student in an independent study, and travel.

Translation and interpretation has been an ongoing interest of Schumacher's since the beginning of her career, alongside her primary work on pedagogy, second language acquisition and teaching Spanish as a Foreign Language. Research during her leave allowed Schumacher to catch up on current scholarship and practices in the field and to create a new course on Spanish translation for the professions. This new course will introduce students to theories and practices of translation, and incorporate service learning to give students first-hand experience of what translation actually means. To implement service learning, Schumacher visited several sites in Providence as potential partners for her students' work in the community. This course is being planned for fall 2018.

Also related to translation studies, Schumacher began work on the translation of a manuscript for a book being considered for publication in the realm of yoga spirituality.

Between February and April, Schumacher took a 12-session seminar/workshop in heritage language teaching at the Cervantes Observatory in Cambridge, in collaboration with the Faculty of Arts and Sciences at Harvard University. The purpose of this seminar was to examine new models, theories, and practices related to teaching Spanish as a heritage language, and an opportunity to connect teachers with researchers. This is an important area of study for Schumacher and her colleagues at Brown as the number of students who are heritage speakers is rapidly increasing.

Traveling was an important part of Schumacher's scholarly leave. At the end of January, she traveled with her husband to Cuba for 10 days of cultural, linguistic, and photographic exploration. This was the first of what she hopes will be many more trips to a country that has long interested her.

In April, CASA (Consortium of Advanced Study Abroad) organized an official visit to the new CASA sites in Santiago, Chile, and Buenos Aires, Argentina. As one of the members representing Brown, Schumacher joined professors and directors of International Programs of seven of the ten institutions affiliated with CASA. The purpose of this visit was to look at the program more directly, assess needs and explore and promote further interest, development and growth. Of significant importance was a visit to the institutions and universities where CASA students take their courses. The group met with faculty and administration staff and discussed expanding collaboration between them and CASA members.

Schumacher was charged by her department to establish connections with representatives of several institutions to assess possibilities for establishing a new teaching and scholarly exchange program.

In June Schumacher returned to South America for a major trip to the Atacama Desert in the north of Chile (the site of the European Southern Observatory); ancient archeological sites in Peru; and the north of Argentina, close to the Andes and home of significant indigenous populations. The trip ended with visits to Córdoba, her native city, and Buenos Aires.

Richard Schwartz

MATHEMATICS • 2016-2017

Richard Schwartz spent most of his sabbatical locally, with the exception of April-May when he was at the Isaac Newton Institute. During his sabbatical, he had a Simons Sabbatical Fellowship and was a Rothschild Fellow at the Isaac Newton Institute.

Schwartz worked on four main projects during his sabbatical, listed chronologically.

1. He proved the 1977 Melnyk-Knop-Smith phase transition conjecture concerning the energy minimization problem for five points on the sphere. He showed that there is a computable number S , between 15 and $15+25/512$, such that the triangular bi-pyramid is the global energy minimizer with respect to the power law potential with exponent s , if and only if s is less or equal to S . This is certainly the best result to date on the five-point energy minimization problem. Schwartz also completed a research monograph which details his solution.
2. He edited a his textbook, *Mostly Surfaces* for a second printing. *Mostly Surfaces* is a textbook published in the *Student Handbook Series* by the American Math Society.
3. He taught himself to program in javascript, and wrote several math related programs which run online:
 - a. An updated version of his game, "Lucy and Lily," which explores a connection between geometry and Galois theory.
 - b. An energy minimization program which uses a hill-climbing algorithm to explore and further the results found by Melnyk-Knop-Smith for the energy minimization problem on the sphere.
 - c. An energy minimization program like (b) except for points on the Clifford torus, a particular torus embedded in 4-dimensional Euclidean space
 - d. A program which explores the solutions to the famous four-color problem for triangulations that have maximum degree six -- the so-called Fullerenes.
4. He figured out the key steps in an ongoing project concerning polytope exchange transformations, pseudo-group actions, and dynamical renormalization. He plans to continue this work over the summer.

William Simmons

ANTHROPOLOGY • SPRING 2016

This spring, Professor Simmons worked on a book project on the symbolic and ritual life of American universities. The final manuscript will be organized into chapters including:

1. Historical and Theoretical Orientation

The thesis: The university was originally and continues to be a religious institution. By this, Simmons does not mean religious in the conventional sense of a named religion such as Christianity, Judaism, or Islam, but in the sense of religion as an animating principle in the symbolic and ritual ways through which a society orders itself and understands its universe. This is not to deny that universities have in their historical development incorporated conventional religious symbols and rituals into their self-formation, for they characteristically do so. In so doing, however, it is toward the end of building an institutional configuration that is autonomous with respect to conventional religious authority. That is, toward the end of building an institution with its own internal reverence, customs, and distinctions between the sacred and profane. Universities are extraordinarily symbolic places saturated with meanings that speak to those who pass through their portals over time. This book will visit this dimension of university life from two interacting perspectives: one chronological, from their founding to the present; the other, structural, to focus on the shared key or summary symbols and ritual practices in terms of which their religious lives are configured.

2. From Custom to Contract: Governance by Charter

This chapter begins with 1) an account of the origin and rise of universities in western Europe in the twelfth century, 2) their transition from guilds to chartered corporations with autonomies legitimated by the state and or by the church, and 3) their transfer to North America starting in the 17th century and continuing to the present. The charters, as mission statements, are critical to understanding 1) the moral and practical conditions of their individual origins, and 2) the internal principles and external constraints that guide their changes through time. These charters are highly revered and protected documents. They empower the corporation thereby created to design a seal that serves both as the signature of the corporate body and as the most summary and thus most sacred of all symbols that represent each individual university. As with the charter, the actual device used to stamp the seal in wax or emboss it on paper as it appears on diplomas, is a most carefully sequestered object.

The seal, unique for each university, presents a compact symbolic representation of the history and meaning of the university, commonly in Latin and occasionally Hebrew, combined with a distinctive heraldic shield and motto that together stand for the university as a bounded totality. These seals are conservative in the sense that they rarely change – a kind of moral ballast that keeps the university on course through centuries of change. This chapter pays particular attention the charters and seals of some of the oldest as well as a few more recent institutions to ground the study firmly in its historical and contemporary ethnographic base. Toward this end, Simmons has written synoptic diachronic accounts of the charters, privileges, seals, and mottos of Harvard University, Yale University, Brown University, Dartmouth University, Cornell University, the University of California at Berkeley, and Stanford University – and the circumstances under which they occasionally have changed.

3. University Bells and Bell Towers

Bells have been an important presence in American colleges and universities since Harvard's first bell rang in 1643. In company with official seals and monumental gates, bells and bell towers are the most visible symbols of the power and influence of American colleges and universities. Of the three, bells are also the most sensual in that they are both visible and audible and the most purely symbolic and thus most expansive in terms of actual and potential meanings. This chapter covers the evolution of bells, bell culture, and bell towers from their modest beginning at Harvard in 1643 up to the famed chimes and carillons we see and hear today at Cornell, Yale, Berkeley, Stanford, and elsewhere. Bells in their Reformed Protestant context at early Harvard rang solely as the voice of institutional authority, ordering daily routines such as morning and evening prayer, study, recitations, dining, and bedtime. They did not ring as music in worship. By the latter half of the 19th century, as universities began to secularize, convert to the German research model, and compete for wealth, power and prestige, their bells and ringing capacities expanded and acquired new functions. As conventional religious authority within the corporation diminished, a new kind of "school spirit" took its place. While bells continued the rudiments of their original ordering functions, they expanded their capacities to play hymns, patriotic songs, alma maters, and even popular music on a scale that could reach out over the entire campus community. This enriched soundscape penetrated the long-term memories of generations of college graduates who while not necessarily aware of the process acquired a sense of belonging to the institution and nostalgia for college years – one that was awakened by hearing the bells. Evidence for these associations and longings is evident in alumni and development offices and in personal memoirs, college poetry, and school songs. Such memories are heightened by homecomings, reunions, and ritual processions and they inspire institutional loyalty. They are an important resource to the long-term material needs of the institution. While the older conventional religious gods may be diminished, they have not been expelled. They persist for example in seals and mottos and reside with the chaplains and campus religious organizations. Meanwhile, the object of reverence has shifted from these earlier gods to the university community itself as it competes for excellence, prestige, charisma, and recruits among its peer institutions. As the traditional medieval parish felt itself to be a community of the bells, so today's university, in the world but not of the world, watchful of its autonomy, is a community of the bells that announce and sanctify its primary rites of passage such as convocation, inauguration, commencement, centennial anniversaries, and its most celebratory and solemn communal gatherings, for example the collective mourning in the aftermath of the attack on the World Trade Center on September 11, 2001.

4. Alma Mater and Mascot

This chapter will continue the argument outlined above for the shift from conventional religious ties to the "school spirit" that began its ascent in the latter years of the 19th century and the first decades of the 20th century, a period of massive transformation from collegiate to university cultures. The plan is to draft this chapter before the start of the fall 2017 semester.

Three additional chapters will round out the manuscript by the end of summer, 2018. Through them, Simmons intends to integrate his thesis regarding the increasingly religious character of American research universities in their globally trans-cultural role in framing, creating, and legitimating what counts as knowledge across the world.

John Steele

EGYPTOLOGY AND ASSYRIOLOGY • FALL 2016

Professor John Steele spent his sabbatical as a fellow of the Institute of Advanced Studies at Durham University. His research during this fellowship focused on a little known aspect of Babylonian astronomy, which might be termed ‘schematic astronomy’. This type of astronomy grew out a second millennium BC astronomical tradition which modeled certain astronomical phenomena such as the length of daylight, the duration of visibility of the moon, and the length of a shadow can by a gnomon using simple mathematical functions based upon the so-called ‘schematic calendar’ where each month was assumed to contain 30 days and there were 12 months in the year, in contrast to the actual Babylonian calendar in which months could be either 29 or 30 days long and the year could contain 12 or 13 months. Steele’s research focused on the continued use of this type of astronomy down to the end of the first millennium BC where it coexisted with other, at first sight more ‘scientific’, forms of astronomy, and he argues that schematic astronomy functioned as a way of describing the way that the universe is, in contrast with other forms of astronomy which are concerned with predicting future astronomical phenomena.

During the fellowship Steele completed a monograph entitled *Rising Time Schemes in Babylonian Astronomy* (Dordrecht: Springer, 2017), which was published in March 2017, and wrote two papers: “The Continued Relevance of MUL.APIN in Late Babylonian Astronomy”, to be published in the volume *Scholars, Priests, and Temples: Babylonian and Egyptian Science in Context* edited by M. Ossendrijver (Berlin: TOPOI), and “Description, Calculation, Measurement: Different Uses of Numbers and Quantities in Babylonian Astronomy”, to be published in the volume *Mathematical Practices in the Astral Sciences* edited by K. Chemla, M. Husson, A. Keller and C. Proust (Dordrecht: Springer). In addition, Steele began work on a new edition, translation and commentary of the early Babylonian astronomical compendium MUL.APIN in collaboration with H. Hunger (University of Vienna). The book proposal has been accepted by Routledge.

In addition to writing, Steele gave a public lecture and a research seminar at Durham University, a research seminar at Université Paris VII - Diderot, and a paper at the conference “Scale in Ancient Astronomy” at Durham University.

Tracy Steffes

EDUCATION • 2016-2017

Professor Tracy Steffes spent her sabbatical year in Chicago where she researched in archives and wrote chapters for her current book project, tentatively titled *Shifting Fortunes: City Schools and Suburban Schools in Metropolitan Chicago, 1945-2000*. The book explores the relationship between public schooling, metropolitan development, and inequality in postwar Chicagoland. It explores how a wide range of housing, land use, and tax policies at local, state, and federal levels shaped educational inequalities in the city and suburbs of Chicago, and how educational inequalities in turn influenced urban and suburban development patterns and strategies.

Brown's post-tenure sabbatical and a Howard Foundation Fellowship made this year of research and writing possible. During the year, Steffes largely completed the research for the book, visiting over a dozen city and suburban libraries and archives in the Chicago region, including the Municipal Reference Library at the Harold Washington Library Center, Chicago History Museum, University of Illinois-Chicago Special Collections, Evanston Historical Society, Park Forest Historical Society, and New Trier High School Archives among others. She also wrote several chapter drafts and presented some of her work in progress to the American Bar Foundation Legal History workshop.

Sarah Thomas

HISPANIC STUDIES • 2016-2017

Professor Sarah Thomas spent the bulk of her sabbatical leave drafting the remaining chapters for her book manuscript, provisionally entitled *The Child and Time: Cinema of the Long Transition to Democracy in Spain*. The book examines Spanish cinema of the period 1970-1983, which brackets the end of the dictatorship of Francisco Franco and the nation's transition to democracy following his death in 1975. It argues that this cinema provides a paradigmatic case for understanding both the appeal and ethical complexity of representing the child onscreen, particularly in moments of social or political crisis. In Spain's cinema of this period, the child is rendered both an inscrutable figure and one with whom adult spectators' engagement and identification is constructed. In this oscillation between alienation and alignment, Thomas proposes, the films point to the limits of understanding with respect to both the position of the other and the violent past of authoritarianism. In spring 2017, thanks to the generous support of a Salomon Faculty Research Grant, Professor Thomas completed final research for the book at Spain's National Library and Film Archive in Madrid. After completing the introduction in summer 2017, she will submit the manuscript for review at a press that has expressed interest.

During her leave, Thomas also worked on several other research projects: beginning archival work for a future manuscript on director Carlos Saura, writing and submitting an article on the intertextual afterlife of Víctor Erice's 1973 film *El espíritu de la colmena*, and developing a new article provisionally entitled "Queering the Family Archive: the Hybrid Gaze and (Post)colonial Erotics in Pilar Monsell's *África 815*," on a recent documentary film by a young Spanish filmmaker. During her sabbatical, Thomas was invited to present at the Pennsylvania State University and New York University, and participated in the annual conference of the Society for Cinema and Media Studies in Chicago; in July 2017 she will participate in the fourth meeting of the International Association of Spanish Literature and Film (ALCES) in Zaragoza, Spain. Thanks to the generous and vital support of a Literature Fellowship for Translation from the now-imperiled National Endowment for the Arts, she completed most of a translation of Mar Gómez Glez's novel *La edad ganada*, which she hopes to complete by the end of summer 2017.

Daniel Vaca

RELIGIOUS STUDIES • 2016-2017

Daniel Vaca spent the majority of his sabbatical year completing his book manuscript, *Book People: Commercial Media and the Spirit of Evangelicalism*. Under contract with Harvard University Press, the book examines the dramatic growth of the evangelical Christian media industry and its audience in the 20th-century United States. Focusing especially on the book business, the project explores the ways that media executives, salespeople, authors, editors, ministers, and financial investors consistently have braided religious and business objectives together. Moving from the end of the 19th century to the present, the book argues that commercial attempts to expand the market for Christian media steadily have helped constitute the social phenomenon recognized today as American evangelicalism. Acknowledging that global media conglomerates such as News Corp currently own most of the leading evangelical publishing companies, this project contributes to ongoing scholarly attempts to detail how media industries cultivate and capitalize upon modern social and political constituencies – including those that lent support to the winner of the 2016 U.S. presidential election. Why, for example, have American evangelicals seemed to operate as a white, conservative voting bloc? This book helps answer this question by chronicling how evangelical media companies cultivated a white evangelical public by focusing their commercial attention almost entirely on white, middle-class consumers.

The sabbatical also made possible a variety of activities that supported this book project. Already drawing upon dozens of interviews and thousands of primary sources, Professor Vaca used part of his sabbatical to conduct final interviews and to visit several archives related to some of the key individuals and corporations that his book examines. He also was grateful for invitations to present his research to audiences at Princeton University and Michigan State University. In addition to those opportunities, Professor Vaca shared his work with broader audiences through presentations at a number of conferences as well as through articles published in two anthologies. The articles include “Believing within Business: Evangelicalism, Media, and Financial Faith” (in *The Business Turn in American Religious History*, Oxford 2017) and “Selling Trust: *The Living Bible* and the Business of Biblicism” (in *The Bible in American Life*, Oxford 2017).

Looking beyond his first book project, Professor Vaca used his sabbatical to continue research for new projects. Currently exploring how religious ideas and practices have helped sanction and sanctify wealth inequality, Professor Vaca spent time in 2016 looking through the personal archives of such figures as the financier J. P. Morgan and the investor Roger Babson. Both figures not only amassed tremendous wealth early in the 20th century but also served as leaders of their respective Protestant denominations. This stature allowed them to develop religious teachings and to advocate for social policies that reflected their own socio-economic positions, presumptions, and priorities.

Professor Vaca’s year-long sabbatical was made possible by the additional support of a research grant from the Louisville Institute and Lilly Endowment. Although he is grateful for that support and for the opportunity to devote himself to completing one major project and to beginning others, he also is eager to renew conversations with students and colleagues. He looks forward to returning to the classroom and to the Brown community in the fall.

Deborah Weinstein

AMERICAN STUDIES • SPRING 2017

Professor Deborah Weinstein's research during her spring sabbatical focused on her current book project, whose working title is *Human Nature at War: Culture and Conflict in Modern America*. Her book examines the intertwined histories of U.S. thought about human nature and the nature of war. It asks: how did the international conflicts of the long 20th century shape the contours of scientific studies of human nature, and how in turn were theories of human nature used to explain the century's violent wars? In so doing, it shows how the intellectual and cultural history of American notions of human nature was interwoven with a changing array of explanations for modern warfare, many of which aimed to understand the causes of war in order to pursue peace.

During her sabbatical, she made significant progress on her book. She signed a contract with Harvard University Press to publish it. With financial support from a Salomon Faculty Research Award, she conducted archival research at libraries across the country. She traveled to the Bancroft Library at Berkeley, the Hoover Institute at Stanford, the Rubenstein Rare Books Library at Duke, the archives at the American Philosophical Society, and the Countway Medical Library at Harvard. She organized a session at the annual meeting of the American Association for the History of Medicine, and the paper she gave there has become part of a book chapter. She also wrote an article on early 20th-century debates about the eugenics of war that she will submit for review over the summer. As of the end of her sabbatical, she had drafted substantial portions of three of the planned six chapters in the book.

She also began research for a new project about memoir and mental illness at the end of the last century. The seed of this project came from teaching psychologist Kay Redfield Jamison's *An Unquiet Mind: A Memoir of Books and Madness* (1995), in which Jamison describes her own experiences of living with manic depression as well as her scientific research and expertise about the disease. Jamison's book was one of several late-20th-century memoirs about mental illness by authors who also included William Styron, Susanna Kaysen, and Andrew Solomon. Considered together, these memoirs illuminate a series of trenchant questions about popular perceptions of mental illness in the years following the introduction of Prozac and related psychopharmaceuticals in the late 1980s and 1990s. They also highlight the relationship between experience and expertise in public discourse about disease, the role of stigma in illness narratives, and the status of memoir as a genre in the 1990s.

Margaret Weir

POLITICAL SCIENCE AND INTERNATIONAL AND PUBLIC AFFAIRS • SPRING 2016

Professor Margaret Weir spent the semester of sabbatical working on her current book project, *The New Metropolis: Spatial Inequalities in Twenty-First Century America*. The book examines how new forms of spatially-linked disadvantage have grown in American metropolitan areas over the past thirty years and how challengers have sought to alter exclusionary policies and practices.

During the sabbatical leave, Professor Weir focused much of her research on distinct patterns of social service delivery in different regions of the United States. For over half a century, such services, including housing assistance, food security, emergency assistance, employment support to name just a few, have been delivered by nonprofit and for-profit organizations, not government. After the 1996 welfare reform law sharply limited access to cash assistance, such organizations have grown in importance as a source of support for low-income Americans. With the assistance of Jessica Schirmer, a doctoral candidate at the University of California, Berkeley, the project devised a Metropolitan Institutional Support Index that draws on data from the National Center for Charitable Statistics and the Economic Census. Working with Schirmer, Professor Weir is using this Index to show that metropolitan areas, or “metros,” in the Sunbelt not only have a weaker institutional safety net, they are also much more likely to rely on for-profit contractors to deliver social services.

Based on this work, Professor Weir drafted two book chapters, arguing that distinct historical legacies rooted in race, religion, immigration, and the timing of urban growth gave rise to diverse organizational configurations for assisting the poor in different parts of the country. As a consequence, two different models of assistance have emerged: a civic-public model prominent in the North and Midwest and a very different religious-private model more evident in the South and the West.

In addition to conducting research for her book manuscript, Weir maintained her commitment as co-chair of the Social Science Research Council’s Working Group on Distribution, one of several studies in a wider program on “The Anxieties of Democracy” that is supported by the Social Science Research Council. During the sabbatical leave period, she led the process of selecting the cross-disciplinary group of scholars who will comprise the core membership of this group.

During the semester, Professor Weir presented her research in a number of invited lectures and other professional meetings. She presented a public lecture, with accompanying seminar and recorded podcast, for the U.S. Centre at the London School of Economics. She also delivered a lecture in the Distinguished Lecture Series sponsored by the Department of Government and Politics at the University of Maryland. At Brown, she participated in the initial Roundtable on “Structural Racism” launched by the Center for the Study of Race and Ethnicity in America. Further presentations of Professor Weir’s work took place at the Annual Meetings of the Midwest Political Science Association and at Nuffield College, Oxford, where she is a core member of the working group on “American, British, and Canadian Political Development.”

Esther Whitfield

COMPARATIVE LITERATURE AND HISPANIC STUDIES • FALL 2016



Entry road to the town of Caimanera, Guantánamo, Cuba photograph by Alexander Beatón and Pedro Gutiérrez, from the series “El camino de la estrategia.”

During her fall 2016 sabbatical, Professor Whitfield worked on a book manuscript and a volume of translations. Titled *Guantánamo: Writing, Art and War*, the book aims 1) to trace the genesis and implications of the languages of war that have converged at Guantánamo, specifically the U.S. “War on Terror” and Cuba’s decades-long “war on imperialism;” 2) to understand literary and visual artists’ engagement with Guantánamo’s rhetorical wars, and their articulation of an alternative vocabulary for the experience of living on or near the

base; 3) to resituate the geographically isolated and legally anomalous base in the transnational networks that writers and artists extend to Cuba, the Caribbean, Europe and the Middle East; and 4) to place the representations of empathy, community and border-crossing in this literary and artistic work in a broader context of human rights. The book is part of a larger project that explores war rhetoric in Latin American political and artistic discourse since the mid-20th century, paying particular attention to Mexico’s current “narco-wars,” Argentina’s “Dirty War” of 1976-1982, and the bellicose language that has characterized much political speech in Cuba.

Gitmo, the poetry collection of José Ramón Sánchez, which Professor Whitfield is co-translating with Katerina Seligmann, reflects on the history and continued presence of the U.S. naval base in the Cuban province of Guantánamo. It has been published in Spanish, and a small selection of Whitfield and Seligmann’s translations appeared in the webzine *Cuba Counterpoints* in fall 2016.

At the beginning of her sabbatical Professor Whitfield travelled to Guantánamo, Cuba, to interview writers, artists and filmmakers and visit the museum of the town of Caimanera, which is located at the border of the naval base and influenced by this proximity both economically and culturally. In the summer, she spoke about Guantánamo from the perspective of the Humanities at the University of Puerto Rico, on a panel with Moazzam Begg, a former detainee at Guantánamo, and Major General Michael Lehnert, former Joint Task Force Commander at the naval base. She also gave a paper on a further research interest, Welsh literature in the Americas, at the conference of the North American Association for the Study of Welsh Literature and Culture, held at Harvard University. In the fall, as well as drafting chapters for *Guantánamo: Writing, Art and War*, she completed an article titled “Guantánamo and Community: Visual Approaches to the Naval Base,” forthcoming from Palgrave Macmillan this year in the volume *Guantánamo and American Empire: The Humanities Respond*, edited by Don E. Walicek and Jessica Adams.

David Williams

BEHAVIORAL AND SOCIAL SCIENCES • SPRING 2017

During his spring, 2017 sabbatical Dr. Williams continued work on two book projects, both of which are now nearing completion. The first book is a collection of essays on “Affective Determinants of Health Related Behavior” from a group of highly regarded international scholars. The book is edited by Williams, Ryan Rhodes of Victoria University, and Mark Conner of Leeds University, and will be published by Oxford University Press. The second book stems from a collaboration begun during Williams’s junior sabbatical with Michael Ruse, a philosopher of evolutionary biology at Florida State University. The book – *Darwinian Hedonism: A foundation for behavioral science and public health* – is on psychological hedonism and its implications for public health and will be published by Cambridge University Press.

In addition to these book projects, Dr. Williams continued his previous projects. Specifically, he completed his NCI-funded project on exercise as a potential adjunctive treatment for smoking cessation among women, and continued his NCI-funded project on monetary incentives for exercise at the local YMCAs, with his colleague Omar Galarraga, an Assistant Professor in the Department of Health Services Policy and Practice here at Brown. Additionally, Williams continued work begun before his sabbatical on several peer-reviewed manuscripts and grant proposal submissions, mostly on exercise promotion and affective determinants of health behavior.

Jimmy Xu

ENGINEERING • FALL 2016

Professor Jimmy Xu took a sabbatical leave in fall 2016. The sabbatical made a difference in and enabled his lab’s pursuits of new research opportunities.

The lab’s research extended its reach from quantum optics and quantum electronics to a new frontier that could be termed as “BioOptics” and “humanOptics.” This extension came with substantial supports from two NSF cross-disciplinary programs.

As a result of spending his sabbatical leave in France (CNRS, ISEN, and Université de Lille) and China (the University of Electronics Science and Technology of China, UESTC), Xu’s lab has broadened its research and support base through expanded collaborations in the United States and in Korea.

In France, Xu was named Professeur Invité at the Université de Lille by its President. In China, he was named a Chang-Jiang Chair Professor at the University of Electronics Science and Technology by China’s Ministry of Education.

On the new BioOptics research front, in collaboration with the Sleep Lab of Bradley Hospital (co-PI Mary Carskadon and Eliza van Reen), Xu completed a study that focused on “Provisioning of Daily Photopic and Circadian Rhythmicities via Wireless Programmable LED Lights.” It was featured in a Nova documentary on “School of the Future” (aired September 14, 2016, on PBS). It also led to increased support and participation from industry (e.g. Digital Lumens and now Lighting Sciences) and local schools (e.g. Nathan Bishop) and elderly homes (e.g. LorelMead).

During this period, substantial progress was made on a second front, also an NSF team-project – Physical Coloration. It is a four-year \$1.5M project with three co-PIs (Gustavo Fernandes, Domenico Pacifici, and Xu). The project’s aim is to develop an alternative to how colors are produced currently (with paints, chemicals, or pigments). Success in developing the alternative approach would lead to coloration by physical and electronic mechanisms – photonic bandgap, Fano-resonance, and nano-surface enhanced plasmonic absorption and scattering. Its findings also have applications in colorimetric sensing and display, as exemplified by a new Army Natick-Brown-MIT proposal for a DTRA program – Colorimetric sensing of chemical and nerve agents.

In addition to these team projects, several single-PI projects were conducted during this period. Unlike the team projects, these single PI projects focused on basic sciences. These projects explored new mechanisms in optical rectifications (funded by ARO and Army-Natick), new plasmonic metamaterials (funded by NSF), new functional ceramic composites (funded by AOARD/AFOSR), incorporation of sonar functionality into a transparent viewing-window glass (funded by NUWC/Brown), and feasibility for inducing superconducting-insulating phase transition in high-T_c superconductors by nano-scale patterning (funded by UESTC/NSFC).

Results and findings from these researches were reported in ten refereed journal papers (e.g. APL, JAP, JVS, Opt. Express, JPC, Scientific Reports etc.) as well as eight invited talks and three presentations in international conferences and university colloquia.

They paved ways to further advances and explorations, including a new project entitled ‘Optoelectronic Carbon’ that is being evaluated for funding by Army Natick Center, and four other projects being considered for funding by AFOSR, NSF, and ONR.