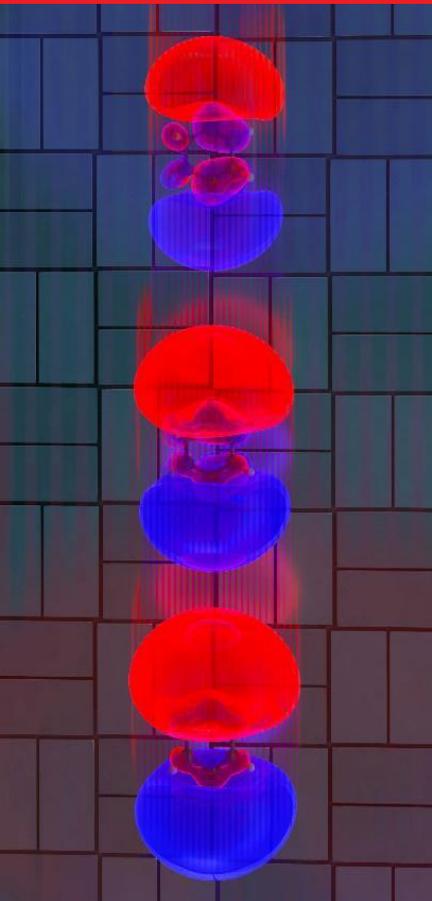


2020 Brown Sabbatical Research Newsletter



Brown Sabbatical Research Newsletter



Foreword

This is the eighth edition of the annual Brown Sabbatical Research Newsletter published by the Office of the Dean of the Faculty. Its main focus is on research conducted by Brown faculty during the past academic year that has been made possible 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 more than 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. 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 Senior Associate Dean of the Faculty Joel Revill, and also to Kevin Lewin, Becca Manning Szabo, and Angela Medeiros of the Office of University Communications.*

Faiz Ahmed

HISTORY • 2019-2020

Beginning in fall 2019 and up to the indelible semester of spring 2020 and COVID-19, Faiz Ahmed spent his sabbatical in Istanbul as a senior fellow at the Research Institute for Anatolian Civilizations at Koç University, the leading non-state university in Turkey today. More commonly known in the Middle East and Southern Europe by its Turkish acronym ANAMED, this fellowship program is housed on Istanbul's famous İstiklal Street in the historic European-side district of Beyoğlu and was founded to support scientific and humanities research on the history, art and architecture, and archaeology of Anatolia and the greater region(s) it inhabits — from the Balkans to the Mediterranean and from North Africa to Central Asia.

The bulk of Ahmed's work as an ANAMED fellow was devoted to continuing research for and beginning the writing of his next book. Tentatively titled *Ottoman Americana: The Late Ottoman Empire and the Early United States, 1776–1923*, this book explores the social history of relations 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 New England, and the antebellum South to fin de siècle California. Drawing from unpublished records, manuscripts, maps, and other transatlantic correspondence from Turkey, Britain, Canada, and the U.S. (mostly in the Ottoman Turkish, Arabic, and French languages), the book offers a unique global perspective of the United States from the 18th to early 20th centuries, as well as the social, economic, and legal underpinnings of the late Ottoman Empire's evolving relationship with the early American republic.

While in Turkey, Ahmed was invited to deliver lectures at four prominent universities, including Boğaziçi University (originally Robert College, the first American college abroad) in Istanbul, and Middle East Technical University in Ankara. He was later approached to translate his first book, [*Afghanistan Rising: Islamic Law and Statecraft between the Ottoman and British Empires*](#) (Harvard University Press, 2017), into Turkish, which is currently underway. While in Istanbul, Ahmed also benefited from lectures and workshops in Ottoman, Balkan, and Mediterranean history at ANAMED's sibling institutions on the same street, including the American Research Institute in Turkey, Netherlands Institute in Turkey, and Institut Français d'Études Anatoliennes. Through these forums and discussions with students and scholars from around the world, he learned about new directions and discoveries in his own field of Ottoman and Middle East history, as well as in associated fields with which he was far less familiar, including maritime archaeology and museum anthropology.

It was a memorable sabbatical year for Ahmed with other professional milestones and global journeys, as well. In August 2019, he was honored to speak at the Centennial of Independence conference at Kabul University in Kabul, Afghanistan, a memorable gathering of scholars dedicated to commemorating the 100th anniversary of Afghanistan's independence from Britain on August 19, 1919 and to reflecting on the country's uncertain future. That experience laid the seeds for a related November 2019 cover story in the American Historical Association's [*Perspectives on History*](#) titled "Learning from Afghanistan's Independence" and enlivened conversations after book talks that he delivered for *Afghanistan Rising* in

Istanbul, Ankara, and the John F. Richards Prize Panel at the January 2020 American Historical Association conference in New York. In February, he published a peer-reviewed article on late Ottoman “soft power” in North America in the *International History Review*. He also reviewed two important manuscripts on the history of modern Syria.

By the time COVID-19 reared its head, cancelling fellowship activities and scheduled talks for the spring, it became clear that staying in Istanbul was not a feasible option for Ahmed and his family, and they relocated to California for the remainder of the term.

Mark Ainsworth

APPLIED MATHEMATICS • 2019-2020

Mark Ainsworth spent his sabbatical year conducting research in a number of areas as well as delivering invited talks. Ainsworth gave an invited talk in Singapore in which the Multidisciplinary University Research Initiative (MURI) project overall was discussed along with work carried out earlier in the project on Fractional Phase Field Models. A faculty-wide colloquium talk was presented at Nanyang Technological University (NTU) on a similar topic as part of a two-week visit, in which he collaborated with his host, Professor Lilian Wang, on developing improved methods for the numerical approximation of fractional partial differential equations.

Ainsworth also conducted research with Dr. Zhiping Mao (Xiamen and Brown), supported by the U.S. Army under a MURI project. This research considered the problem of modelling crystals for which the Phase Field Crystal Model (Elder and Grant) has gained considerable traction. Two articles were published relating to improving the classical PFC model. One of these articles (“Fractional phase-field crystal modelling: analysis, approximation and pattern formation,” *IMA Journal of Applied Mathematics*) showed that a Fractional Phase Field Crystal Model gives much better predictions of the grain boundary energy than the classical model and performs as well as the classical model for other quantities. In the second article (“Phase field crystal based prediction of temperature and density dependence of elastic constants through a structural phase transition,” *Physical Review B*), Ainsworth and Mao showed that the PFC model is able to correctly model the observed multivalued nature of the elastic constants through a structural phase transition, whereas other authors have exclusively adopted a computational approach. Their research also suggests that the computational approach does not capture the correct physical behavior.

In addition to the work on fractional partial differential equations, Ainsworth spent three weeks visiting researchers at the University of Campinas in Brazil to collaborate on high order methods for flow in porous media. This continues a successful collaboration that led to a third article, “High-order composite finite element exact sequences based on tetrahedral-hexahedral-prismatic-pyramidal partitions” (*Computer Methods in Applied Mathematics and Engineering*), and provided an opportunity to explore new avenues of



research with the Brazilian collaborators. As part of the visit, a special one-day meeting was organized by the hosts in which Ainsworth presented the keynote talk followed by short presentations and poster sessions.

Research on high-order methods with graduate student Shuai Jiang (Brown) led to the submission of two articles to leading journals along with the successful defense of the thesis of Jiang in early 2020.

A different strand of research on high-order methods continued with graduate student Charles Parker (Brown), which has led to the submission of two articles and the publication of a third article, “H₂-Stable Polynomial Liftings on Triangles” (*SIAM Journal on Numerical Analysis*). This article contains the solution to a problem that has remained unsolved for over two decades. Work is now underway with Parker in which the fundamental results from this article are used to provide the first (and only) existing method for compressible fluid flow in which the approximation respects mass conservation exactly and which is provably uniformly stable in the order of the method. The search for such a method began over three decades ago with the fundamental work of Scott and Vogelius. This work is now being prepared for submission.

Further, Ainsworth conducted research with graduate student Justin Dong (Brown) into the use of neural networks and techniques from Machine Learning for the approximation of partial differential equations. This research has led to an extremely promising novel approach. This work is in the final stages of preparation for submission for publication. This is a highly competitive area in which existing, more standard approaches have failed to produce. The fact that Ainsworth was on sabbatical leave meant that considerable time could be invested into learning a new subject and reading widely on existing approaches, which allowed for new possible solutions to be explored and was absolutely crucial in arriving at the method that is now proposed.

In a different strand of research in collaboration with Yeonjong Shin (Brown), Ainsworth developed a new approach to understanding the training of neural networks. This is a challenging area in which standard methods perform rather poorly. Their new approach highlights the source of the poor performance and has paved the way to the development of a new paradigm, which they call Active Neuron Strategy. The Active Neuron Strategy is able to accelerate the performance of the existing algorithms by orders of magnitude. This work is in the final stages of being prepared for submission.

Ainsworth also continued to conduct research with collaborators at Oak Ridge National Laboratory (ORNL) on developing new techniques for dealing with the astronomical quantities of data being produced by computational simulation on the Summit machine (the largest supercomputer in the world). In particular, considerable time was invested working with the ORNL collaborators along with Ozan Tugluk (Brown) on extending recent work (“Multilevel Techniques for Compression and Reduction of Scientific Data — The Unstructured Case,” *SIAM Journal on Scientific Computing*) to be able to deal with the important case of unstructured particle data. An overview of the collaborative work can be found in the article “Extending the Publish/Subscribe Abstraction for High-Performance I/O and Data Management at Extreme Scale” (*Data Engineering*), which was produced during the discussions.



While the extended academic visits to Singapore and to Brazil in the first semester provided valuable opportunities to extend existing collaborations and to build new ones, the travel restrictions arising from the spread of COVID-19 had a dramatic impact on proposed academic visits during the spring semester. In particular, Ainsworth had to cancel participation in two different week-long workshops in Germany, a one-week conference in Paris, and proposed extended visits to work face-to-face with collaborators at Oak Ridge National Laboratory. Overall, this sabbatical was extremely valuable in freeing up time for Ainsworth to learn new skills, especially in the area of machine learning.

James Allen

EGYPTOLOGY AND ASSYRIOLOGY • FALL 2019

James Allen spent his sabbatical working on four books: *Coptic* (Eisenbrauns), *Funerary Texts from Lisht* (Metropolitan Museum of Art), *Ancient Egyptian Phonology* (Cambridge University Press), and *Middle Egyptian Literature II* (Cambridge University Press). One of these has currently appeared (*Phonology*), and the other three are in press. The first two were largely written before his sabbatical; the other two occupied most of his time. By being able to work on his own research practically full-time, Allen was also able to complete one further book, *Ancient Egyptian Diachrony* (Cambridge University Press).

During his sabbatical, he continued advising on the completion of five Ph.D. dissertations, four from his department and one from Harvard. He was first reader on three of these, second on one, and outside reader on the Harvard dissertation. Two of the defenses took place in the fall, and all five degrees were awarded this year.

Amanda Anderson

ENGLISH • 2019-2020

During Amanda Anderson's 2019-2020 sabbatical, she conducted research for her current book project, titled *The Slow Time of Ruminaton: A Project in the Human Sciences*. She was supported in part through the Berlin Prize of the American Academy in Berlin, which included residence at the Academy in spring 2020. While in Berlin, she worked on the book and researched the state of the humanities in Germany and across the European Union more generally.

The Slow Time of Ruminaton is a cross-disciplinary inquiry into a specific form of thinking central to the moral life, a form of thinking best captured by the term *ruminaton*. The project grows out of the conviction that some of the most influential frameworks for understanding human thought — in psychology, in moral and political philosophy, and in cognitive science — have not yet adequately recognized the quality, form,

and significance of slow, persistent ruminative processes oriented toward experiences of moral shock or disturbance. Such experiences include but are not limited to profound loss, grief, regret, or injury, including those fundamental assaults on dignity designated as status-injury. Anderson's aim is to develop an account of rumination that draws on the literary tradition so as to deepen understandings of moral and political life across the human sciences, through an integrative approach that aims to bring the slow time of literary rumination into dialogue with cognitive science (with its conception of fast and slow thinking), moral philosophy (which emphasizes choice, decision, and action), psychology (with its extensive literature on trauma), and political philosophy (whose key terms are judgment and deliberation). Through readings of literary works and memoir, she argues that rumination is a distinct form of reflection utterly central to the human experience — what she calls “moral time.”

The project on rumination grows out of research that Anderson did for *Psyche and Ethos: Moral Life after Psychology (Clarendon Lectures in English)* (Oxford 2018). A pilot piece drawn from the new project, “Thinking with Characters,” was published this year in *Character: Three Inquiries in Literary Study* (University of Chicago Press, TRIOS series, 2019 [with Rita Felski and Toril Moi]). During her sabbatical, she also presented materials at Princeton University (as the Visiting Whitney J. Oates Fellow in the Humanities Council), at Harvard University (the Modernism Seminar), at Queens University (where she delivered the inaugural Sister Sophie International Lecture), and at the American Academy in Berlin. Additionally, she presented research on the societal impact of the humanities at the Impact of Social Sciences and Humanities on Society conference sponsored by AESIS (Network for Advancing and Evaluating the Societal Impact of Science), held in Washington, D.C., on October 18, 2019.

R. Iris Bahar

ENGINEERING AND COMPUTER SCIENCE • SPRING 2020

Iris Bahar spent her sabbatical leave in Boulder, Colorado. Her original plan was to use the time to interact with former collaborators at the University of Colorado (CU) and travel to various venues to give talks and attend conferences. She also planned to interact directly with researchers at the [ATLAS Institute](#) at the University of Colorado. ATLAS is an interdisciplinary institute that aims to synthesize design and technology from engineering and the arts. With her growing interest in integrating design into her teaching and research, Bahar's plan was to take back some of the practices at ATLAS and incorporate them into the computer science and engineering curricula at Brown.

Within the first month of her sabbatical, Bahar traveled to Oak Ridge National Laboratory, where she attended the “Artificial Intelligence for Robust Engineering and Science” workshop and gave a talk on her recently completed work on evaluating rare event failures in memory devices, and how such analysis may benefit from artificial intelligence. In February, she sent her graduate student to the Technion Israel Institute of Technology for three weeks to work in person with her collaborator on a recently funded Binational Science Foundation grant on near-data processing and non-volatile memory. This trip turned out to be very fruitful for the project, as it allowed them to brainstorm research directions more effectively and establish a clear set of tasks moving forward for the project.



A walk in the open spaces near Boulder

The months of January and February were also spent developing new interactions with ATLAS faculty to learn how they were integrating technology and design into their work. In addition, Bahar met with CU-Boulder faculty from both the Computer Science and Electrical, Computer, and Energy Engineering departments to develop new ideas for her ongoing research projects on near-data processing and robot perception. Face-to-face interaction with researchers at CU-Boulder came to an abrupt halt with the onset of stay-at-home orders, due to the COVID-19 pandemic. As a result, plans for her sabbatical had to be significantly altered starting mid-March. The rest of her sabbatical was spent working from home in Boulder and leaving her house only to take masked walks in the surrounding neighborhoods and open spaces of Boulder. As it turned out, the walks were very good at refocusing her mind amid the chaos and uncertainty of the pandemic and providing inspiration for new ideas.

Unfortunately, since interactions with the ATLAS institute relied heavily on in-person meetings and access to laboratories, exhibits, and presentations, Bahar had to drop this part of her sabbatical plan. Instead, she focused her time on further developing her research in near-data processing and robot perception. In particular, she began a new research project connecting near-data processing with security and further developed ideas from her recently funded seed research project on designing robots that combine optimized hardware, software, and human reasoning together (with collaborators from Brown, University of Michigan, and University of Colorado).

While collaborations with CU faculty became more difficult, collaboration via frequent online interactions with her graduate and undergraduate students at Brown became unexpectedly easier to manage, leading to two new [publications](#) (one of which will be appearing at the International Conference on Field-Programmable Logic and Applications in August 2020) and submission of new grant proposals. Over the spring semester, she oversaw one undergraduate independent study project (working on near-data processing with large data structures) and one honors thesis (on hardware acceleration of feature detection algorithms). In addition, over the summer three Brown undergraduate students joined her (virtual) lab to contribute to the new research projects mentioned above. The sabbatical ended with her participation in the four-day Anchor Program for hybrid course planning, as she prepared to return to Brown to teach in fall 2020.

Bahar hopes to return to Boulder at some point soon to reconnect with the ALTAS faculty and resume her original sabbatical plan to further develop ideas on synthesizing design and technology. She also hopes to reschedule some of her canceled talks for this coming academic year.

Daniel Björkegren

ECONOMICS • 2019-2020

Daniel Björkegren spent a year on sabbatical as a visiting researcher at Microsoft Research New England. The lab is a magical place. He enjoyed conversations that ranged from technical innovations in machine learning to the societal impacts of new technology.

Many modern technologies have network effects and, as a result, lead to industries with natural monopolies (for example, consider Facebook and Google). Policymakers currently have little guidance on how to manage these network industries: should firms be given free rein, be split up, or be forced to interconnect with competitors? Björkegren revised his paper, “Competition in Network Industries: Evidence from the Rwandan Mobile Phone Network,” which analyzes the impact of introducing competition into a network industry.

Björkegren and collaborator Joshua Blumenstock (University of California, Berkeley) conducted two field experiments: one on Manipulation-Proof Machine Learning and another on Impact Credit Scoring.

Manipulation-Proof Machine Learning develops and tests new algorithms that continue to make good decisions when made transparent to users. It was tested in an experiment among new smartphone owners in Nairobi, Kenya, with an app that mimics features of a digital credit app. This project has received seed funding from Brown as well as followup funding from the Bill and Melinda Gates Foundation, and it was implemented with the Busara Center for Behavioral Economics. The draft was posted in April after several years of work.

As digital credit products have spread across the developing world, there is concern that they may lead to debt traps (echoing the debates about payday lending in the United States). Impact Credit Scoring evaluates the welfare impacts of digital credit products in Nigeria, using a randomized controlled trial designed with a financial services provider. The experiment is finished, and they are currently writing it up.

Björkegren and Blumenstock also continued work on several related projects under the umbrella of Welfare Sensitive Machine Learning. Björkegren also worked on several other early stage projects.

He was invited to present at the World Bank, the World Bank Infrastructure for Development conference in Toulouse, France, the Bill and Melinda Gates Foundation, the American Economic Association annual meeting, Yale University, Princeton University, the Joint Statistical Meetings, NBER Economics of Artificial Intelligence, Imperial College Business School, MIT Conference on Digital Experimentation, Tufts University, Harvard Computer Science (EconCS), EconTwitter Virtual Economics and Finance Conference, Microsoft Research New England Colloquium, University of Oxford, and the Bureau for Research and Economic Analysis of Development.

Robert Blair

POLITICAL SCIENCE AND WATSON • FALL 2019

Robert Blair spent his sabbatical as a junior faculty fellow at the Center for International Security and Cooperation (CISAC) at Stanford University. He was on sabbatical for three semesters — fall 2018, spring 2019, and fall 2019 — funded in part by a CISAC Junior Faculty Fellowship from Stanford and a Wriston Fellowship from Brown.

During his sabbatical, he completed his book manuscript, titled *Peacekeeping, Policing, and the Rule of Law after Civil War*, and submitted it for review at Cambridge University Press. It was accepted for publication without any required revisions, with a tentative publication date of November 2020.

In addition to the book manuscript, six of his articles were published or accepted for publication during his sabbatical, including: “International Intervention and the Rule of Law after Civil War: Evidence from Liberia” (*International Organization*); “Establishing the Rule of Law in Weak and War-torn States: Evidence from a Field Experiment with the Liberian National Police,” with Sabrina Karim and Benjamin Morse (*American Political Science Review*); “Teaching Trump: Why Comparative Politics Makes Students More Optimistic About U.S. Democracy,” with Hannah Baron and Shelby Grossman (*PS: Political Science & Politics*); “Building Trust and Compliance in Weak States: Coproduction during the 2014-2015 Ebola Crisis in Liberia,” with Benjamin Morse and Lily Tsai (*Comparative Political Studies*); and “Engineering Informal Institutions: Long-run Impacts of Alternative Dispute Resolution on Violence and Property Rights in Liberia” (*Journal of Politics*).

Five of his articles have also been invited for revision and resubmission: “U.N. Peacekeeping and the Rule of Law” (*American Political Science Review*); “Foreign Aid and State Legitimacy in Africa: Sub-National and Cross-National Evidence from Surveys, Survey Experiments and Behavioral Games,” with Philip Roessler (*World Politics*); “Forecasting Civil Wars: Theory and Structure in an Age of ‘Big Data’ and Machine Learning,” with Nicholas Sambanis (*Journal of Conflict Resolution*); “Foreign Aid and State-Society Relations: Theory, Evidence, and New Directions for Research,” with Matthew Winters (*Studies in Comparative International Development*, where it is now forthcoming as the introduction to a special issue on foreign aid and state/society relations in the developing world); and “The Promise and Pitfalls of Conflict Prediction: Evidence from Colombia and Indonesia,” with Samuel Bazzi, Christopher Blattman, Oeindrila Dube, Matthew Gudgeon, and Richard Peck (*The Review of Economics and Statistics*).

Blair also submitted several additional articles for review.

Beyond this work, Blair completed or made progress on several projects in Colombia, Uganda, and the U.S. He began a field experiment testing the effects of a military policing program designed to reduce homicide rates in Cali, Colombia, with Michael Weintraub and completed most fieldwork for it during his sabbatical. He also began a field experiment testing the effects of the Braver Angels program on partisan polarization in the U.S.



In addition, he conducted a field experiment testing the effects of a United Nations Development Programme effort to ease the reentry of the police into formerly rebel-controlled communities in rural Colombia, with Manuel Moscoso, Andrés Vargas, and Michael Weintraub and completed most of the fieldwork on another experiment testing the effects of a community policing program designed to improve police/community relations in rural Uganda, with Guy Grossman and Anna Wilke.

While on sabbatical, Blair received four external grants to support his research, including a \$220,000 grant from Innovations for Poverty Action (IPA) for his field experiment in Cali, Colombia; another \$50,000 grant from IPA, also for his field experiment in California; a \$40,000 grant from the International Office of Migration for his field experiment in rural Colombia; and a \$95,000 grant from the Hewlett Foundation for the Democratic Erosion consortium, which he continued to coordinate during his sabbatical.

Blair also presented his research in six seminars: Comparative Politics Seminar, Stanford, April 2019; Comparative Politics Colloquium, University of California, Berkeley, March 2019; International Relations Seminar, Stanford, January 2019; Replication Seminar, UCSD, January 2019; CISAC Research Seminar, Stanford, November 2018; and International Politics Seminar, Columbia, November 2018. He presented his research at five conferences and workshops, as well: “Security Sector Reform in Fragile and Conflict-affected States,” NYU and Folke Bernadotte Academy, September 2019; American Political Science Association conference, August 2019; “State of the Art? The Future of Peacekeeping Data,” Folke Bernadotte Academy, June 2019; International Studies Association conference, March 2019; and the American Political Science Association conference, August 2018.

Blair continued to engage the policy community and presented his research at two joint researcher/practitioner workshops in February 2019 (Evidence in Governance and Politics network and U.S. State Department) and in September 2019 (Folke Bernadotte Academy and U.N. Department of Peace Operations). He also presented lessons from the Democratic Erosion consortium at a Brown+Beyond fundraiser in Palo Alto, California, in February 2019.

Sheila Bonde

HISTORY OF ART AND ARCHITECTURE AND ARCHAEOLOGY
AND THE ANCIENT WORLD • 2019-2020

Sheila Bonde devoted her sabbatical year to two book projects. The first is a Mellon-sponsored digital book titled *The Sensory Monastery*. The book is being co-written with Clark Maines, and with the contribution of Alexis Coir, an architect, as well as the team from the Library's Digital Scholarship Lab. This project engages with the sensory experiences of monasticism from the 11th through the 18th centuries at an important monastery in the north of France. The aims include a critical analysis of the ways in which “the sensory” is defined in the medieval and early modern worlds, as well as a reassessment of the cultural “situatedness” of contemporary approaches to sensory experience. Within a digital publication, the authors seek to push the boundaries of the ways in which the digital can — and cannot — represent the various senses.

The project focuses on the abbey of Saint-Jean-des-Vignes (France), and uses Saint-Jean as a case study for aspects of the phenomenological that were typical of medieval and early modern monastic life.

An introductory chapter presents the medieval and early modern context for sensory monastic experience. Subsequent chapters engage with analysis of the abbey's soundscape; smellscapes and the monastic gardens; the close medieval relationship between visibility and haptic experience; and the notions of the body, identity, and sexuality in the Middle Ages. In these chapters, the authors do not simply write about the sensory; they are producing digital analogues for monastic visual and auditory experience. This includes detailed three-dimensional computer-aided design reconstructions of the architectural spaces in the major phases of the abbey's existence, including soundscapes for the abbey, harnessing recordings of music, bells, and human sounds of construction, as well as natural sounds of animals, wind, and water that can be identified as present through the archaeological record. Bonde and her colleagues are intentionally pushing the limits of the digital by exploring new ways to convey the haptic, olfactory, and spiritual aspects of the monastery in a digital platform. For example, smell is a difficult aspect to convey, but they are experimenting with computer visualizations to convey the extent of specific aromas within the abbey.



Having excavated at the abbey since 1983, Bonde and Maines were surprised and delighted to discover that asking new questions revealed unexpected answers about the abbey's architecture and material culture. For example, paying new attention to the abbey's soundscape led them to locate the struts for the placement of the medieval and early modern bells inside the surviving towers. In the summer and fall, Bonde traveled to France to do research, take measurements, and give several papers. Fortunately, the bulk of travel was accomplished before the spring semester. Writing about the plague of 1349 in March during the COVID-19 outbreak was a somewhat surreal experience, Bonde said, but it gave unexpected relevance to writing about the Middle Ages. Two undergraduates who had taken Bonde's seminar on "The Body and the Sensory" the previous spring wrote senior theses related to sensory topics, and Bonde became a Zoom habitué while supervising their work.

The second book project is an edited volume called *Other Monasticisms*. Bonde has an introduction and two chapters within the book, which otherwise sponsors the work of new and emerging scholars to highlight monastic orders and forms that have been understudied, such as the Carthusians, sorores minors, and Celestines. The *Other Monasticisms* book manuscript was sent to the publisher in June.

Joseph Braun

EPIDEMIOLOGY • 2019-2020

Joseph Braun used his sabbatical to increase the breadth and depth of his research program that examines the health effects, determinants, and biological pathways of early life exposure to environmental pollutants. Specifically, he has been studying an array of chemicals found in drinking water, food, consumer products, and residential materials to determine if they affect children's growth, brain development, and risk of obesity or cardiometabolic disease. Moreover, Braun took on additional administrative responsibilities during his sabbatical due to the departure of one of the School of Public Health's faculty and center directors. He was able to use this as an opportunity to develop a new vision for children's environmental health at Brown University.

In the past year, Braun published numerous papers. Notably, he published a paper in *BMJ Open* describing recently completed data collection in the Health Outcomes and Measures of the Environment (HOME) Study. The HOME Study has been following over 400 pregnant women and their children since the second trimester of pregnancy until the children's 12th birthdays. The newly acquired data is a "goldmine" that includes an array of childhood health assessments, including state-of-the-art measures of brain development, body composition, sleep, diet, physical activity, and pubertal development. Braun and his team are using these data to understand if, when, and how early life exposure to perfluoroalkyl substances (a persistent chemical found in drinking water and some foods) affects the risk of childhood obesity and cardiometabolic dysfunction. Finally, Braun continued to lead several studies quantifying the health effects and sources of pollutant exposures using the HOME, Maternal-Infant Research on Environmental Chemicals, and Pollution Effects on Asthmatic Children in Europe studies, which have been following children from before conception or during pregnancy until early adolescence.



Over the course of his sabbatical, Braun submitted four grant proposals to the National Institutes of Health (NIH) as a principal investigator and was co-investigator on nearly 10 others. These proposals will greatly enhance existing collaborations Braun has with colleagues across the country. They will also enrich collaborations with the NIH-funded Brown University Superfund Program (Robert Hurt, School of Engineering) and NIH-funded Environmental Influences on Child Health Outcomes study (Sean Deoni, Rhode Island Hospital). Several of his proposals will develop or enhance collaborations with researchers at Brown University in the School of Engineering and Hassenfeld Child Health Innovation Institute.

Finally, Braun became the director of the Center for Environmental Health and Technology. He has used this opportunity to develop a vision and plan for a new children's environmental health center that will become the hub for children's environmental health research activity at Brown University. Braun and members of this new center will become more involved in leveraging the Hassenfeld Child Health Innovation cohorts to study the determinants and health effects of pollutant exposures in young children, while also developing multimodal interventions to reduce pollutant exposures. This new center will serve as a local resource that can educate and train students, public health professionals, community groups, clinicians, and junior investigators about children's environmental health.

Kenny Breuer

ENGINEERING • FALL 2019

Kenny Breuer spent the fall semester on a sabbatical that consisted of a series of visits to collaborate and learn from colleagues around the world. He started in London, visiting Imperial College's Department of Aeronautics. There he collaborated with colleagues who have recently constructed a new wind tunnel, similar to the new wind tunnel here at Brown.

After London, Kenny spent two weeks in China, giving a series of invited lectures on the mechanics of animal flight at Tsinghua University (Beijing), Northwest Polytechnic University (Xian), and Shanghai University (China) and meeting with students and faculty, developing stronger research connections and touring their research and teaching facilities.

The last part of the sabbatical was spent at Tel Aviv University in Israel. Breuer split his time between the departments of Mechanical and Aerospace Engineering (MechE) and the faculty of zoology. In MechE, he worked with researchers on active flow control and wind tunnel testing technologies. In zoology, he collaborated with researchers working on the flight mechanics, learning, and cooperative behaviors of bats.

Throughout the semester, Breuer visited other universities and research centers in England and Israel, giving a total of 10 invited research seminars. He also continued to work with his students back in Providence and completed and submitted several journal articles and research proposals.

Justin Broackes

PHILOSOPHY • 2019-2020

Justin Broackes spent most of his sabbatical in Germany, conducting research mainly on Iris Murdoch and (separately) John Locke. He was a senior fellow of the Lichtenberg-Kolleg at the University of Göttingen and counts himself lucky to have been able to enjoy the intellectual life of the place as well as, with other parts of the university, a chance to reach outside the English-language bubble that is often the norm in international research centers. The coronavirus pandemic of course changed everything in Germany, as in the U.S., though in different ways in different places: the Lichtenberg-Kolleg went into lockdown, with discussion groups and coffee meetings continuing online. Where many international visitors returned to their home countries because borders were effectively closing, Broackes stayed in Germany, all the while keeping up with German news on the television and remembering, when hotels began to close, that it was a privilege for a non-permanent visitor to be there at all, even with the thought that it would be better not to be ill in a foreign country.

His main project is a commentary on Iris Murdoch's book *The Sovereignty of Good*. There are very few 20th-century philosophical works that need or deserve a commentary: Wittgenstein's *Tractatus* and the *Philosophical Investigations* are exceptions, as are some works by Husserl and Heidegger, and Murdoch deserves a commentary for similar reasons. It is hard and allusive but rewarding — she is pushing back against the 20th-century Anglo-American tendency to separate the core of philosophy maximally from literature, history, and religion, all of which means that there is more context and interpretation needed. And being in continental Europe was certainly no bad place to be working at it.

The Locke project is similarly explanatory, textual, and contextual, and it brings to light fundamental questions about Locke's philosophical project that is usually more or less invisible. There is effectively no interpretative tradition for what are known as Drafts A and B of the *Essay concerning Human Understanding*, nor for the three late (and hundreds-of-pages-long) Letters to Stillingfleet — people quote from them, but there is no received understanding of how they work exactly and how they might or might not differ either in detail or in general stance from the *Essay* itself. Broackes's work focuses on the idea that there are some serious changes of mind within these works, and only with some real textual study can one see that Locke's overall development over 30 years or so was not (as people often say) in a direction *away* from Aristotle but — with a total reversal of some of his early arguments — *toward* increasingly Aristotelian arguments that Locke had earlier rejected. Another portion of the project is as much geographical as it is textual. English-speaking readers of Locke have tended, if they give him a context, to link him with Boyle and the Royal Society. But Locke lived in France for three years in the 1670s and the Netherlands for over five years in the 1680s — and his connections with the late French Cartesians (and with Dutch Protestants) seem to be, in many ways, very important for understanding the real directions of his thought.

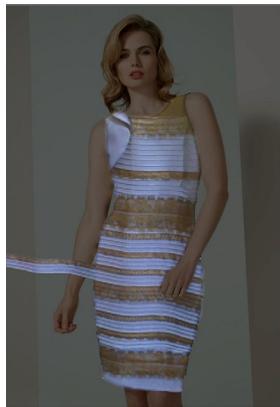
Conference events in the second half of the academic year, of course, were mostly canceled, but the summer of 2019 had marked the 100th anniversary of the birth of Iris Murdoch. At the main Oxford conference, Broackes presented a paper about Murdoch as a philosopher, connecting her work to Plato, Kant, Simone Weil, and he also read most of a keynote paper (which he had translated from the French) of the Hungarian philosopher Miklos Vetö, Murdoch's last doctoral student from 1961 in Oxford. (Vetö was in good form at

the event, but the sound system proved incapable of proper amplification.) There were other Murdoch events in the summer, including a raduate workshop in Zürich, where Broackes presented a paper and commented on the work of the various graduate students and other speakers working on Murdoch. One of the unexpected excitements in Göttingen was to find a class (taught by Katharina Naumann) on Murdoch, Foot, Anscombe, and Midgley — four women of extraordinary philosophical independence, as well as stature, in the second half of the 20th century in Britain. Broackes gave a paper at one session and co-taught with Naumann for another. During lockdown, some events were hosted online, and for the 50th anniversary of Murdoch's *Sovereignty of Good*, Broackes contributed to a podcast discussion of the book.

On Locke, Broackes gave various papers and responses at Yale, Göttingen, and Helsinki — though an invitation to the École Normale Supérieure in Paris was deferred for a later date.

In less strictly philosophical study, he also spent a couple of months of daily lessons with a teacher improving his Arabic, and a couple of weeks on a German course for teachers of the language and other advanced students. He has learned Rachmaninov's Piano Concerto No. 3. The English composer David Matthews has made a new arrangement of the work for piano and string quintet and, if it hadn't been for the coronavirus crisis, there would have been a chamber performance before the end of the year.

Further, Broackes had previously written several online articles regarding a controversially-colored dress, with images from a collaboration with the artist-designer Hilary Brown, and one of the articles is now due to be reprinted in a new edition of the textbook of *Evolutionary Psychology* by William Reader and Lance Workman.



How our color perception changes with context. On the left, the dress (unadjusted in color) is placed on a model in fairly ordinary illumination: and it looks (as it actually is) black and blue. On the right the same dress (again unadjusted in color: you can follow the strip joining the two images) is placed on the same model now in darker illumination: it looks (to many people) gold and white. (Image by Justin Broackes and Hilary Brown, adapted from original photos, with permission from Roman Originals. For further discussion, see Broackes's article, "[How does a black and blue dress sometimes appear white and gold?](#)")

It has been interesting, in lockdown in Göttingen, reading letters from the time when Locke was teaching in Oxford and the Great Plague affected much of England. In 1666, Locke received a letter from the mother of one student, saying that her son wouldn't be returning to the college because of the sickness in London and other parts of the kingdom; she also asked if Locke could take the boy's £10 deposit and use it to pay the outstanding bills for his chamber and the cook, as well as send back to Mr. Irland's house in Whitfriars the boy's two trunks of books and his linen. Even in difficult times, we can remember, serious health disruptions are not new, and an academic's life at times involved chores that we are glad to be spared today.

Holly Case

HISTORY • 2019-2020

Holly Case was a fellow at the Institute for Human Sciences (IWM) in Vienna in fall 2019 and a fellow at the Imre Kertész Kolleg in Jena, Germany, during spring 2020. Before heading to Vienna, she spent summer 2019 conducting archival research in Sofia, Bulgaria, and Belgrade, Serbia, for a variety of forthcoming projects on the modern history of southeastern Europe. She also co-organized — together with colleagues from the Imre Kertész Kolleg and Charles University in Prague — a one-week Sommerfrische intensive seminar in Trebujeni, Moldova, on the theme of “Imitation,” with graduate and undergraduate participants from the U.S. and Europe. In August, she was one of the faculty presenters on “Democracy and Demography” at the IWM summer school for young social scientists from around the world in Burg Feistritz, Austria.

In the fall, she learned that her book *The Age of Questions* (2018, paperback 2020) had won the 2018 Hont Prize for Best Book in Intellectual History. Later, as one of the faculty lecturers on a Brown alumni trip along the Seine in France in October, she met a lot of wonderful people. Throughout her tenure at the IWM in Vienna she gave a number of lectures and presented at workshops, conferences, and roundtables in Austria, Germany, Croatia, and Hungary. She also co-ran two discussion groups at the IWM: the Wiener Kreis and a film series on “Humans and Technology.” Thereafter, in January 2020, she co-ran a week-long Winterfrische intensive seminar — together with Ondřej Slačálek, a political scientist at Charles University in Prague, and Niall Chithelen, a first-year graduate student in modern East Asian history at University of California San Diego — on the theme of “Scale” in Prague and Štěkeň, Czech Republic. Participants included graduate students and undergraduates from the U.S., Europe, Russia, and China.

Shortly after her arrival in Jena at the Imre Kertész Kolleg, she started a reading discussion group (the Jenaer Kreis), which met twice before the COVID-19 lockdown. Since then she has been at work on two writing projects, one relating to aerial bombing and another on how and when we perceive patterns in history. She is also involved in a weekly reading discussion group with several student and young scholar participants in Europe, Asia, and the U.S., and has presented on her work-in-progress (via Zoom) for the Imre Kertész Kolleg and Cambridge University.

Over the course of the academic year Case has written and published articles and essays for a variety of academic and general interest venues, including *Slavic Review*, *Aeon*, *Eurozine*, *Boston Review*, *Current History*, *The Poetry Foundation*, *H-Diplo*, and the *IWM Coronablog*. As one of the founding editors of *Taxis Magazine*, she also has helped to usher nine new essays to publication so far this academic year, including [an essay](#) she translated from Bulgarian.

Caroline Castiglione

ITALIAN STUDIES AND HISTORY • FALL 2019

Caroline Castiglione was on sabbatical in fall 2019, having concluded her term as chair of the Department of Italian Studies in June 2019. During her semester sabbatical, she turned her focus to a book-length project, *Freedom and Justice in Moderata Fonte's The Worth of Women*. She recently won two external grant awards for her research on Fonte, a 16th-century Venetian writer who pondered why the conjuncture of being female and Venetian was often dangerous and sometimes deadly. With the support of the Social Science Research Institute Seed Funding Award and a Franklin Grant from the American Philosophical Society, she undertook research in the Venetian archives in 2019 and applied for and received a Delmas Foundation Grant to support additional archival work on this project next year.

Eric Chason

ENGINEERING • SPRING 2020

Eric Chason used his sabbatical year to further his academic research and to promote a memoir he had written. Planned trips to conferences and for collaborations with colleagues had to be canceled due to the pandemic.

The research activities enabled him to finish or make substantial progress on several longstanding projects in the area of stress in thin films.

One project was on Kinetic Monte Carlo (KMC) simulations. The simulations were performed using a program that was written by Chason last year. This program enabled stress, which is a long-range interaction, to be modeled using a KMC approach, which only considers local interactions. This was made possible by the use of a physical approximation that came out of their other work, i.e., that the stress is generated at the grain boundaries. The focus of the new work was to study how the grain size of the film affects the kinetics of stress evolution during film growth and relaxation when the growth is terminated. The results were analyzed in terms of an analytical model for stress developed to interpret thin film growth experiments. A manuscript is nearly finished and will be submitted in July.

Another project that Chason made progress on was with stress in metal-nitride thin films. Chason worked with graduate student Zhaoxia Rao to produce a manuscript describing her work on stress in titanium nitride and zirconium nitride thin films during sputter deposition. This work is the major focus of a National Science Foundation (NSF) grant. The measurements provide a comprehensive set of data that quantify how the stress depends on the pressure and the growth rate in each material. An analytical model for stress in sputtered films is used to interpret the data. Fitting the data to the model produces a set of



kinetic parameters that can be used to predict the stress under other conditions. The manuscript discusses how the fitting parameters are consistent with other measurements of the physical properties of the films. A final draft of the manuscript is being revised and will be submitted in July.

Further, Chason has worked with a visiting student, Meng Zhang, to perform molecular dynamics simulations of stress produced by energetic particle bombardment in thin films. Zhang is supported by a Chinese government scholarship to work in Chason's lab for one year. Using the Large-Scale Atomic/Molecular Massively Parallel Simulator (LAMMPS) code, they have studied how energetic argon bombardment creates point defects in the film and the corresponding stress. Interestingly, they have observed that the presence of grain boundaries affects the generation of interstitial defect and creates more compressive stress. This points to a new mechanism for defect generation in ion-bombarded films. A manuscript is being written that will be ready by the end of this summer.

Chason also worked on a user-friendly program for analyzing stress in thin films. The programs that have been developed to analyze stress would be useful for the wider thin film grower community. Making them available to others was included in the broader impact part of the NSF grant that supports this work. A user-friendly interface has been developed that makes it easier for others to use the program. It allows the user to specify which parameters should be common to all the data and which can be different. During the sabbatical, Chason has worked on a manual that provides guidance on how to fit stress data and the meaning of the fitting parameters. The goal is to put the programs and instructions on a web-based platform that others can use.

Chason completed work on the analysis of stress in other thin films, as well. The model that was developed for stress is applicable to many measurements that have been published in the literature. Professor Diederik Depla (Ghent University) shared a database of stress measurements that he produced by digitizing figures in previously published papers. A Sc.M. student (Peilin Yang) used the user-friendly program to analyze multiple sets of data for different materials (copper, silver, nickel, titanium, chromium, and iron). It was possible to fit the data for each material with many parameters being common to data taken by different users. A manuscript is being prepared that will be submitted at the end of the summer.

In addition to his technical research, Chason has written a memoir, *Breathless*, that tells the story of his daughter's illness and death during the H1N1 epidemic in 2009. She was only 10 weeks into her freshman year at the University of North Carolina. Beyond the tragedy, it recounts the life of a remarkable young woman who was dealing with a genetic illness that was making her go blind. In spite of the difficulties, she was determined to finish high school, attend college far from home, and embark on an independent life. Chason gave a reading in Chapel Hill, N.C., in January that was attended by some of the nurses and doctors who had cared for her.

Kaijun Chen

EAST ASIAN STUDIES • 2019-2020

Kaijun Chen spent two-thirds of his sabbatical year completing his monograph, *China's Imperial Porcelain Industry: The Culture of Technocrats, 1680s-1750s*. Through a detailed study of porcelain manufacture during the mid-18th century, the book rethinks early modern industrial planning in China in the context of the early modern world. The book reveals the role that specialist experts, what he defines as technocrats, played in producing the technological knowledge and distinctive artistic forms that were essential to cultural policies of the state in China between the 1680s and the 1750s. These specialist officials were bannermen technocrat — that is, the emperors' private servants, who have largely been overlooked in the existing historiography of Chinese science, technology, and culture. Chen investigates how these technological experts participated in fiscal management, technical experimentation, and design, in order to show what kind of rationalized manufacturing was possible in pre-capitalist and pre-industrial society. Drawing on first-hand archaeological evidence from Jingdezhen, an industrial town in the hinterland of China, as well as the voluminous *Archive of the Imperial Handicraft Workshops* preserved in The Palace Museum in Beijing, the book shows how technological treatises and experiments were deployed in porcelain manufacture and therefore reveals the relation between industrial regulatory institutes at court, the regional factory in Jingdezhen, and the imperial design system.

A fellowship from the Luce-American Council of Learned Society and the Salomon Grant from Brown University generously supported Chen's trips to China and Japan for collecting additional evidence for the book. On these trips, Chen discovered materials for his new research projects. In August 2019, Chen was able to visit the Ceramics Archaeology Institute in Jingdezhen, China, to examine recently excavated materials and to discuss with local archaeologists. In September 2019, Chen collected additional evidence of imperial design and management in the storage and archive in The Palace Museum in Beijing. Moreover, he was able to find excavated evidence of export wares in the imperial palace. These exciting evidences of the overlapping ground of imperial manufacture and production for export have been integrated into Chen's new research project, "Imperial Models," a collaboration with colleagues at Harvard University and the Max Planck Institute for the History of Science. Drafts of the new research have been presented at Harvard (October), Wesleyan University (October), Joukowsky Institute for Archaeology and the Ancient World (November), and the Department of History at Brown (November), as well as at Johns Hopkins University (December). From December 2019 to early January 2020, Chen visited Japan and was able to, with curators' kind help, harness important evidence for his monograph from the Idemitsu Museum of Arts in Tokyo, Seikaido Collection in Kyoto, and the Osaka City municipal museums of ceramics.

Since January 2020, while editing his monograph, Professor Chen devoted one-third of the sabbatical year to develop his new research projects and to finish editing other committed publications. An essay investigating the relation between literary writing and archival practice in late imperial China will be included in an edited volume, *Literary Information in China: A History*, to be published with Columbia University Press.

Wenhui Chen

EAST ASIAN STUDIES • FALL 2019

Wenhui Chen spent her sabbatical leave in fall 2019 on developing her new advanced Chinese language course. This course covers five themes: clothing, food, housing, transportation, and entertainment. It provides advanced language practice and cultural analysis through the reading/watching of authentic Chinese texts/videos. Each theme is introduced and examined through two pieces of articles, one movie/TV show, and one classical Chinese reading text. The aims of the course are to develop students' language skills in both formal and informal settings, to deepen their understanding of Chinese society and culture, to build their cultural competence, and to develop their critical thinking skills. She will hopefully offer the course in the 2021-2022 academic year.

She also developed an independent study course with one of her former students, Emma Tilley. The title of the course is "Introduction to Tang and Song Poetry." It covered 12 poets from the Tang and Song dynasties and included a selection of the most influential poetry written by them. The reading materials included biographies, poems, and analyses of poems. The course was offered in spring 2020.

As the study abroad advisor for the Chinese program in 2018-2019, she visited two Chinese summer programs in Beijing in 2019: CET and Princeton in Beijing. For each program, she observed three classes of different levels, had academic discussions with staff members and instructors, and visited campus facilities and student housing. She and seven students had a get-together after the visits, and she kept in contact with most of the students who were in China through the summer via WeChat. She gave advice and suggestions to help students better adjust. The visits allowed her to get more up-to-date, first-hand information of these programs, so she can better serve in the role of study abroad advisor.

With the campus-based grant she received from the Center for Language Studies, she attended the American Council on the Teaching of Foreign Languages' annual meeting and made a presentation in November in Washington, D.C.

Reid Cooper

EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES • SPRING 2020

Reid Cooper spent the spring semester in residence at Brown and in his department, available to his graduate students, a baccalaureate research student, and academic advisees; in addition, he continued with his responsibilities as a member of the University Academic Priorities Committee. All of these activities, as well as his planned research work, were negatively impacted by the COVID-19 crisis.

The initial plan for the sabbatical had two emphases: (1) pursue measurements/characterization of extended crystalline defects employing the technique known as atom probe tomography (APT); and (2) continue work on a book manuscript that concerns natural philosophy, specifically the application of the second law of thermodynamics to systems both physical and sociological. An opportunity arose late in 2019 to pursue a third project: to calculate based on kinetic theory and phase equilibria the very surface chemistry of Venus based on reaction (i.e., weathering) of basalt with the carbon dioxide- and sulfur-rich atmosphere.

First, Cooper completed work on the measurements and characteristics of extended crystalline defects. Prior to the University being all-but shut down by the COVID-19 crisis in mid-March 2020, a number of specimens of grain boundaries in olivine “clots” recovered from picritic (olivine-saturated) lavas from Piton de la Fournaise volcano (La Réunion Island) and from Kilauea Iki volcano (Hawaii) were partially prepared for analysis by APT and high-resolution transmission electron microscopy. In that the analytical work is to be pursued at a facility at Harvard University, progress is on hold due to lack of access to that facility.

The two geological localities have, in general, different textures of the olivine clots: the clots in the Piton de la Fournaise lavas emphasize twin-boundaries (relatively low-energy interfaces); the clots in Kilauea Iki lavas emphasize high-angle boundaries (somewhat higher-energy interfaces). But in both cases, boundaries between olivine grains are interacting chemically with the magma from which they are crystallizing/growing, and this interaction should affect the defect structures of the boundaries. Scrutiny by the two analytical techniques could change understanding of boundary dynamics and how it affects the rheology of partially molten rock.

Beyond this work, Cooper continued to work on a book manuscript that concerns natural philosophy, specifically the application of the second law of thermodynamics to systems both physical and sociological. At Brown, Cooper had developed a seminar course titled *Patterns: In Nature, in Society* that combines physical science approaches (the second law: self-organized criticality) to first characterize natural processes of energy dissipation (chemical reactions, earthquakes, landscapes, wildfire, etc.) and then take the lessons and see if they apply to sociological systems (and they do ... in surprising ways). It has been a successful course, and he is attempting to consolidate the lessons that he has learned into a general-reader manuscript.

Educationally, the semester’s goal was to delve into two areas. First, he explored critical theory: its description of science, in general, seems stunningly wrongheaded (if not simply wrong); there is, though, a responsible and respectful critique of critical theory that he has added to his text. Second, process philosophy: A.N. Whitehead is hard stuff, but this approach to thought has great value, particularly for students making decisions about their lives, and is unquestionably related to the content and ethos of *Patterns*. With regards to the latter, Cooper has, in addition to Whitehead, read and contemplated the process thought of the American pragmatists — Pierce, James, and Dewey — as well as the arguments of Bergson and Hartshorne.

Writing is proceeding, and — for this scientist, steeped in the use of mathematics to relay ideas (and now trying to avoid math as much as is practicable) — is going steadily, albeit slowly. Cooper has found this process very humbling.

Finally, Cooper had the opportunity to complete work regarding weathering on Venus. Rocks weather on Earth by a combination of oxidation (reaction with oxygen in the atmosphere), hydrolysis (reaction with H₂O, i.e., water and water vapor), and erosion (transfer of kinetic energy of wind and moving water). Venus has a dense atmosphere rich in carbon dioxide and containing significant sulfur. Weathering there is more about anhydrous reactions of basaltic (iron oxide-bearing, igneous) rock. Remembering that our primary knowledge about the surface chemistry of Venus is based on remote sensing (spectrometry) from orbit, and that the instruments can only discern chemistry to a depth of micrometers to millimeters, understanding weathering textures of the rock is critical. The community is heavily invested in employing a chemical-kinetics theory (model) developed by Cooper earlier in his career regarding oxidative weathering. The model is subtle, however — more solid-state physics than petrology — which affords him the opportunity to contribute. Cooper worked with an international group of planetary scientists to predict the nature of a 500 million-year weathering rind on the planet, based on his model; a manuscript is currently under review for the journal *Icarus*. The long-term intention of the study is to set specifications for (a) spectrometer(s) on a future mission to Venus.

Lorin Crawford

BIostatISTICS • 2019-2020

During the 2019 fall semester, Lorin Crawford spent his junior sabbatical at Brown writing papers and working on a project he proposed for his Alfred P. Sloan Foundation Research Fellowship. The long-term goal of Crawford's interdisciplinary research program is to build machine learning algorithms and statistical tools that aid in the understanding of how genetic features affect the architecture of complex traits and contribute to disease etiology. A consistent theme of his work is using modern computational approaches and developing theory that enable their interpretations to be related back to classical genomic principles.

As a Sloan Research Fellow, Crawford is attempting to understand how 3D shape variation can be used to explain genotypic or phenotypic variation. He has been conducting this work in the context of radiomics, which is a field that aims to detail the correlation between clinical imaging features and genomic assays. One longstanding key challenge in this space is implementing an analogue of variable selection with 3D shapes as the covariates in a regression model. As a solution to this issue, Crawford developed the “smooth Euler characteristic transform,” or SECT. This method takes in 3D objects represented as meshes and transforms them into collections of vectors with little to no loss of information about their natural structure. This is important for the field as it allows for the quantification of shapes without the need to use specified landmarks, which are known to suffer from errors when comparing objects that are highly dissimilar. Using the SECT, Crawford showed that one can accurately predict the disease-free survival

times for patients with glioblastoma multiforme (GBM) based strictly on the physical attributes of their malignant brain tumors. A manuscript for this method was accepted to the *Journal of the American Statistical Association* for publication in October.

With the potential connection between tumor shape and disease progression in mind, Crawford also worked to improve SINATRA: a computational pipeline for sub-image selection, in which the goal is to identify the physical features of a collection of 3D shapes that best explain the variation in a given trait or outcome. A prototype of this work has been published online as open source software and is publicly available on the Crawford Lab GitHub page. Recently, as a case study, Crawford and his research group used SINATRA to analyze mandibular molars from four different sub-orders of primates. Here, they demonstrated the ability to further our understanding of how shape landmarks vary across evolutionary scales in morphology and the ability to visually detail how known anatomical aberrations are associated to specific disease classes and/or case-control studies. Moving forward, Crawford hopes to extend the theory and algorithmic implementation of the SINATRA methodology and software to biomedical applications involving magnetic resonance images (MRIs) and computed tomography (CT) scans.

Throughout his sabbatical, Crawford was given the opportunity to visit other institutions and lead seminars on his research. This included giving talks at the Computational Biology Seminar at Duke University, the Inference and Algorithms Seminar at the Broad Institute of MIT and Harvard, and being a plenary speaker at the Mathematical Association of America Fall Meeting.

Bathsheba Demuth

HISTORY AND ENVIRONMENT AND SOCIETY • 2019-2020

While on leave, supported by a Cogut Institute Faculty Fellowship and a Henry Merritt Wriston Fellowship, Bathsheba Demuth divided her time between events and work related to the publication of her first book and beginning research on her second monograph. *Floating Coast: An Environmental History of the Bering Strait* (W.W. Norton) was released in August 2019, to critical acclaim in *The New York Times*; *The New York Review of Books*, *Nature*, *Science*, on National Public Radio; and in other publications. Demuth gave more than 20 invited talks and book readings related to *Floating Coast* in the fall and early winter across the United States, for audiences ranging from academics to local Alaskan communities. The book has subsequently been shortlisted for the Pushkin House Prize and won the George Perkins Marsh Prize from the American Society for Environmental History. Demuth also spoke about the book at the American Historical Association annual meeting in New York City.

While involved in book events during the fall, Demuth also began work on her second project, an environmental history of the Yukon River Watershed. Reaching nearly 2,000 miles, from its origins in British Columbia, through the Yukon Territory, before draining into the sea along the Alaska coastline, the Yukon has coherence as an ecological space. The river also cuts through multiple Indigenous nations,

including the Yup'ik, Gwitch'in, and Koyukon. Together, they defined the region's politics, legal traditions, cultural plurality, and resource use prior to the 1700s. By the 1800s, trade from the British and Russian Empires turned to attempts at rule and, by the 1860s, empires gave way to a nation-state division between the United States and Canada, and these states' regimes of managing and eroding Indigenous sovereignty. Demuth is examining how ideas of rights — human rights, property rights, rights to animals and waters — have layered and contested with each other in this transnational watershed. Through them, she is exploring how rights concepts changed the region and its inhabitants, and how the ecological space itself influenced — or did not — people's ideas. Doing so brings environmental, legal, and Indigenous histories into dialogue, asking if rights are, in fact, a useful way to frame the human/ nonhuman boundary and ethical relations.



Photos taken by Demuth in the Yukon

To begin this research, Demuth took a preliminary trip to the Yukon in August 2019. She researched and completed an article on the use of dog labor along the Yukon River in the fall and workshopped it at the Cogut Institute seminar; the essay is now under review at the *Journal of American History*. In fall 2019, Demuth was chosen as an internal candidate for an Andrew Carnegie Fellowship and developed a full proposal to further support her Yukon project. She was awarded a Carnegie Fellowship in May 2020. Before her research plans were interrupted by the COVID-19 pandemic, Demuth spent early 2020 in Alaska, conducting archival research in Fairbanks and Juneau, while also renewing and establishing connections with local historians and community members. Demuth has continued her research remotely in spring and summer 2020, working on digitized collections in the United States, Canada, and Russia; beginning to plan a trip down the length of the Yukon River in 2022; and starting work on an article related to the fur trade. While on leave, Demuth also published widely in non-academic publications, including the *Boston Globe*, *Emergence Magazine*, *Hakai Magazine*, *The Atlantic*, and *The New Yorker*.

Paja Faudree

ANTHROPOLOGY • 2019-2020

Paja Faudree was in residence at Brown for fall 2019 as a faculty fellow at the Cogut Institute. She began the spring 2020 semester in Oaxaca, Mexico, where she has conducted research for many years, planning to be there for a month before spending the remainder of the term in Budapest, Hungary. Her research in Hungary is supported by a Fulbright grant, through affiliations with the Hungarian Academy of Sciences and Central European University. However, due to the COVID-19 pandemic — which led to the unprecedented suspension of the Fulbright program worldwide — she remains stranded in Oaxaca indefinitely. Like so many others, her research plans were thoroughly disrupted due not only to the immediate restrictions of the pandemic but also to the demands of working from home while parenting and homeschooling.

Nevertheless, she brought the manuscript for her next book near to completion. Titled *Magic Mint: a history of one of the world's newest "drugs"; or, The Migrant's Tale*, it will be published by Duke University Press. She also advanced articles from this research, which are either under review or forthcoming (e.g., "Medical 'Objects' Beyond the Human: The Case of *Salvia divinorum*," *Medical Anthropology*). The book and articles center on the political and ethical dynamics surrounding transnational commerce in *Salvia divinorum*. A hallucinogenic variety of mint, the plant is endemic only to one region of the world: the Mazatec-speaking area of Mexico, where for centuries Indigenous people have cultivated the plant and used it in religious healing rituals. 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," even as pharmaceutical researchers compete to develop new drugs based on its active agent.

The ethical core of the book turns on documenting how these developments affect people from the Mazatec region, examining how their ties to the plant are being systematically erased through the decontextualizing logic of global capitalism and intellectual property rights regimes — thereby attesting to the fundamental dispossessions and silences at the heart of global trade. Theoretically, the book aims to bring into a unified analytic framework an attention to both the political economies and semiotic ecologies surrounding the plant. This approach treats competing constructions of the plant's value as at once material and representational, grounded in the dialectic processes by which people give the plant meaning by bundling it to both words and things.

Although the delay in her Fulbright grant will mean postponing research in Hungary until next year, she did advance the project remotely. Titled *In the Shadow of Genius: Paul Erdős and the lives that made his possible*, the book at the heart of the project is aimed at a popular audience. Centering on the most prolific mathematician in history — the eminent Hungarian Paul Erdős — the book examines how his life and work were made possible by an extensive network of collaborators while exploring the construction of "genius" as a social category.

Finally, she spent a portion of her sabbatical pursuing assorted public-facing publications. The most recent was published at the close of her leave, for Father's Day 2020. Titled "Restarting the Gun Debate: Suicide After COVID-19," the essay concerns the national suicide epidemic, gun legislation, aging in America, and mental health. It can be found on the [Los Angeles Review of Books blog](#).

Elena Festa

COGNITIVE, LINGUISTIC, AND PSYCHOLOGICAL SCIENCES • SPRING 2020

Given the COVID-19 global pandemic, Elena Festa's scholarly leave was not exactly what she had anticipated but was very productive nonetheless. Her original plan was to spend most of her spring 2020 sabbatical at the Shiley-Marcos Alzheimer's Disease Research Center at the University of California, San Diego (UCSD) to work with colleagues there on a collaborative research project developing novel neurocognitive markers for the early detection of Alzheimer's disease (AD), and to also initiate new collaborative research projects concerned with understanding the neurocognitive mechanisms underlying healthy aging and AD. She also planned to dedicate some time during her sabbatical getting closure on several of her projects at Brown that investigate changes in attention and sensory integration mechanisms in healthy aging and AD. She had also planned to continue mentoring two honors students completing research projects in the lab, as well as a Sheridan Center undergraduate fellow working on her senior capstone project to evaluate Festa's CLPS0010 course redesign. Rather than traveling to sunny La Jolla, however, Festa has instead been working remotely from the comfort of her home — where she has been surprisingly successful in achieving these goals despite the circumstances.

In November, Festa submitted a National Institutes of Health (NIH) grant (that has now been approved for funding) with her UCSD colleagues to evaluate the ability of two novel neurocognitive behavioral tasks to detect the presence of early AD pathological processes and predict subsequent cognitive decline in preclinical AD individuals. One of these tasks was developed by Festa and William Heindel here at Brown: This task uniquely assesses functional cortico-cortical interactions (disrupted early in the course of AD) in the context of varying selective attention demands. The initial results demonstrate that while selective attention declines both with healthy aging and risk for AD, only individuals at risk for AD show impairments in sensory binding. Unexpectedly, they also found that this pattern of results strongly depends upon biological sex and disease severity: Females exhibit the sensory binding deficit at earlier stages of the disease than males, and show poorer selective attention function across all groups. These findings are currently being prepared for publication. Since January, they have been meeting weekly with their UCSD colleagues via Zoom to discuss details concerning the experimental protocol for the grant project, as well as to flesh out analyses and interpretations of some very promising preliminary data that were collected on their task prior to the pandemic with healthy older adults with biomarker measures. They are also preparing these findings for publication.

Festa submitted two other AD-related NIH grants: one with Heindel and Stephen Buka at Brown to examine the mechanisms of risk and resilience to age-related cognitive decline in a 60-year longitudinal cohort (that has just been approved for funding), and another with Gary Strangman and Dr. Steven Arnold at Massachusetts General Hospital to combine novel neurovascular imaging techniques with real-time assessment of driving to detect early signs of AD (on which they are currently awaiting word from Council). These grants build upon ideas developed from a number of past and ongoing projects here at Brown investigating changes in attention, memory, and sensory processing in healthy aging and AD and their impact on real-world driving behaviors.

Festa also submitted a DOD/SBIR grant (that has now been selected for funding) with Bethany Bracken at Charles River Analytics in Boston. The major goal of this project is to evaluate and validate machine learning algorithms for objective situational assessments — first in a controlled laboratory environment, and then in realistic full-scale simulation environments. She will be collecting and analyzing performance and neurophysiological (EEG, fNIRS) data in the laboratory setting, testing Brown undergraduate students while they engage in tasks designed to induce changes in situational awareness and cognitive effort. These data will serve to further train and test the algorithms, which will allow Bracken’s research team to refine the models before evaluating them in more operationally relevant environments. In preparation for her role on this project, Festa has spent a portion of her sabbatical learning additional EEG analytical techniques (time-frequency and single-trial analyses).

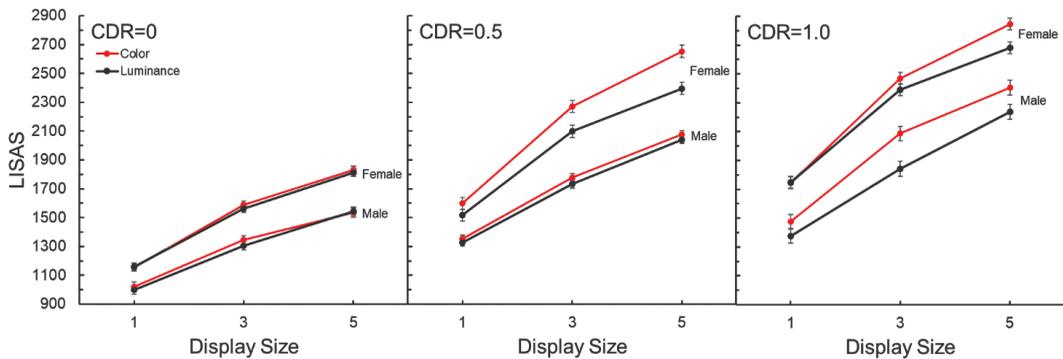
During this sabbatical, Festa has also been able to complete and publish several other ongoing research studies investigating attention and sensory integration mechanisms in healthy aging and AD. [One study](#) examined changes in phasic alerting response in healthy aging using pupil dilation as a proxy measure of the locus coeruleus-noradrenergic (LC-NA) system. This study found that while both young and older adults displayed behavioral and pupillary alerting effects, older adults displayed a weaker pupillary response that benefited more from the alerting tone, suggesting the presence of a functioning but deficient alerting network associated with a decrease in the integrity of the LC-NA system in older adults. [Another behavioral](#) study found increased compensatory interactions between attentional networks in healthy aging that were no longer effective in patients with mild cognitive impairment (MCI), a precursor stage of AD. These findings suggest that behavioral tests of attentional network interactions may serve as cognitive markers in individuals at increased risk for developing AD. [A third study](#) assessed integration of object feature knowledge within semantic memory in healthy older adults and MCI patients, and examined whether integration deficits found in MCI patients relate to the level of amyloid pathology in the brain. The findings were consistent with deterioration in the content of semantic memory representations rather than a deficit in controlled semantic retrieval in these patients, and suggest that neurocognitive measures of object feature integration may also be sensitive markers for the early detection of AD. Their next step will be to investigate whether this integration deficit corresponds to the degree of amyloid and tau pathology in preclinical populations. They hope to include this behavioral test in the funded grant project with UCSD.

Additionally, Festa and her colleagues have been investigating changes in the neural dynamics of bottom-up and top-down processing in healthy aging and in individuals at risk for AD on both object recognition and language processing. [A fourth study](#) manipulated both object perceptual ambiguity and scene context congruity within a rapid object recognition task, and found differential effects on specific EEG event-related components across the healthy young and older adult groups. They argued that these findings suggest that compromised bottom-up perceptual processing in healthy aging leads to an increased involvement of top-down processes to resolve greater perceptual ambiguity during object recognition.

Language comprehension is a striking example of a highly dynamic and predictive process that employs the interaction of both bottom-up and top-down mechanisms. As part of a Seed Fund grant awarded to Heindel, the honors student working with the group examined changes in predictive processing and cognitive control in healthy aging and risk for AD in an online auditory language processing task. Healthy young and older adults with and without positive family history of AD listened to highly contextually

constraining sentences that ended with expected, unexpected, or anomalous target words while EEG and pupil dilation was recorded. Distinct patterns of N400 amplitudes (an EEG marker of semantic processing) were observed across the three groups that mirrored the pattern of observed theta oscillatory power (a marker of cognitive effort). Also observed was an age-related increased pupil dilation (a marker of increased arousal) in response to unexpected-ending sentences that was larger in individuals at risk for AD. Taken together, the findings suggest that older adults engage less distinct predictive representations and increased cognitive control in language processing than young adults, and that this change is further exacerbated in those at risk for AD. A manuscript of these findings is currently being prepared for publication.

Finally, Festa had received an award from the Zern Endowment Curriculum Development Fund last year in order to enhance the STEM writing pedagogy of her Mind, Brain and Behavior (CLPS0010) course. Festa used these funds to support a design team composed of two Sheridan Center writing fellows, one problem-solving fellow, and two former graduate teaching assistants for the course. They revised materials and writing resources that Festa had introduced into the fall 2018 course and developed new digital micro-tutorial labs and section meeting material to support teaching by graduate students; these newly developed and revised materials were introduced into the fall 2019 CLPS0010 course. Throughout this past academic



year, Festa has been working with Christina Smith in the Sheridan Center and Rachel Foster, the undergraduate problem-solving fellow, to assess the effectiveness of the redesign and to determine what can be further improved. Last fall, Foster conducted focus groups and administered surveys to Festa's students to assess the degree to which student-perceived outcomes matched the course design goals of fostering critical thinking and scientific reading and writing skills. In general, students emphasized clarity of information and expectations, multiple resources, and a "dig deeper" requirement in assignments as essential components to their critical thinking and scientific reading/writing development. The results suggest that students' self-perceived critical thinking development increased with the novel aspects of this course design: scaffolded writing assignments and technology; however, these changes were tempered by the clarity of expectations and information. Festa and her colleagues are currently preparing a manuscript of these findings for publication.

Masako Fidler

SLAVIC STUDIES • FALL 2019

Masako Fidler devoted her fall sabbatical to research in Slavic linguistics. She continued her duties as a subject editor for the *Encyclopedia of Slavic Languages and Linguistics* (Brill); the first installment of the online version of this book has appeared in 2020. Three articles have appeared: a single-author piece dealing with Czech onomatopoeia in discourse among adults (in *Ideophones, Mimetics, and Expressives*) and two joint-author articles — one on the Kremlin-backed web portal *Sputnik Czech Republic* (in *Political Discourse in Central, Eastern and Balkan Europe*) and the other exploring morphemes and discourse in Czechoslovak presidential speeches in *Corpus Linguistics and Linguistic Theory*. All these studies combine quantitative and qualitative discourse analysis methods. Fidler also gave a plenary lecture on her research at the first conference of the Czech Association of Cognitive Linguistics at Charles University in Prague in November 2019.

The sabbatical allowed Fidler to pursue new lines of research. Her conference presentation at the Slavic Cognitive Linguistics Conference at Harvard University is the beginning of her attempts to expand her research area into metaphor (a pilot analysis of “A Quiet Week in the House” by Jan Švankmajer). Revisions to the two-authored article on Ptydepe, an artificial language created by Václav Havel, has since been accepted for publication in a special volume of the *Slavic and East European Journal* titled *Universal Linguistic Microcosms? Artificial Languages in Czech Literature*. Fidler worked with long-term research collaborator Václav Cvrček to develop a new corpus linguistic method that measures strength and spread of conceptual associations within large language databases. This collaboration resulted in two conference presentations, which became a springboard for a paper that will be submitted in summer 2020. Because of her research focus on language and politics, Fidler became a member of a new international project “Mitigating Perceived Threats in Russian and Norwegian Public Discourse [THREAT-DEFUSER].” The team, led by Professor Laura A. Janda at the University of Tromsø, consists of specialists in political science, linguistics, and media studies. The research is funded by the Norwegian Research Council for 2020-2026 (12 million Norwegian crowns/approximately \$1.3 million). Fidler will explore how linguistics can contribute to analysis and a long-term strategic competence on hybrid warfare in Russian.

In addition to research, Fidler completed several meetings with the Faculty of Arts, the Faculty of Mathematics and Physics, and the Rectorate of Charles University to discuss renewal of the multidisciplinary Memorandum of Understanding (MoU) between Brown and Charles University. With the assistance of the Brown Engagement Office and the Rectorate of Charles University, the five-year MoU was expanded and executed in the spring of 2020. Multiple units at Brown now participate in the MoU (American Studies, Applied Mathematics, Center for Language Studies, Chemistry, Classics, Digital Humanities Lab, East Asian Studies, Egyptology, History, Judaic Studies, and Slavic Studies). The memorandum provides a full scholarship for a Brown student to attend the Summer School of Slavonic Studies at the Arts Faculty, Charles University, and helps support a Charles University student to conduct research at Brown.

Mary Louise Gill

CLASSICS AND PHILOSOPHY • FALL 2019

During her sabbatical leave in 2019–2020, supported in the spring by a Faculty Fellowship at the Cogut Humanities Institute, Mary Louise Gill worked primarily on her new book project, tentatively titled, *The Ideal of Godlikeness in Greek Philosophy*. Both Plato and Aristotle believed that human happiness (*eudaimonia*, literally “good spirit”) depends on our becoming godlike. Since we are material, mortal beings, we cannot achieve full-fledged divinity, but because of our rationality we can become godlike. The question is: what does becoming godlike require of us? Should we focus on our rational powers, since rationality is our divine aspect? Should we contemplate divinity? Or does becoming godlike call for cooperation among our various psychic faculties, including emotion and irrational appetite, as well as reason — an ideal Plato associates with justice?

Gill’s project focuses on texts of Plato and Aristotle about divinity and those exhorting us to become godlike, including Plato’s account of the creation of the cosmos by a divine craftsman in the *Timaeus*, with its plea to us toward the end to become godlike, and Aristotle’s account of the eternity of the world maintained by a god described simply as “thinking thinking of thinking” in *Metaphysics Lambda*. The project investigates how Plato and Aristotle understood mind and its manifestation in thinking. During her sabbatical, Gill gave several papers associated with the project, including “Becoming Godlike in Plato’s *Timaeus* Trilogy” in Rio de Janeiro, Brazil, in August 2019, and at the Cogut Fellows Seminar in April 2020; she also led a Zoom session on the beginning of the *Timaeus* at a workshop on Plato’s *Timaeus* in late May 2020. On Aristotle, she presented “Mind’s Place in Aristotle’s Science of Nature” at a conference on Aristotle’s *Parts of Animals* in Cambridge, England, in August 2019 and at Stanford University in February 2020. She also gave a talk entitled “Φαντάσματα (representations) in Aristotle’s *De Memoria*,” at the Central Division of the American Philosophical Association in Chicago in late February 2020.

During 2019–2020 she continued to work on her ongoing project on Aristotle’s hylomorphism (his views about the relation between matter and form, especially body and soul) and gave two papers at a conference on Aristotle’s hylomorphism in Porto Alegre, Brazil: “Two Versions of Aristotle’s Hylomorphism” (forthcoming in a volume on hylomorphism from Oxford University Press) and “Aristotle’s Hylomorphism in *Metaphysics Θ*,” a paper in progress. In fall 2019, she completed a paper on the simplest psychic faculty, nutritive soul — responsible for self-maintenance and reproduction — in “Method and Nutritive Soul in Aristotle’s *De Anima* 2. 2-4,” forthcoming in a volume on nutrition in Aristotle and the Aristotelian tradition from De Gruyter.

She also wrote and presented two papers on Plato’s later method and metaphysics in summer 2019: “The Variety of Platonic Division” at a conference on Plato’s Mathematics and Metaphysics in Paris and later in Rio de Janeiro; and “Exercise on Being: the ἀγών (contest) of Heraclitus and Parmenides,” on Plato’s *Parmenides*, as the Cornelia de Vogel Lecture at the seventh triennial meeting of the International Plato Society in Paris. Her paper, “The Fourfold Division of Beings in Plato’s *Philebus*,” was published in a volume on the *Philebus* (Oxford, 2019).

Gill also served on four dissertation committees in 2019–2020, two on Plato’s later metaphysics and method, one on Aristotle’s hylomorphism, and one on Kant. The three students working on topics in ancient philosophy finished and successfully defended their dissertations (by Zoom, two in Europe) in the spring to early summer 2020.

Tim Harris

HISTORY • 2019-2020

Tim Harris spent summer 2019 in the U.K. undertaking research in London and Cambridge. He spent the early part of the summer putting the final touches to a festschrift in honor of Mark Goldie, professor of intellectual history at Cambridge University and fellow of Churchill College. Besides co-editing the volume, he contributed an essay on the myth of constitutional royalism in 17th-century England. He spoke at and helped organize the following events in July: Roundtable on History and Second Amendment Jurisprudence in America, held at Pembroke College, Oxford University, and sponsored by the Center for Firearms Law at Duke University, where he discussed his work on the landmark case of *Rex v. Knight* (1686) and the highly circumscribed right to bear arms in 17th-century Britain and Ireland; Symposium to Celebrate the Scholarship of Professor Mark Goldie, held at Trinity Hall, Cambridge University; and the Durham Early Modern Conference, held at Ushaw College, Durham University, where he spoke about his new book project.

Harris was a faculty fellow at the Cogut Humanities Institute in the fall and on leave in the spring, and spent most of the year working on his forthcoming book for Oxford University Press on *Britain's Century of Revolutions, 1603-1691*. Although this was one of the most formative periods in British and Irish history, surprisingly there is no modern study of the revolutions as a whole. Contrary to revisionist accounts, Harris demonstrates that Britain experienced genuine revolutions during this period, with long-term structural and ideological causes, which served to transform the British polity in fundamental respects. His study examines the failings of the early Stuart monarchy under James I and Charles I, culminating in civil war in 1642 and regicide in 1649; the various republican experiments in government in the period from 1649-1660, with first the Commonwealth and then the Protectorate under Oliver Cromwell; and the Restoration of monarchy under Charles II in 1660 and the second collapse of the Stuart monarchy with the overthrow of James II in 1688-1691. It covers England and Wales, Scotland, Ireland, and the colonies; high politics and low politics; constitutional and religious conflict; propaganda and public opinion; the rise of the radicals and the conservative backlash, which the radicals provoked.

The revolutions were born of division but also served to fuel further division, as different political and religious factions sought to mobilize their base against those whom they represented as the evil and corrupting forces within society. Thus *Britain's Century of Revolutions* deals not only with political and religious transformation, the fight against monarchical absolutism, and the battle for a constitutional monarchy, but also with the politics of hate and stigmatization and with how people used the media, libels, and fake news to inflame passions and turn British and Irish subjects against each other — so much so that they wanted to kill each other. His project looks at England's growing empire in the Caribbean, North America, North Africa (notably Tangier), and India, and at how the rise of empire in the second half of the 17th century altered contemporary perceptions about the threat of political tyranny.

Throughout the century people were concerned about the dual threat of “popery and arbitrary government” under the Stuarts; however, after the Restoration they also became increasingly worried about popery and arbitrary government in the colonies (overmighty governors, the use of martial law, the involvement of Catholics in running certain parts of the empire). The book additionally examines England's role in the

slave trade: by 1683 the Royal African Company was responsible for about two-thirds of the Atlantic slave trade, though amazingly historians of 17th-century Britain and Ireland have rarely discussed slavery in their work. Critics of the crown in the 17th century repeatedly accused the Stuart kings of threatening to deliver the people of England and their posterity “into perpetual bondage and slavery,” as the Puritan lawyer William Prynne put it in 1638. The irony is that England emerged from its century of revolutions as the world’s leading slave-trading nation, with many of the most ardent advocates of the liberties and freedoms of the English themselves being slave traders.

As of the end of June, Harris has drafted 11 chapters — about 155,000 words, excluding footnotes (all of it written from scratch during the period of the sabbatical). The book will need at least two more chapters plus a conclusion. Work on the book was hampered by the pandemic. Harris was in the U.K. from mid-December 2019 until mid-February 2020 doing research. During that time, he gave talks at the Leicester University (January) and Sheffield University (February). He was due to return to the U.K. from mid-April until the end of August 2020. He had a short-term fellowship at Merton College (Oxford University) for May, and a Maddock Research Fellowship at Marsh’s Library (Dublin, Ireland) for the summer. He also had speaking engagements at Loughborough University (he was to be a keynote speaker at an interdisciplinary conference on Aphra Behn), Cambridge University, and Durham University. All these had to be canceled. It was impossible to travel to the U.K., and the archives were closed. There is still more research to be done on the book when the archives open up and travel becomes possible again.

In addition to working on the book, Harris wrote two talks: “Riots, Firearms and Manslaughter: The Battle over the Enforcement of the 1670 Conventicle Act in South Devon” (delivered at Leicester University and Sheffield University); and “Empire, Liberty and Slavery in Restoration England: the Case of John Wilmore, Whig activist and Jamaica planter, reconsidered” (intended to be delivered at the conferences at Loughborough and Durham). He continues his ongoing research into national and religious stereotyping and prejudice in early modern England. A number of articles relating to this project are forthcoming.

The following publications appeared in fall 2019: *Politics, Religion and Ideas in Seventeenth- and Eighteenth-Century Britain: Essays in Honour of Mark Goldie*, co-edited with Justin Champion, John Coffey, and John Marshall (Boydell Press, 2019); “Constitutional Royalism Re-Considered: Myth or Reality?” in the above; “Periodizing the Early Modern: The Historian’s View,” in *Early Modern Histories of Time: The Periodizations of Sixteenth- and Seventeenth-Century England*, ed. Kristen Poole and Owen Williams (University of Pennsylvania Press, 2019); and “The Right to Bear Arms in English and Irish Historical Context,” in *A Right to Bear Arms? The Contested Role of History in Contemporary Debates on the Second Amendment*, ed. Jennifer Tucker, Barton C. Hacker, and Margaret Vining (Smithsonian Institution Scholarly Press, 2019).

The following articles are forthcoming: “Anti-Catholicism and Anti-Popery in Seventeenth-Century England,” in *Against Popery: Britain, Empire, and Anti-Catholicism*, ed. Evan Haefeli (University of Virginia Press); “Religious and National Stereotyping and Prejudice in Seventeenth-Century England,” in *Puritans, Papists and Projectors: Stereotypes and Stereotyping in Early Modern England*, ed. Koji Yamamoto (Manchester University Press); “State Trials and the Rule of Law under the Later Stuarts” (with Stephen

Taylor), in *Rethinking the State Trials: The Politics of Justice in Later Stuart England*, ed. Brian Cowan and Scott Sowerby (Boydell Press); and “Scotophobia in Later Stuart England,” in *Scotland and the Wider World: Essays in Honour of Allan I. MacInnes*, ed. Neil McIntyre and Alison Cathcart (Boydell Press).

Harris signed a contract for his books *Restoration: Charles II and His Kingdoms 1660-1685* (Penguin, 2005), *Revolution: The Great Crisis of the British Monarchy, 1685-1720* (Penguin, 2006), and *Rebellion: Britain's First Stuart Kings, 1567-1642* (Oxford University Press, 2014), to be published in simplified Chinese by Folio (Beijing) Culture and Media Co. Ltd.

In November 2019, Harris was elected president of the American Friends of the Institute of Historical Research, London. He continues to serve as commissioning editor for the book series “[Studies in Early Modern Cultural, Political and Social History](#)” (Boydell Press), together with Stephen Taylor and Andy Wood of Durham University. The series has published 37 books to date, with more titles forthcoming.

Alla Hassan

LANGUAGE STUDIES • 2019-2020

During the 2019-2020 academic year, Alla Hassan continued to work on the book chapter “The Hidden People Project,” with a focus on Morocco. This major project aims to document and accurately portray minority cultures in the Arab world/Middle East. In summer 2019, a major phase of this project was completed when Hassan led a team in successfully planning, conducting, and recording interviews and necessary footage across Morocco. The team included a Brown University undergraduate student (Aicha Enouiti) whose work Hassan supervised as part of the Undergraduate Teaching and Research Award program.

In hopes of improving his abilities as a foreign language instructor, another major priority for Hassan during this sabbatical was the acquisition of an additional foreign language (having previously studied Arabic, French, and Turkish). He chose to formally enroll in Spanish language courses as a student in order to re-acquaint himself with the many challenges and opportunities that lie ahead for students during the language learning process. This has been an invaluable experience.

He was awarded an official A2 level certificate (Spain, December 2019) and is currently working toward reaching B1 level proficiency — courses have been delayed due to COVID-19 restrictions. Hassan also completed the four-day Mellon Test Design and Development Workshop (June 2020), in which participants design end-of-sequence language proficiency assessments.

With a focus on advanced Arabic language courses, Hassan has worked on developing the following content-based courses to be taught at Brown (700/800 levels): Advanced Reading and Composition: Arabic of the Quran and Hadith; Arab Cuisine and Cooking; and Fourth Year Arabic: The Arabic Song.

Hassan is currently designing a number of tests to be used by Brown's Arabic program as end-of-year proficiency evaluations. The tests are based on American Council on the Teaching of Foreign Languages standards and will be another tool available to help the program meet its targets and minimum proficiency standards.

Hassan completed a proposal to organize the Middle East Studies Association (MESA) panel "Meeting Demands of Advanced Students of Arabic," featuring four participants, for the MESA Annual Meeting. Presentation themes include: Defining the Advanced Arabic Student, Innovative Ideas for Advanced Course Offerings, Challenges of Teaching Advanced Arabic Courses and Possible Solutions, and Designing More Inclusive Advanced Arabic Courses.

In addition to the MESA panel, Hassan is planning a three-day workshop called "Hidden People of North Africa," which will present project findings and work completed in Egypt and Morocco. The event was originally planned for spring 2021.

Finally, Hassan began work in collaboration with Mohamed Bayoumi (visiting lecturer, Brown Arabic Program) on an advanced Arabic language textbook based on the theme of Arab cuisine and cooking recipes.

Beverly Haviland

AMERICAN STUDIES • FALL 2019

Beverly Haviland spent her sabbatical semester completing a draft of her monograph *Shameless and Blameless: Child Sexual Abuse, Psychoanalysis, Law and Literature*, which is under contract to Routledge as part of its series *Interdisciplinary Perspectives on Literature*. This interdisciplinary study of the representation of childhood sexual abuse in five classic works of American fiction aims to show how shame infiltrates the experiences of victims, perpetrators, and witnesses in ways that often obscure the harms suffered by all. The novels are Nathaniel Hawthorne's *The Scarlet Letter* (1850); Henry James's *The Turn of the Screw* (1898); Vladimir Nabokov's *Lolita* (1955); Toni Morrison's *The Bluest Eye* (1970); and Marilynne Robinson's *Gilead* (2004). In some of these novels, the sexual abuse of a child is conspicuous, but in others it is masked by social conventions — such as arranged marriage, homophobia, or class and race privilege — that obfuscate the sexual violation of the child. Showing some of the many forms that the denial of child sexual abuse can take is one purpose of this study. Keeping the focus on shame reveals why this all-too-common form of violence is so difficult to prevent and to remediate.

The introduction to the book analyzes a number of laws in the contemporary American judicial system that work to aggravate rather than alleviate or mitigate the harm of this sexual violence. Laws such as the statutes of limitations on victim's disclosure and the sex offender registry laws are examined as they affect possibilities of reparation and reconciliation. In the introduction, Haviland also explains why she focuses on literary fiction rather than on memoirs. This choice allows for another dimension of analysis of how the

text stages relations with the readers as witnesses. There are formal configurations of representation — for example, being able to use multiple points of view — that are available to the novelist but not to the memoirist with the same degree of plausibility. Drawing on this wider range of literary devices, the text affords the reader a greater, although not unlimited, variety of emotional and ethical responses. One psychoanalytic framework for understanding the dynamic effects of that variety is offered by Heinz Kohut's concept of the "selfobject," a dynamic psychic construction that plays a vital role in the transformative processes of analysis and of reading. Haviland presented a conference paper on this theoretical issue at the Psychology and the Other Conference at Boston College in October 2019 in connection with a reading of *The Bluest Eye*, in which there are multiple instances of child sexual abuse by various perpetrators.

The other psychoanalytic framework that helps to delineate the relations between the text and the reader is Lacan's division for clinical purposes of character structures into the neurotic, psychotic, and perverse. These distinctions are useful to Haviland's reading of *The Turn of the Screw*, as they clarify the difference between the governess's psychotic certainty and the reader's infamous neurotic uncertainty about the reality of the ghosts. Haviland presented a version of this chapter at the eighth International Henry James Society Conference in Trieste, Italy, in July 2019. The structure of the pervert is particularly relevant not only in looking at the fictional characters in these novels but in understanding how the authors have set up the relations to their readers by particular linguistic and literary strategies that inhibit or encourage different ethical responses to the sexual abuse of children. Nabokov, for instance, uses the pervert's typical genre of parody to delegitimize any interpretation that he has not authorized. His denial that there is anything pornographic about *Lolita* would be the proof-text of that position, a claim some readers are willing to accept.

Haviland's other scholarly project, the critical edition of Henry James's *The Sense of the Past* as a volume in *The Complete Fiction of Henry James*, published by Cambridge University Press, is currently in the hands of the editors of the edition.

She is the president of the Henry James Society in 2020 and has arranged panels for the Society for the American Literature Association (San Diego, May 2020 — canceled due to the COVID-19 pandemic), The Midwest Modern Language Association (Milwaukee, November 2020), and the Modern Language Association (Toronto, 2021). In her capacity as president, she was also a judge for the annual Leon Edel Prize, awarded each year to an early career scholar that comes with a cash award and publication of the article in *The Henry James Review*.

Bonnie Honig

MODERN CULTURE AND MEDIA AND POLITICAL SCIENCE • 2019-2020

Bonnie Honig spent most of her sabbatical this year completing two books. The first is called *A Feminist Theory of Refusal (FTR)* and has been accepted for publication by Harvard University Press for spring 2021. *FTR* looks critically at various refusal concepts in the political theory literature and asks what to make of them in the context of specifically gendered injustices. The book addresses the intersectional politics of gender, class, and race and works with a new reading of the fifth-century Greek tragedy by Euripides, the *Bacchae*, as well as with other classical myths, contemporary film, politics, and theater to articulate the multiple dimensions of a feminist theory of refusal.

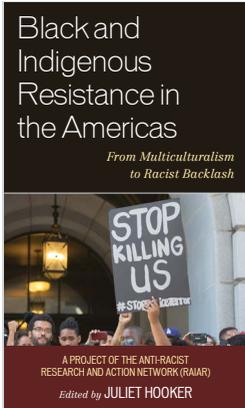
The second book, a collection of feminist criticism, brings together Honig's public writings since 2016, consisting of more than 25 essays. The essays are entirely revised for the book titled *Shell-shocked*, and the collection also features five new pieces written expressly for the book. It has been accepted for publication by Fordham University Press and will appear in March 2021.

In addition to these two large projects, which took most of her time, Honig had planned to begin work on her next project: on media and the senses. The first chapter was to be on John Locke's work on sense data in his *Essay on Human Understanding*. Titled "Locke's Pineapple: the Senses of Empiricism and Empire," the chapter asks why Locke singles out the pineapple as an example of the sort of thing about which people should not claim "knowledge" absent direct sensory experience of it. This was at a time when very few people in Europe would have had such direct experience, since pineapples were not native to England and, indeed, in the 17th century, they were rare, imported via slave ships, and incredibly expensive. Some elites might have seen or smelled the pineapple, which was sometimes displayed at elite dinner parties, but they would not likely have tasted it because it was too expensive to serve. Pineapples were generally rented, for show, not eaten. This violates Locke's requirement for sensory knowledge: that sensory data enters the body through what Locke calls in the *Essay* "the proper inlet." For the pineapple, the proper inlet would be the mouth and the proper sense would be taste, not sight or smell, as such. The question posed in this project concerns what else (sovereignty, empire?) might have entered the body through encounter with the pineapple regardless of whether by proper or improper inlets. Honig began work on this project in March 2020 but was forced to leave London, and the British Library, after just two weeks because of the coronavirus. Honig lectures on this topic in Introduction to Modern Culture and Media and hopes to advance the research further in that context, for now.

Because of her sabbatical, she was able to take the time before the virus hit to give four talks in New Zealand and Australia, which definitely helped further her two book projects, then still under revision.

Honig was also able to participate, with two colleagues in media studies at U Santa Cruz, in a conversation there about the relevance of the work of Hannah Arendt to new work in media studies. That conversation will appear as part of a symposium on that topic in *World Records*, in a special issue on Hannah Arendt and documentary media, to be published in fall 2021.

Finally, Honig published several public pieces occasioned by the news: “Spitballing in a Pandemic” in *Politics/Letters* (April 2020); “Forty,” a brief comment on the COVID quarantine, in *Public Seminar* (April 2020); “Rambo Politics from Reagan to Trump” *Boston Review* (January 2020); and “Breathing Room: Dingell v. Trump” in *Politics/Letters* (December 2019). Finally, her longer reflection, “The Right to Housing in a Pandemic,” *Democratic Theory* (journal, special section on COVID-19), has been accepted for publication in October 2020.



Juliet Hooker

POLITICAL SCIENCE • 2019-2020

Juliet Hooker spent her research leave during the 2019-2020 academic year working on two major projects. The first was the completion of an edited volume, *Black and Indigenous Resistance in the Americas: From Multiculturalism to Racist Backlash*, which was published by Lexington Books in March 2020. Successfully shepherding this project to completion involved a significant amount of work, as it was the product of collaborative

research and writing by 18 contributors in seven different countries working in three different languages (Spanish, Portuguese, and English). *Black and Indigenous Resistance in the Americas*, of which Hooker is the editor, is an interdisciplinary edited volume charting the rise of racist backlash and the work of anti-racist resistance by Black and Indigenous peoples in seven countries of the Americas. The volume is an essential roadmap to understanding contemporary racial politics across the Americas, where openly white supremacist politics are on the rise. It is the product of a multiyear, transnational research project by the Antiracist Research and Action Network of the Americas in collaboration with resistance movements confronting racial recalcitrance in Brazil, Bolivia, Chile, Colombia, Guatemala, Mexico, and the United States. The volume provides powerful answers to these pressing questions: How did we get here? And what antiracist strategies are equal to the dire task of confronting resurgent racism? It traces the making and contestation of state-led racial projects in response to Black and Indigenous mobilization during an era of expansion of multicultural rights in the context of neoliberal capitalism. 2) It identifies the origins and manifestations of the backlash against hard-fought (but hardly far-reaching) gains by marginalized peoples, showing that (contrary to critiques of “identity politics”) the losses and anxieties produced by the failures of neoliberalism have been understood in racial terms. It distills a path forward for progressive antiracist activism in the Americas that looks beyond state-centered, rights-seeking strategies and instead situates a critique of racial capitalism as central to the contestation of white supremacy.

The second major project of Hooker’s sabbatical was continued research and writing for a solo-authored monograph in progress, *Black Grief/White Grievance: Democracy and the Problem of Political Loss*, which examines different forms of political loss, their effect on the political imaginations of citizens, and their impact

on democratic politics. She argues that the two most important forces driving racial politics in the U.S. have been Black grief and white grievance, two forms of political loss that regained heightened salience during the Obama and Trump eras. Grief and grievance have the same etymological origin (from the French term *grever* to harm, strike) and they are both forms of loss, but as the *Oxford English Dictionary* definition of grievance aptly notes, the wrong or hardship that is the ground for grievance can be real or *supposed*. This distinction between “real” and “supposed” harms maps onto the asymmetric attention that Black grief and white grievance have historically been accorded. Specifically, one of the principal claims of the book is that there has been insufficient space for Black grief because of the imperative to turn to activism to try to remedy racial injustice, even as white grievance has been driven by a refusal to acquiesce to loss — even when those losses are warranted/just.

The book is composed of six chapters, on topics ranging from: situating Black Lives Matter within the history of Black protest in the U.S. and examining the expectations of democratic sacrifice that have constrained Black movements; sketching the distinction between symbolic and material loss and analyzing the resurgence of white grievance during the Obama and Trump eras; exploring the role and costs of grief as a catalyst for Black political mobilization; and analyzing the political function of Confederate memorials and the problem of racist commemoration more generally from the perspective of how democratic citizens should cope with loss. The irruption of the coronavirus pandemic and of massive anti-racist protests in the wake of the killing of George Floyd had an impact on the manuscript for a variety of reasons, including the fact that the chapters on Confederate memorialization had to be reconceived in light of fast-moving removals of racist statues and significant time was required to respond to requests for commentary on current protests against police violence and racism. In spite of these challenges, Hooker was able to make significant progress on the manuscript that would not have been possible without a research leave.

L. Frederick Jodry

MUSIC • FALL 2019

L. Frederick Jodry is a senior lecturer in music and directs the Brown University Chorus. He spent the fall semester 2019 in Berlin, with research at the Bach archives in Leipzig, preparing a book of vocal music from the early 17th century for publication by AR Editions. It is likely the book will appear in 2021, to celebrate the 400th anniversary of publication of the motet anthology *Florilegium Portense*.

Florilegium Portense includes the 16 surviving motets of Martin Roth, a student and later cantor and assistant rector at the Pforta school near Leipzig, and the anthology was issued in two volumes in 1618 and 1621. Consisting largely of double-choir Latin motets, this collection is a retrospective of late Renaissance style, intersecting with 17th-century usage in Lutheran churches. The collection consists of 265 pieces by about 90 composers and was used widely in schools and churches throughout central Germany. These motets were performed on a weekly basis as late as 1770 for services at the main churches in Leipzig; J.S. Bach purchased new copies for use at the St. Thomas School in 1729, mentioning that the old copies had been sung to pieces (*zersungen*). The fact that such late-Renaissance motets were performed in rotation for some 150 years in Leipzig lends depth to our understanding of Baroque performance practice.

Lynne Joyrich

MODERN CULTURE AND MEDIA • 2019-2020

Lynne Joyrich spent her sabbatical year developing her book project, *Thinking Through TV: Televisual Logics of Gender, Race, and Sexuality in the Age of Trump*, which interrogates what is still our culture's most prevalent and central medium: television. Indeed, a broad "televisuality" has become even more dominant in the age of digital convergence, with screens small and large bringing television and intersecting video forms not only into homes but everywhere. The book explores how television and associated online video give us (or impede) certain categories of thought and thus how televisual logics help to construct our very modes of subjectivity and sociality, our knowledges and ignorances, our identifications and politics — as is truly evident in the Trumpian era, when television has been seen as both a determinant and a measure of current events and attitudes. The book particularly focuses on television's production in this era of the knowledges and ignorances, performances and enactments of gender, sexuality, and race — all categories that have been mobilized in televisual Trumpian discourses as well as in those discourses (also mediatized) that oppose them. In sum, then, the project considers the very ways in which we "think through" television and the implications of that thinking (or "unthinking") for our cultural, social, epistemological, psychological, and political formations.

As part of her engagement in media studies during her sabbatical year, Joyrich also continued her on-going work on the editorial collective of the journal *Camera Obscura: Feminism, Culture, and Media Studies*, which, in addition to its regular open issues, put out various special issues over this time, including one on the work of the late, renowned feminist filmmaker Chantal Akerman, as well as on the journal's associated [book series](#) with Duke University Press, which also put out several books across film, television/video, and digital media studies in 2019-2020, with several more in the works. Joyrich was likewise involved in feminist film, television, and media studies through her participation in the Global Women's Cinema and Media Network. During her sabbatical year and among other presentations, she presented papers at events tied to this Network both at Nanjing University (Nanjing, China) and at Roma Tre University (Rome, Italy), and she served on the board working on the next Global Women's Cinema and Media Network conference (which had to be delayed due to the COVID-19, but will hopefully take place in the 2020-2021 year).

COVID-19 — or, more specifically, the treatment of the coronavirus pandemic in the media — itself became a subject of Joyrich's work in the spring of 2020. She published articles on "Watching Television in a Pandemic" ([Los Angeles Review of Books](#) and [Critical Studies in Television Online](#)); participated in Brown's *Conversations on COVID* series in a segment on "TV News and Entertainment in a Pandemic"; and was a guest speaker on "Thinking Through Television in a Pandemic" for the University of California, Santa Cruz. She also initiated and co-organized (with Fullerton College and Fordham University professors Hunter Hargraves and Brandy Monk-Payton) the podcast series [Talking Television in a Pandemic](#), produced through Aca-Media, the podcast forum of the Society for Cinema and Media Studies and the *Journal of Film and Media Studies*. The series featured not only the co-organizers but a wide and diverse range of over 30 television and media scholars, and it included episodes on epistemology, ideology, phenomenology, pedagogy, and global geographies, in addition to introductory and concluding episodes. While recording had started before the horrifying murders of George Floyd, Ahmaud Arbery, Breonna Taylor, and so many

others, the podcast series quickly expanded its focus to cover too the intersecting pandemic and crisis of racism itself in the wake of those events, the renewed visibility of the Black Lives Matter movement, and struggles for racial justice, considering how these issues, as well as the interrelated health issues raised by COVID-19, are handled in the media and how that “handling” might be critiqued and transformed. Finally, the subjects of these conversations and of the various areas of Joyrich’s scholarly production are tied to the subject matter of her courses for 2020-2021, which she also worked on during her sabbatical, updating and revising classes on Channeling Race: Television and Race in America, Queer Theories, and Television, Gender, and Sexuality.

David Kertzer

ANTHROPOLOGY AND ITALIAN STUDIES • 2019-2020

1	RICHTER	8:30	10:00	11:45	2
2	HINKEL	8:30	10:35	13:25	2
3	SCHÜLER	8:30	12:45	14:40	
4	WOLF	8:30	12:45	14:15	
5	HERNANDEZ	8:30			
6	KERTZER	8:50		16:50	

The register (sign-in) for the Vatican Apostolic Archive for the morning of March 2, 2020 (the date the Pius XII archives opened) with Kertzer's name among the first to arrive for the 8:30 a.m. opening.

Kertzer’s principal focus during his sabbatical year was work on his book *The Pope at War: Pius XII, Mussolini, and Hitler*, under contract with Random House. The Vatican’s opening of the archives for the papacy of Pius XII, on March 2, 2020, occasioned a huge amount of media interest, and Kertzer was interviewed by scores of newspaper and magazine journalists and did many radio interviews for American, British, Irish, and Italian programs. His article on the significance of the event, “What the Vatican’s Secret

Archives Are About to Reveal,” was published by *The Atlantic* on the day the archives opened. Among the first group of scholars to get into those archives, he had only been working in them for one week when the pandemic closed them down. Returning to the U.S., he worked on the thousands of documents he had already collected for the book project from Italian, German, French, British, and American archives. In addition, over the course of the year he wrote two related journal articles on the role played by the Italian Catholic Church during the war.



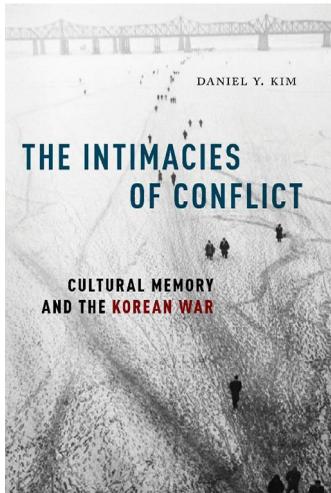
Outside door of Vatican Apostolic Archive on March 2, 2020, the day of opening of the archives for the papacy of Pius XII. Kertzer is on the far right, standing next to Professor Hubert Wolf of University of Münster, along with his research team.

Kertzer also spent part of the fall semester in Italy, where, in October, the Italian edition of his book, *The Pope Who Would be King*, on Pius IX and the Roman Revolution of 1848, was published. He did book presentation events in Milan, Bologna, and Lecce, as well as a 40-minute nationally broadcast TV program for RAI3 based on the book. In November, he gave a public lecture and held a seminar at the Hebrew University of Jerusalem on the history of Vatican-Jewish relations.

Over the course of the year, he also served as one of the three jurors for the 2020 Pulitzer Prize in Biography and Memoir, for which over two hundred books had been submitted, and he continued to serve on the board of trustees of the American Academy in Rome and the selection committee for membership in the anthropology section of the American Academy of Arts and Sciences.

Daniel Kim

ENGLISH AND AMERICAN STUDIES • FALL 2019



In fall semester 2019, Daniel Kim was the grateful recipient of the Norman Freehling Visiting Fellowship at the University of Michigan’s Institute for the Humanities. During his time there, he completed an article titled “Translations and Ghostings of History: the Novels of Han Kang,” which will appear in a special issue of *New Literary History* devoted to the Global Novel (51.2) and published in 2020. He also delivered the final version of his book manuscript, *The Intimacies of Conflict: A Cultural History of the Korean War*, to NYU Press, and it will be published in November 2020. This book examines cultural representations of the Korean War in an interracial and transnational framework, focusing on depictions of Asians, Asian Americans, Mexican Americans, and African Americans. One of its primary aims is to help remember this forgotten war by returning us to the 1950s, revealing how novels, films, and journalism from the period developed an integrationist narrative of race and empire. A second goal of this book is to evoke a

multiracial and transnational counter-archive of cultural memory. It examines recent novels about the war by U.S. authors—Rolando Hinojosa, Chang-rae Lee, Toni Morrison, and Jayne Anne Phillips — and by the South Korean novelist Hwang Sok-Yong.

Brian Knight

ECONOMICS • SPRING 2020

During his spring 2020 sabbatical, Brian Knight had to unfortunately cancel four planned international trips due to the pandemic. On the upside, the lack of travel created time to complete several research projects and also to begin new projects.

The first paper investigates the effects of the 2007 government closing of RCTV, a popular opposition television channel in Venezuela. There are four key findings. First, viewership fell on the pro-government replacement, following the closing of RCTV, but rose on Globovision, the only remaining opposition channel. Second, Chavez approval ratings fell in places with access to the Globovision signal. Third, in places with access to the Globovision signal, support for Chavez in electoral data also fell, and counterfactuals document that switching to uncensored outlets led to an economically significant reduction in Chavez vote shares. Fourth, protest activity increased in places with access to the Globovision signal, relative to places without. Taken together, these findings suggest that changes in media consumption by voters can limit the effectiveness of state censorship.

He also completed revisions requested by an editor on a paper studying college admissions in the U.S. The study focuses on the Common Application (CA) platform, under which students submit a single application to member schools, potentially reducing frictions and increasing student choice. The CA increases the number of applications received by schools, reflecting a reduction in frictions, and reduces the yield on accepted students, reflecting increased choice. The CA increases out-of-state enrollment, especially from other CA states, consistent with network effects. CA entry changes the composition of students, with evidence of more racial diversity, more high-income students, and imprecise evidence of increases in SAT scores.

The third paper investigates the relationship between the franchise and law enforcement practices using evidence from the Voting Rights Act (VRA) of 1965. Following the VRA, Black arrest rates fell in counties that both were covered by the legislation and had a large number of newly enfranchised Black voters. There are no corresponding patterns for white arrest rates. The reduction in Black arrest rates is driven by less serious offenses, for which police might have more enforcement discretion. Importantly, the results are driven by arrests carried out by sheriffs — who are always elected. While there are no corresponding changes for municipal police chiefs in aggregate, there are similar patterns in covered counties with elected rather than appointed chiefs. These findings cannot be rationalized by alternative explanations, such as differences in collective bargaining, changes in the underlying propensity to commit crimes, responses to changes in policing practices, and changes in the suppression of civil right protests. Taken together, these results document that voting rights, when combined with elected, rather than appointed, chief law enforcement officers, can lead to improved treatment of minority groups by police.

Knight also made progress on a new project investigating the link between violent crime and immigration using data from Colombian municipalities during the recent flood of migrants from Venezuela. The key finding is that homicides increased in areas close to the border with Venezuela following the closing and then re-opening of the border in 2016, which was followed by a massive immigration wave that peaked in 2018. Using information on the nationality of the victim, this increase was driven by homicides involving Venezuelan victims, with no evidence of a statistically significant increase in homicides involving Colombian victims. Thus, in this setting, natives did not face increased risks as a result of immigration, and it is important to account for the nationality of victims when analyzing the link between crime and immigration. There is no corresponding increase in arrests for homicides in these areas. Taken together, these results suggest that these homicides close to the border have occurred in a less secure environment, and the perpetrators of these crimes have tended to go unpunished.

Greg Landsberg

PHYSICS • 2019-2020

In 2019-2020, Landsberg took a sabbatical leave at the European Council for Nuclear Research (CERN), the host of the Large Hadron Collider (LHC), near Geneva, Switzerland. Landsberg physically relocated to the Geneva area in June 2019, and was granted CERN scientific associate status over the period of July 1, 2019, through June 30, 2020.

The LHC has been a focus of his scientific research for the past 15 years, since he led the Brown high-energy physics experimental group to join the Compact Muon Solenoid (CMS) experiment at the LHC. Landsberg has played a number of leading roles in CMS, including being the physics coordinator of the experiment at the time of the Higgs boson discovery in 2012.

The CMS experiment is one of the two biggest particle physics experiments in the world. Together with the ATLAS experiment, it is pursuing cutting-edge particle physics research at the energy frontier. The main goal of this research is to elucidate the electroweak symmetry breaking mechanism of the Standard Model of particle physics and to look for new physics beyond it. His group has been involved in various searches for new physics at the LHC, from mini black holes to low-mass dijet resonances and particle dark matter. More recently, Landsberg has shifted his research focus to searches for new physics in the flavor sector, where interesting hints of possible anomalies have been recently reported by another LHC experiment, LHCb, which is specifically dedicated to study of physics involving bottom (b) quarks.

In 2018, Landsberg led an unprecedented effort of making CMS competitive with the LHCb by using the flexibility of their trigger and data acquisition system, which allowed them to record data at a significantly higher rate than during normal operations, which are limited by the capacity of the CMS computer system to process data in real time. These extra data were recorded in a shadow mode, without affecting the main CMS physics program, by utilizing the unused bandwidth of the CMS trigger. The rate at which the trigger selects events decreases toward the end of each LHC proton fill, as the intensity of the beam and the rate of the collisions gradually go down, until the fill is dumped and the machine is refilled with a fresh bunch of protons. This allowed them to fill the unused trigger bandwidth with the specially designed triggers selecting bottom quark events and put an unprecedented amount of extra data on tape, corresponding to a production of approximately 10B of b hadrons — particles containing the b quark, which is the largest unbiased sample of b hadrons in the world. The data were “parked” during 2018, anticipating the long shutdown of the LHC in 2019-2020, necessary to further upgrade the machine. They were reconstructed in 2019, when the computer system of CMS was freed up from real-time processing of the collision data, and are now being analyzed.

As an appreciation of Landsberg’s leading role in this project, in September 2018, he was appointed a convener of the B physics group of CMS, responsible for analyzing these and other CMS data focused on the physics of flavor sector. The term of his appointment is until September 2020, well aligned with the sabbatical leave, which allowed him to focus 100% of his research time on this task, benefitting from a physical presence at CERN.

During the term of his sabbatical, the CMS B physics group has been extremely productive and published eight papers on various aspects of B physics, which is the highest number of papers it has published in one year. Four more papers are in the final pre-submission stages and are expected to be submitted before the end of July. Among these papers are the observations of two new decay modes of B mesons, one of which involves a rather mysterious particle $X(3872)$ that has very unusual properties. The new CMS publication will help to elucidate its nature. Another important publication is a new measurement of a very rare $B_s(\mu\mu)$ decay and a search of even more rare $B(\mu\mu)$ decay, both of which are very sensitive to potential contributions of new physics. The LHC combination of the results by the ATLAS, CMS, and LHCb experiments on these decays is now also in the final stages of the collaboration approval. Yet another publication is devoted to studies of excited modes of Λ_b baryons, resulted in an observation of a new state, confirmed by the LHCb experiment a few days after the CMS announcement. And a publication, which is about to be submitted, concerns CP violation in a B_s meson decay — the mechanism that is likely responsible for the matter-antimatter asymmetry in the universe. Several of these papers have been highlighted on the CMS public web page targeting the general public; the features that Landsberg has helped to create can be accessed via the following links:

- [a feature about the \$B_s\(\mu\mu\)/B\(\mu\mu\)\$ decays;](#)
- [a feature about the new \$B_s\$ meson decay involving the \$X\(3872\)\$ particle;](#) and
- [a feature about CP violation in the \$B_s\$ meson decays.](#)

There has also been significant progress on the analysis based on the parked data, toward testing and understanding of the anomaly reported by the LHCb experiment. A Brown graduate student that Landsberg is advising, Ka Tung Lau, and Landsberg himself are fully engaged in this analysis, which will become his Ph.D. thesis topic. They expect the first CMS result to be released later this year, with several more publications to follow.

In fall 2019, Landsberg finished his four-year appointment as a deputy chair for the institutional board of the CMS High-Granularity Calorimeter Project, which is part of the Phase 2 upgrade of the CMS detector for the High-Luminosity LHC, running past 2026. He continues working on this project, and his group is involved in the ASIC board design for the front-end electronics and the level-1 trigger algorithm development.

During the sabbatical leave, Landsberg has presented CMS results at several international workshops and conferences, including the international workshop “Flavor 2019: new Physics in flavor from LHC to Belle II” at MIAPP, Munich; at the “Heavy-Quark Physics and Fundamental Symmetries” Workshop at the University of Washington, Seattle; the seventh International Workshop on Rare Semileptonic B Decays: $b \rightarrow sll$ 2019 at the IP2I, Lyon, France; and the third World Summit on Exploring the Dark Side of the Universe in Pointe-a-Pitre, Guadeloupe, France.

He has served as a referee for *Physical Review Letters*, *Physics Letters B*, *Journal of High Energy Physics*, *Modern Physics Letters A*, and *Physical Review D*, and as an editor and a referee for the *International Journal of Modern Physics A* and *Modern Physics Letters A* journals. Since January 2020, he has been serving as a divisional associate editor of the *Physical Review Letters* journal.

In October 2019, Landsberg hosted a Brown Alumni Club of Switzerland visit to the CMS experiment, followed by a public lecture, “Large Hadron Collider: Past, Present, and Future,” that he presented to the attendees. Twelve Brown alumni and members of their families attended the event, which was featured on the [Brown Department of Physics news page](#).

Last, but not least, Landsberg continued to advise two Brown graduate students, Martin Kwok and Ka Tung Lau. Kwok has just graduated with a Ph.D. thesis topic on searches for the Higgs boson decaying to a pair of b quarks in inclusive production at very high energy, which is an important measurement, as it explores a new way of searching for this Higgs boson decay and probes a poorly understood energy regime of the Higgs boson production. Lau is working on the flavor anomaly searches and is expected to graduate in 2021. Landsberg has also taken onboard two more Brown graduate students: Mary Hadley and Xuli Yan. Both of them are working toward their Ph.D. topics on the CMS experiment. Hadley is expected to graduate next year as well, while Yan has just started his Ph.D. studies. Landsberg has also been advising a postdoctoral researcher, David Yu, who works on searches for low-mass dijet resonances and has recently started an analysis based on the CMS parked data. Both in summer 2019 and this summer, Landsberg has been advising two graduate students interested in joining the CMS group: Taeun Kwon and Nicole Ozdowski. Last summer, he also advised two Brown undergraduate students: the recipients of the international Undergraduate Teaching and Research Award scholarship, Willem Speckmann and Shray Mishra, who were working with him on a novel way of identifying hadronic decays of τ leptons using advanced machine learning techniques.

While the COVID-19 pandemic has affected the last few months of Landsberg’s sabbatical leave, as it has everybody else, the research on CMS continued in a remote mode during the spring months of 2020. Together with two of his Brown physics department colleagues, Landsberg has applied for several grants to support the use of advanced machine learning techniques based on the experience of big-data experiments in particle physics to analyze the COVID-19 trends and find presently unknown correlations with various environmental and social factors. One of these grants is currently under review by the National Science Foundation.

All in all, it has been a very productive sabbatical year, which resulted in a number of important results and multiple publications, which Landsberg leads. He is looking forward to moving back to Providence later this summer and starting to teach again this coming fall.

Jessaca Leinaweaver

ANTHROPOLOGY • 2019-2020

Jessaca Leinaweaver was awarded the 2019-2020 Fulbright Canada Research Chair in Society and Culture, which she held in residence at Dalhousie University's Department of Sociology and Social Anthropology in Halifax, Nova Scotia. She researched the opening of adoption records in Nova Scotia, collected data for an article in progress on representations of family at the Canadian Museum of Immigration, and delivered a number of public lectures and seminars. In keeping with Fulbright's emphasis on cross-cultural engagement, Leinaweaver published two op-eds on the open records debate, including [this one](#) for CBC. She also continued to write articles related to previous projects, submitting three article manuscripts on adoption in Spain with co-author Diana Marre (Autonomous University of Barcelona) and preparing a new article on lay gerontology in Peru.

Leinaweaver continued work on a collaborative project on Children's Alternative Care, for which she and colleagues Susan Short (Sociology) and Caroline Kuo (Public Health) were awarded a \$50,000 seed grant from Brown. They traveled to Austria in July to meet with and learn from partners at SOS Children's Villages International. Leinaweaver, Short, and Kuo continued to meet remotely throughout the academic year, designing and implementing a systematic review article in progress that assesses social science literature on child-family separation.

Globally, the Fulbright program was halted in mid-March, and Brown's provost halted all face-to-face research at that time as well. Accordingly, Leinaweaver's focus turned to home-schooling, with a specialization in fractions and provincial flowers.

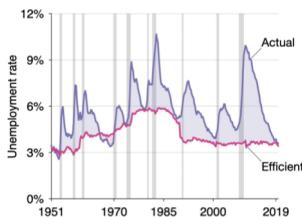
Pascal Michaillat

ECONOMICS • 2019-2020

Pascal Michaillat spent the academic year 2019-2020 as a member of the School of Social Science at the Institute for Advanced Study, Princeton. The goal of the visit was to develop a method to measure the unemployment gap and apply it to the U.S. labor market. The unemployment gap is the distance between the actual unemployment rate and the socially efficient unemployment rate — the unemployment rate prevailing in an ideal labor market.

Measuring the unemployment gap is critical to be able to implement appropriate stabilization policies — including monetary policy, fiscal policy, and unemployment insurance. For instance, in the U.S., the Federal Reserve and federal government are mandated by the Humphrey-Hawkins Full Employment Act of 1978 to maintain the unemployment gap to zero. In macroeconomic models, researchers have also found that the unemployment gap is a key determinant of well-designed stabilization policies.

The project, titled “[Beveridgean Unemployment Gap](#),” a collaboration with Emmanuel Saez (University of California, Berkeley), is for the most part completed. Their method to measure the unemployment gap relies on the Beveridge curve: the negative relationship between unemployment and job vacancies observed in many countries, including the United States. They find that the unemployment gap can be expressed as a function of current unemployment and vacancy rates, and three sufficient statistics: the slope of the Beveridge curve, the labor cost of recruiting new workers (time spent reading CVs, interviewing applicants, attending job talks, etc.), and the social cost of unemployment (foregone market production, mental and physical health cost of unemployment, etc.).



In the United States, Michaillat and Saez find that the unemployment gap is generally positive and especially high in slumps. For instance, the unemployment gap reached 5 percentage points in the 1981–1982 recession, 3.9 points at the end of the 1990–1991 recession, and 6.5 points in the aftermath of the Great Recession (see attached figure).

These findings suggest that the U.S. labor market does not generally operate efficiently but instead tends to be inefficiently slack. The inefficiency is exacerbated in slumps. Thus, it would be beneficial to implement stronger stabilization policies that reduce unemployment in bad times. Once the world comes out of its coronavirus quarantine and economic activity resumes, policymakers could use this unemployment gap measure to determine how much inefficient slack there still is in the economy and how much stabilization policies need to be brought to bear as a result.

The sabbatical year also offered Michaillat the opportunity to work on other papers: “[Resolving New Keynesian Anomalies with Wealth in the Utility Function](#)” (with Saez) was published in *The Review of Economics and Statistics*; “[An Economical Business-Cycle Model](#)” (with Saez) was updated and revised; “[Pricing under Fairness Concerns](#)” (with Erik Eyster and Kristof Madarasz) was revised yet another time, and “[Incentive-Compatible Critical Values](#)” (with Adam McCloskey) was completed.

Meenakshi Narain

PHYSICS • 2019-2020

Meenakshi Narain's focus for her research during her 2019-2020 academic year sabbatical was multifold: forging new research directions for unraveling the mysteries of the particles and their interactions in the early universe, taking on leadership in the particle physics community to develop a long-term vision for U.S. participation in a future international particle collider project, and advancing ongoing projects.

Narain is an experimental particle physicist and conducts her research with the CMS experiment at the Large Hadron Collider (LHC), located in the European particle physics lab [CERN](#) in Geneva, Switzerland. During the sabbatical, Narain was appointed to two major posts within the particle physics community. In January 2020, she was appointed as the co-convenor for the [Energy Frontier](#) study group, a particle physics community exercise to develop its 20-year vision [commissioned](#) by the Division of Particles and Fields of the American Physical Society. In May 2019, Narain was appointed a member of [HEPAP](#) (a joint appointment from the Department of Energy (DOE) and the National Science Foundation (NSF) for reviewing current research funded in High Energy Physics by DOE and NSF). Narain continued to serve as the [chair of the U.S. CMS Collaboration Board](#) and represented the 1,200-member U.S. CMS collaboration in the international CMS experiment.

Narain's quest to understand the properties of the top quark continues with a passion as the top quark discovery [turns 25 years in 2020](#). During this sabbatical, she forged a new direction for her research to study the simultaneous production of four top quarks (a rare process) using cutting-edge analysis techniques incorporating machine learning algorithms, combined with a very specific final state signature of the four top quarks. The top quark is the most massive elementary particle known, with a mass close to that of a Tungsten atom. The simultaneously produced four top quarks thus create the heaviest particle final state ever seen at the LHC, with almost 700 GeV in total. In particle physics, there are potential connections between different processes and particles. Due to its large mass, the top quark has the strongest interaction with the Higgs boson, hence understanding the subtleties of the four top quark production process may lead to a fascinating insight into properties of the Higgs boson, a particle that generates mass for fundamental particles, such as the electron. The four top quark production is very rare, as it is expected that about 1,500 such events were produced in a quadrillion collisions in the past three years at the LHC. Observing a significantly higher rate would definitively challenge the current understanding of the theoretical framework of particle physics called the Standard Model, indicating the potential existence of new exotic particles that couple to top quarks or indications of even more basic principles that govern interactions of elementary particles.

Narain also worked on advancement of the design and development of silicon detector modules for the upgrade of the CMS detector to withstand the high-luminosity run of the LHC, which will provide beams about 10 times more intense starting in 2026. These will enable the CMS experiment to collect about 100 times as much data in five years as was collected in the last decade. This will substantially increase the potential for discovery of new physics phenomena. This upgrade requires the innermost "tracker"

detector system, which measures the trajectory of all charged particles produced in collisions, to be replaced with new radiation tolerant silicon technology. The new tracker for CMS will consist of 13,600 individual “digital silicon imaging devices” known as “modules” that each consist of two silicon sensors and the associated 4,000-channel readout electronics. Narain has been collaborating on this project with Ulrich Heintz (Brown) since 2017, and by the end of 2024, they will assemble more than 2,000 modules in their lab at Brown and install them in the CMS detector at CERN. Brown is one of the 10 centers worldwide that will assemble “modules” for the CMS experiment. During the last year, Narain focused on the establishment of the clean room and the lab group assembled the first fully functional prototype “module” that was successfully tested by the group in a particle beam at the DESY lab in Hamburg, Germany. Narain is the coordinator for the “module” assembly in the U.S., with a funding allocation from DOE of approximately \$30 million. She helped shepherd the project successfully through DOE CD-1 review in October 2019, a significant milestone.

Exploring quantum machine learning simulations for particle physics is a new direction Narain is setting up, with the help of a collaborative Seed Grant (with colleagues in Chemistry) funded by the Office of the Vice President for Research. Narain will study the pair-production of the Higgs boson in the complex environment expected at the HL-LHC. Its observation will help measure the mechanism by which the Higgs boson gets its own mass and map out the nature of the Higgs potential. Narain plans to use quantum machine learning algorithms for extraction of the rare double-Higgs signals and compare the performance of the classical and quantum algorithms to study the impact of future quantum computers for very high energy particle colliders being planned for HL-LHC, as well as its implications for further future colliders under discussion for 2045 and beyond.

Narain’s appointment as the co-convenor of the Energy Frontier group of Snowmass 2021 puts her in the forefront of developing the vision of the global high energy physics community and U.S. participation in the next future collider project sited in either Europe, China, Japan, or the U.S. In the next 20 years, particle physicists will have the chance to address some of the most inspiring and grand questions the universe can pose. Over the course of the 18 months starting in January 2020, Narain will co-convene the study and facilitate the analysis of the field’s most pressing scientific questions. Hundreds of particle physicists will conduct detailed studies of the proposed future accelerators and experiments that could answer them. The report generated from this study will be reviewed by the Particle Physics Project Prioritization Panel (P5), which will identify and prioritize the most valuable areas of particle physics study in the years to come. This report will be used for deciding the U.S. investment in research and development and construction of the next big particle collider project (with an international cost of more than \$30 billion) being discussed for 2045 and beyond.

Narain also organized the second annual [Big Bang Science Fair](#) in September 2019 at WaterFire Providence, a public outreach event to promote appreciation of science to the community (with more than 4,000 visitors). In December 2019, her group actively participated in [Computer Science For Rhode Island](#) (CS4RI), a state initiative for promoting data science in Rhode Island high schools. As a member of the U.S. Particle Physics “Building for Discovery” content and communications group, Narain helps develop the contents and promotional material for [particle physics media](#) for representatives in the U.S. Congress and U.S. Senate. On June 10, 2020, as the chair of USCMS, Narain organized and hosted the USCMS [day of reflection](#)

in support of the Strike For Black Lives. As scholars, educators, and researchers, the collaboration gathered to learn, reflect, acknowledge, and confront the systemic bias that exists for Black colleagues within the academic community and also as part of the broader community.

Michal Oklot

SLAVIC STUDIES • SPRING 2020

The beginning of Michal Oklot's research sabbatical coincided with the outbreak of COVID-19 and subsequent travel restrictions. Consequently, after arranging for his research stay in Poland and an invited lecture at the University of Warsaw in Poland, planned for February till May, along with a short research trip to Moscow, Russia, and a conference, "The Gambling Phenomenon," in Bogliasco, Italy, he needed to cancel all these plans. The planned sabbatical research trip to Warsaw and Moscow was related to Oklot's book project on the reception of Russian philosophical thought in East Central Europe (especially among nationalist and populist academic circles in Poland and Romania) in the 1920s and 1930s.

Nevertheless, in February and the first weeks of March, Oklot worked on the presentation (and publication) under the working title "The Polish Question in Dostoevsky's *Gambler*," which was meant to be presented in June 2020 at the conference in Italy, and a lecture titled "Nabokov's *Lolita*: Possibility of Pure Relationship," which he was going to deliver at the University of Warsaw in May. Although both the conference and the lecture have been postponed due to the travel restrictions and measures taken in response to the current crisis, Oklot has completed his research on Dostoevsky's *The Gambler*, which he plans to present in June 2021.

Despite a series of disappointing complications connected with the pandemic, Oklot was able to rearrange his research plans and dedicated the remaining months of his sabbatical to writing a substantial portion of his manuscript about the post-World War I generation in Romania (among others, L. Blaga, E. M. Cioran, M. Eliade, and the circle of *Gândirea* journal) using the materials he already has. Oklot's book on Rozanov is now nearly completed, and he is planning to submit it for review at Northwestern University Press in September.

Oklot also used his research time to work on two publications (under contract): "Matter and Materialism" for *Oxford Handbook of the Russian Novel*, ed. Julie Buckler et al. Oxford University Press, and "Chekhov and Philosophy" in *Chekhov in Context*, ed. Yuri Corrigan, Cambridge University Press. If there are no delays, both articles are scheduled to be published in spring 2021. The character of these two publications demands a review of recent research literature, and he is hoping to finish them during the summer, when, hopefully, faculty will have better access to library resources.

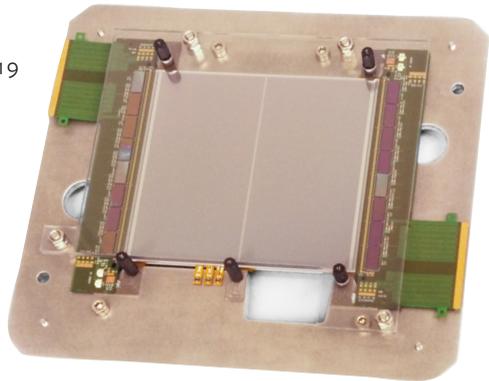
While on his sabbatical leave, Oklot continued to work closely with his undergraduate and graduate advisees. He supervised a senior thesis ("The Question of Freedom in Fyodor Dostoevsky's *The Gambler* from the Perspective of Pavel Florensky's Theology of Love," defended by Ella Scholz in May 2020) and continued to work with two graduate students on their dissertations, which they write under Oklot's supervision.

Don Operario

BEHAVIORAL AND SOCIAL SCIENCES • FALL 2019

Don Operario's sabbatical during the 2019 fall semester allowed him to focus on three main activities: initiating two newly funded National Institutes of Health (NIH) research projects, strengthening global health collaborations, and planning a new National Institute of Mental Health (NIMH) research center on HIV and mental health. During the beginning of the sabbatical period, he was awarded two new NIH grants — one new grant-funded project addressing intimate partner violence and sexual safety among transgender women (project site is Providence, R.I.), and a second new grant-funded project addressing HIV testing and linkage to care among men who have sex with men in collaboration with Anhui Medical University (project sites are the cities of Wuhan, Suzhou, and Chengdu, People's Republic of China). He also continues two ongoing NIH grant-funded projects for which he is principal investigator — one ongoing project on hormone use, substance use, and mental health among transgender and gender non-binary young adults, and a second ongoing project on couples HIV prevention counseling for transgender women and their primary partners.

Operario continued as principal investigator for a NIH/Fogarty-funded training grant to support emerging scholars, faculty, and health service providers from the University of the Philippines Manila (UPM) in evidence-based HIV prevention and intervention programs for gender and sexual minority populations. During the sabbatical semester, he served as primary research advisor to four graduate students from UPM pursuing graduate degrees at Brown University School of Public Health, and mentored two faculty based at UPM — one who received a Brown Center for AIDS Research (CFAR) development research grant (on provider-initiated HIV testing and counseling at Philippines General Hospital) and one who was selected as a Fulbright Scholar and who plans to spend a sabbatical semester at Brown (studying cost-effectiveness of HIV services). Operario travelled to Cape Town, South Africa, to mentor emerging HIV scholars at University of Cape Town and Stellenbosch University as part of a D43 training grant. With colleagues at the Kenya Medical Research Institute, he submitted a new NIH grant addressing hormone use among transgender women in Kenya. With colleagues at Brown University, he is preparing a NIMH P30 research center grant on HIV and mental health, which will be submitted in September 2020. His planned trips to China, the Philippines, and Kenya were canceled due to COVID-19. He advised three Ph.D. students' dissertations (Sylvia Shangani, Arjee Restar, and Ashleigh Lovette), all of whom successfully defended in March and April 2020.



The first fully functional prototype “module” tested by the group in a particle beam at the DESY lab in Hamburg, Germany

Julio Ortega

HISPANIC STUDIES • FALL 2019

After three years of research and writing, Julio Ortega's book *La Comedia literaria: Memoria global de la literatura latinoamericana* (Editorial de la Universidad Católica del Perú y Cátedra Alfonso Reyes del TEC de Monterrey, June 2019) was published just before his sabbatical. This was a rather long account of the so-called "boom" of the Latin American novel, and throughout the fall, Ortega was invited to discuss his research and views on the topic. His perspective was to focus on this literary movement in its international context, both as a dialogue with the avant-garde tradition and a debate on the literary representation of modern Latin America. Jorge Luis Borges, Gabriel García Márquez, Julio Cortázar, Carlos Fuentes, and Mario Vargas Llosa are the best known, and Ortega has been writing and teaching their work for many years.

The book came out in June 2019, and Ortega went to Lima in July for the launching at the Feria Internacional del Libro (FIL) de Lima. He also participated in a series of colloquia by the Instituto Cervantes, Chicago; the Creative Writing Center in NYU; the International Book Fair in FIL Monterrey, Mexico; the Transatlantic Conference at the Universidad del País Vasco, Bilbao; and the Universidad de Guadalajara, México. Reviews and interviews ranged from obvious questions (Why didn't Borges receive the Nobel Prize?) to more inquisitive (Is Faulkner the model of our novelists?). Most journalists and students demanded an explanation: Why do you call a memoir of Latin American literature a "comedy"? This allowed Ortega to go back to Gracián and his explanation that hell is unreadable and comedy the way out.

Ortega's project was to write not a personal memoir but the critical history of the literary international development that started in Latin America around the early 1960s. His plan was to follow an underlying travelogue, mirroring his academic life, starting in 1969-1971 at Pittsburgh and Yale; followed by the University of Texas at Austin, University of California, Santa Barbara, Brandeis University, and Harvard; and from 1988 at Brown, including one year at Cambridge, U.K., with the Simon Bolivar Chair and at University of Cologne with a fellowship. Also, Ortega did research and read papers at conferences in Mexico, Barcelona, Havana, Caracas, and Lima. In each place, he had a similar purpose — to write down his encounters with a number of writers. Ortega has been teaching and writing on the works of some of them — Borges, María Zambrano, Cortázar, Márquez, Fuentes, Octavio Paz, Llosa, Juan Goytisolo, Haroldo de Campos, and Rosario Ferré. The basic idea of his research was to move beyond national frames and to situate these novels in larger and Atlantic interactions. His point was that this is not only a cosmopolite movement but a larger dialogue with the tradition of the novel. The series of roundtables on his book gave him a better understanding of current Latin American literature in a larger scope. Thus, Ortega's sabbatical was to test his findings and, also, to open a new area: women writers. His seminar on transatlantic women writers (fall 2020) comes from that research and is his next project.

In the fall, Ortega continued to plan and coordinate upcoming Transatlantic Conferences, based on the Transatlantic Project that he started at Brown many years ago. The Transatlantic Project is a research initiative that allowed seven large biannual symposia at Brown to be organized. Colleagues globally were looking to move beyond the frame of national literatures and to start their own transatlantic readings. Those gatherings took place at local universities in Mexico, Peru, Chile, Argentina, Brazil, Cuba, Puerto Rico, New York, and Brussels, as well as at other American universities and the Modern Language Association convention. Of course, the comparatist approach allowed for new courses that went beyond Spanish and Latin American borders. These 14 national literatures became less intricately local traditions and more dialogical in their international exchange.

Ortega's book *Transatlantic Translations* (London, 2006) was the first of a series of monographies, compilations, and new research. They took a break from the large effort, and Harvard took over the annual Conference of Transatlantic Studies. Now it is a critical paradigm in a number of universities in Europe and the U.S. Ortega recently learned of a new research group: Transatlantic Ghana.

At Brown, Ortega was lucky to share projects with Jack Hawkes and Robert Coover and the poets at their Writing Program. Thanks to Vartan Gregorian and Ruth Simmons, they were able to have a professor-at-large, the Mexican writer Carlos Fuentes. Ortega was chair of Hispanic Studies when the ranking chose them as the number one in the country. Gregorian asked Ortega, "How do you explain this?" Ortega's answer was: "I don't have time for a long explanation, I need your help." Gregorian had the talent to give Ortega extra work, and he offered Ortega's department to choose three honorary degrees for a celebration of the Spanish language. All language departments were part of that early Commencement.

Brown's Department of Hispanic Studies followed with the annual series of international conferences on Transatlantic Studies, and, with French Studies, a memorable conference with colleagues from the CNRS, Paris, was organized. The British poet Christopher Middleton was close to the Waldrops and visited many times. Writers and scholars from Mexico refreshed the students on the social and political dimension of literature. Ortega, of course, took his colleagues to colloquia at Madrid and Cambridge with another exchange agreement. Hispanic Studies graduate students have participated in all of the Transatlantic Conferences—in Mexico, Lima, Santiago, La Habana, Madrid, and Barcelona, and there is still a yearly Transatlantic Conference in partnership with Spanish universities. This December 2020 will be the seventh annual conference at the Universidad de Salamanca.

Andrew Peterson

ENGINEERING • 2019-2020

Andrew Peterson spent the majority of his sabbatical as a visitor at the Technical University of Denmark (DTU) in the Department of Energy Conversion and Storage. This gave him the chance to extend his research, which focuses on reactions at surfaces, into the field of batteries, as well as to further develop and disperse the unique simulation tools that his group has developed to describe electrochemical interfaces. Unfortunately, the pandemic-related lockdown started shortly after his arrival in Denmark, so the majority of this “visit” was spent inside his apartment in Copenhagen rather than at the university, and in-person interactions were limited.

Peterson used this time and the virtual interactions with his Danish colleagues in a number of ways. In one area, Peterson and colleagues made significant advances in their rigorous understanding and treatment of the thermodynamics of electrochemical reactions. (Electrochemical reactions are important in emerging renewable-energy conversion reactions, such as in fuel synthesis, batteries, electrolysis, solar fuels, etc.) The simulation tools to describe these reactions are under rapid development and, through derivations with researchers at DTU, it is now established that the two main approaches to simulating these interfaces are thermodynamically equivalent. This has been a point of debate within the community, and they think that their simple analysis may help unify the approaches. In other work, Peterson has been formalizing his lecture notes from his years of teaching chemical kinetics; the immediate goal is to give students in future years a comprehensive reference on chemical kinetics (from the perspective of Brown’s chemical engineering group), and a stretch goal may be to turn this into a formal textbook, since the standard textbooks in the field are dated. (Specifically, the field is much more computational than at the time the standard texts were written.) Elsewhere, Peterson and colleagues have made progress in the machine-learning of atomistic simulations, which allows for the acceleration of the cumbersome calculations common to the field; significantly, it is now possible to perform such machine-learning simulations in a “grand-canonical” ensemble, which to his knowledge has not been previously demonstrated.

Finally, like many laypersons, Peterson found himself reading about epidemiological modeling during the stay-at-home time period. Interestingly, these models are highly analogous to models used in chemical kinetics, which made his background relevant and enabled him and colleagues to provide new insights. Specifically, Peterson noticed that the models in common use are analogous to “mass-action kinetics” in chemistry: the rate at which people become infected is proportional to the numbers of infected people and susceptible people. However, a tighter analogy might be made to evaporative cooling, where the highest-energy particles are preferentially removed first, lowering the system’s temperature and ultimately the rate. In terms of epidemiology, this means that the *most* susceptible individuals should be infected at the early stages of the outbreak, putting downward pressure on the mean susceptibility of those remaining. This turns out to be a significant effect that is overlooked in most common models. Peterson established and led a collaboration with five other faculty in the fields of engineering, physics, and epidemiology and showed that this can be rigorously reduced to a simple power-law model, which can be incorporated into standard epidemiological models at minimal computational cost. Qualitatively, these insights suggest that standard models will over-predict the final size of an outbreak, which is something that has often been observed in the history of epidemiological modeling. The work has been published on a preprint server (arxiv.org), and is being prepared for publication in a peer-reviewed general-interest journal.

Louis Putterman

ECONOMICS • FALL 2019

Apart from making two brief professional trips abroad, Louis Putterman used his sabbatical to continue pushing forward his various research projects. As is his usual situation, he has many projects simultaneously underway, mainly leading to individual publications in peer-reviewed journals. Most of the projects are done in collaboration with a professor or professors at other universities, sometimes including his former Ph.D. students. Project priority in given weeks depends on the stage of work of collaborators or research assistants, on possible invitations of resubmission by journals to which papers have been submitted, and other unpredictable factors.

Projects that received the greater part of his attention during the sabbatical semester include completion of the paper “Civic Engagement as a Second-Order Public Good: The Cooperative Underpinnings of the Accountable State,” which is based on laboratory decision-making experiments conducted at Brown prior to this year, co-authored with Kenju Kamei (Brown Ph.D.) of University of Durham (U.K.) and Jean-Robert Tyran, Vienna University. The paper underwent its first submission to a top tier general interest economics journal and was under peer review during the remainder of the semester. (The initial outcome was the *American Economic Review* declined to publish the paper, and then they made some revisions and submitted it to a second top general interest journal in late spring 2020.)

Putterman also began to develop the design of a follow-up to the “Civic Engagement” experiment with Kamei and Tyran. (Progress eventually slowed because one of the co-authors had a serious illness in late fall.)

Further, Putterman completed a revision of the paper “Trigger-happy or precisionist: on demand for monitoring in peer-based public goods provision,” another laboratory decision experiment paper, this one based on an experiment conducted by collaborator Andreas Nicklisch (a former short-term visitor to Brown) in Hamburg, Germany, and also co-authored by Christian Thöni of University of Lausanne. This paper received a “revise and resubmit” decision from *Journal of Public Economics*, and they revised and resubmitted it toward the end of the sabbatical period.

He also began to develop design for a survey and decision experiment studying the evolution of attitudes toward democracy among people from China, Hong Kong, and Taiwan currently residing in North America. This collaborative project with Brown Ph.D. student Diego Ramos-Toro, who graduated in May 2020, and former Ph.D. student Josie I Chen, now assistant professor at National Taiwan University, was prepared for extensive pre-testing, which took place in spring 2020, and for submission of a proposal to the Watson Institute’s China Initiative, which resulted in the reviewers’ decision to support it with a grant of \$15,000.

Putterman worked with Norwegian School of Economics postdoctoral student Ingrid Hoem Sjursen and University of Vienna’s Jean-Robert Tyran to design an experimental decision study to be conducted online by Sjursen in spring 2020. This study concerns trustworthiness of a participant designated as an official toward two participants designated as citizens, where the official can engage in embezzlement of “public funds” and the citizens can in some cases impose monetary punishment on the official. (The survey ended up taking place as COVID-19 spread in the U.S., and an added exit survey question about the pandemic generated interesting data, which continues to be analyzed by this team as of late June 2020.)

Beyond these projects, Putterman completed research on the long history of China and its region, especially the influence of the East Asian domestication of millet and rice around 8,000 years ago. In May, 2019, a research team came together consisting of Putterman, Texas A&M Associate Professor of Economics Omer Ozak (a Brown Ph.D.), University of Hong Kong Economics Professor James Kung (a former Putterman collaborator, longtime friend, and currently well-known economic historian of China), and Kung's Ph.D. student Shuang Shi. Shi spent the spring semester 2020 visiting at Brown and was in frequent contact with Putterman to discuss early steps on the project during the fall semester.

Several other projects also required some work, including a collaboration with the TrustLab group based at the Organisation for Economic Cooperation and Development (OECD) in Paris, at Sciences Politique in Paris, and at University of Kiel (which completed its paper on trust between ethnic groups within Germany and within the U.S. in June 2020); a collaboration with geographer/polymath Jared Diamond (University of California, Los Angeles) and several archaeobotanical experts on the transition from agriculture to states in 10 regions of pristine emergence of agriculture; revision for the journal *Explorations in Economic History* of a joint paper on the transition from agriculture to states in 157 countries; a project on literacy around the world in the 15th and 16th centuries and its impact on the differential rates of investment in modern education during the 19th and 20th centuries (provisionally joint with Romain Wacziarg of UCLA and Martin Fiszbein of Boston University); and other projects. Putterman also proofread two papers previously accepted for publication that were in the production process during the period.

Putterman spent one day each week (when not abroad) at his office at Brown, partly to meet with research assistants and with his Ph.D. students who were on the job market, and he made a lot of effort to get attention to their candidacies from his contacts. Putterman was promoting three students on whose Ph.D. committees he sat (Diego Ramos-Toro, Xu Zhang, and Hui-Wen Ng), a recent Ph.D. student in his last year of a postdoctoral position (Jeongbin Kim), and also a former Ph.D. student denied tenure at his first position. All successfully received job offers in spring 2020.

In addition to research and working with current and former students, Putterman had several international trips. In early October 2019, Putterman traveled to Manila, Philippines, to participate in his second and last meeting as an outside consultant to the Asian Development Bank in its preparation of a manuscript on 50 years of economic growth in Asia. He had included a stop in Hong Kong to meet his collaborators there as part of the itinerary but was advised to cancel that stop due to the intense demonstrations happening in the city during the week he would have been stopping there.

In the last week of October and first week of November 2019, Putterman made a trip to Bogota, Colombia, and Lima, Peru, as the guest of one Colombian university's economics department (Universidad del Rosario) and two Peruvian universities' departments (Universidad del Pacifico and Universidad Catolica). In both cases, Putterman's contacts and sponsors were interested in his work as an experimental economist. He gave one main academic seminar in each country, held office hours and had lunches and dinners with various university economists and graduate students, and did some touring since it was his first time in each country. The visit initiated a potential collaboration with a University of California, Santa Cruz assistant professor who is from Lima and was visiting there at the time. They held about eight Skype meetings about the project until progress was interrupted by COVID-19.

Dixa Ramírez D’Oleo

AMERICAN STUDIES AND ENGLISH • 2020

Dixa Ramírez D’Oleo’s research plans for her spring 2020 leave were severely interrupted by the COVID-19 pandemic, especially since her research plan involved travel. Nevertheless, she managed to produce and finish various research projects. She wrote an article that was submitted to *Social Text*, a well-respected journal of socio-cultural analysis, called “Broken Automaton and Barbed Ecologies in Ligia Lewis’s Choreographic Imaginary.” The article focuses on “Water Will (In Melody),” a recent hour-long ensemble performance by the Berlin-based, Dominican-born choreographer Ligia Lewis, to consider the relationship between fugitivity and Black movement out of colonial and capitalist binds. The history of white anxieties about stealth and unprofitable Black movements through space, as well as white disgust at the various freedom strategies that came to be demonized as Black idleness, could fill entire libraries. (In many parts of the world, it is still potentially fatal for a Black person to walk about freely; their movement is always already surveilled and suspicious rendering this freedom tenuous.) Illumination has abetted the enterprise, rendering darkness a tool of fugitive Black movement. “Water Will (In Melody)” engages the horror of white supremacist violence and the uses of darkness and stealth movement as a fugitive “line of flight.”

Ramírez D’Oleo also finished a written roundtable that she organized with two other scholars (Tina Post at the University of Chicago and Catherine Damman at Wesleyan University) in which they each theorized on Ligia Lewis’s work in relation to Black Studies, Caribbean Studies, and Art History. The roundtable is forthcoming in *ASAP/Journal*, a peer-reviewed journal for thought about contemporary art and performance studies.

Finally, Ramírez D’Oleo made considerable headway in her second book project called *Blackness in the Hills and the Photographic Negative*, which is under contract with Duke University Press. By the end of spring 2020, she had completed three chapters and the introduction to the book. *Blackness in the Hills and the Photographic Negative* muses on how Black people, especially Black Caribbean people, have created aesthetic modes of livingness beyond the dictates of Western (i.e., white European) epistemes. Untroubled by essentialism or property ownership, what Ramírez D’Oleo calls “the hills” are a portal through which Black people stake a claim to land that is not based on Western ideas of property and ownership — a “holding” rather than a “having,” to cite Sarah Cervenak’s and J. Kameron Carter’s writing on the Black outdoors. *Blackness in the Hills and the Photographic Negative* focuses especially on Black Caribbean people who have ancestrally defined relationships to their local ecologies, some also in clear relationality with indigenous Taíno or Carib ancestors and kin. Though not exclusive to the Caribbean, this region’s culture and literature has a long relationship to wilderness spaces referred to as *el monte* in the Spanish, *les mornes* in French, and “the hills” in English. Ramírez D’Oleo does not argue that Black people become rooted in and through the hills, subverting the split between Blackness and land in the Americas. Instead, she thinks of the hills as hosting a Black ecological kinesis and an attunement to the vibrations of the land and its creatures. The hills are spaces in which European settlement has not levelled what sprouts beyond its commonsense.

Studying photographs, films, poems, novels, choreographic performances, and historical accounts, *Blackness in the Hills and the Photographic Negative* picks at the unruly uses of photographic technology. In spite of itself and the intent of many of its operators, how have photographed subjects created new photographic rituals? The “photographic negative” in the book’s title does not invoke the material process that yields a photograph, whose reproduction requires a physical negative. Instead, what Ramírez D’Oleo intends the term to signal is Western spacetime turned inside out. Though she focuses on the hills, both figuratively and materially, to what extent does any Black presence in photographs always already throw a wrench in the machine of modernity? “The black face that presents itself too abruptly within the precincts of self-satisfied (white Western) civilization,” writes Robert Reid-Pharr, “seems always to be saying ‘No.’” This book is a paean not only to that “No,” but also to the furtive “Yesses” in other epistemic directions. In spite of its best attempts to assist antiblack regimes of terror, the camera ends up inciting photographic rituals that sustain Black sprouts.

David Enrique Rangel

EDUCATION • FALL 2019

David Enrique Rangel’s research sabbatical in fall 2019 was focused on developing and submitting a number of research articles. One article, which was revised and resubmitted during sabbatical, was recently published: “[The Development and Sustainability of School-Based Parent Networks in Low-income Latinx Communities: A Mixed-Methods Investigation](#).” The article draws on interview and survey data from predominantly low-income, Latinx communities and examines how parents meet and develop deeper, more trusting relationships in the schooling context, as well as how the size and quality of parent networks change in early elementary school, both in the presence and absence of a family engagement program.

A second paper, “Social Class and Mexican American Parenting,” was submitted and is in the process of being revised for publication. In this paper, Rangel examines the parenting practices and beliefs of middle-class and working-class and poor Mexican American parents. Parenting has been identified as a mechanism of educational inequality, yet, Latinx parents have been excluded from this previous research. This paper highlights how the family’s social context shaped parenting above and beyond social class, which the previous literature has argued is more salient for white and Black families’ childrearing. Building on this work, Rangel developed a manuscript focused on Mexican immigrant parenting in the United States. He found that in low-income, predominantly Latinx communities, Mexican immigrant childrearing is structured by parents’ fears of deportation and their limited English proficiency. These factors shape parents’ interactions with their children and their children’s schooling, surprisingly, in ways that are often associated with middle-class parents.

A third paper, “Emerging from the Shadows: The Role of Mexican Immigrant Fathers in their Children’s Education,” was accepted to the Russell Sage Foundation conference, *Low-income Families in the 21st Century: Effective Public Policy Responses to Complexity and Change*. Papers accepted for the conference are expected to appear in a special issue of the foundation journal *RSF Journal of Social Sciences* in spring 2021.

Another paper that was submitted for publication in the fall was an article titled “Rising Inequality of Infant Health.” This paper examined whether infant health inequality was increasing or decreasing since 2010. Whereas much of the previous literature argued that inequalities in infant health were declining, this paper shows that inequalities have been rising since 2010.

Beyond work on his publications, Rangel submitted and was awarded a Richard B. Salomon Faculty Research Award from the Office of the Vice President for Research for \$8,800 to examine middle-class parenting and student outcomes among Latinx families.

Joseph Reed

CLASSICS AND COMPARATIVE LITERATURE • 2019-2020

The heavy influence on Roman poetry of the Greek poetry of the Hellenistic kingdoms has mainly been studied for its aesthetic and programmatic content. Joseph Reed’s book project this year, provisionally titled *Augustus and Egypt: The Poetics of Empire*, rather emphasizes the complex exchange of imperial identities that the resulting discourse offers its audience — for example, when Roman poetry adopts Greco-Egyptian claims of authority through tropes of the defeat of ethnic “others” and uses them against Egypt, even as the very message requires accepting a symbolic Egyptian standpoint. How does an empire adapt the ideological languages of its colonized territories to authorize its rule from different cultural perspectives simultaneously, and how does poetry both reproduce and complicate this practice?

Reed’s focal point is the reign of Augustus, when, under a single ruler, the Roman empire definitively took on the power, and the languages of power, of the earlier globalizing empires of the Eastern Mediterranean and West Asia. With Augustus’s conquest of Cleopatra’s Egypt and his assumption of a position of supreme authority over Rome, the poetry of Virgil, Horace, Ovid, and others assimilated and transformed the literature of the Greek East, both accommodating a poetics of monarchy and opening up adversarial standpoints. Reed’s broader object is to help reintegrate Greco-Roman culture into the wider Mediterranean world and to show how European and American literary discourses continue in new forms from those founded in the East. The year was highly productive to these ends, particularly his fall fellowship at the Cogut Institute for the Humanities, where Reed’s paper representing the chapter on Roman appropriations of potentially anti-Roman messianism received valuable feedback (not to mention the more general benefits of exchanging ideas with fellows across the humanities). A different version of the paper had an ideal audience in Brown’s seminar on Cultures and Religions of the Ancient Mediterranean. As

Distinguished Visiting Scholar at University of California, Los Angeles's Center for Medieval and Renaissance Studies in November, Reed gave papers on the reception of Roman poetics in the imperial cultures of early modern Europe.

Reed has also continued or begun work on related articles. "Iarbas and Father Ammon" follows the close verbal coincidence between inscriptions by the Egyptian pharaoh Rameses II (1274 B.C.E.) and the prayer of Iarbas in Virgil's *Aeneid* (presumably mediated by Ptolemaic Greek texts) to refine our sense of the relations the Latin poem posits between rulership, speech, and divinity. "Love's Imperium in Garcilaso de la Vega's Third Latin Ode" explores how the Spanish Renaissance poet uses language from the *Aeneid* to inflect a fable of Venus and Cupid (adapted from Lucian) into a parable of bargaining between imperial actors. "Ad Astra: Imperial Mythology From Egypt To Rome" (co-written with Peter Makhlof, with whom it originated as an Undergraduate Teaching and Research Award) treats the motif of the ruler's transformation into a star on his or her death (adapted from Hellenistic and Near Eastern models) in terms of the tensions between determinism and agency and changing Roman modes of political teleology. Also forthcoming, in a collected volume, is "The King's Nectar: Encomiastic Theocritus among the Romans," on the Augustans' adaptations of royal encomium from the early Ptolemaic period, including divine kingship, to their own increasingly monarchical circumstances.

Timothy Riker

LANGUAGE STUDIES • 2019-2020

Timothy Riker spent his 2019-2020 scholarly leave with the following objectives: 1) publish two articles, including in a special issue of *Cultural Diversity & Ethnic Minority Psychology*, related to community engagement research with the Deaf community; 2) produce "Hot & Safe: Deaf Gay Men Surviving the Epidemic," a short historical documentary about Deaf Gay men during the HIV/AIDS epidemic of the 1980s; 3) serve as chair of the Rhode Island Commission on the Deaf and Hard of Hearing (RICDHH), including supporting its response to the coronavirus pandemic; and 4) provide interpreting and translation services in American Sign Language (ASL) and atypical languages.

Biomedical researchers often follow the "medical model" of deafness — a pathology-driven and frequently paternalistic approach to "cure" or "fix" a Deaf person's hearing loss. Rather, most Deaf sign language users view themselves as individuals with intersectional experiences and belonging to a cultural-linguistic minority group. A contributing factor of fears and mistrust toward researchers includes the 1880-1950 eugenics movement, which aimed to improve the human species through "better breeding." Co-led by Riker, who identifies as a Deaf Gay man, Deaf ACCESS: Adapting Consent through Community Engagement and State-of-the-art Simulation is a three-phase, community-engaged, formative approach to adapting the informed consent process. As part of efforts to disseminate information about the theory, methods, and findings of this research, the team published the article, "[Deaf ACCESS: Adapting Consent Through Community Engagement and State-of-the-art Simulation](#)," in the fall 2019 issue of the *Journal of*

Deaf Studies and Deaf Education. The research team was also invited to submit an article titled “Application of the Truth and Reconciliation Model to Meaningfully Engage Deaf Sign Language Users in the Research Process,” in a special issue of *Cultural Diversity & Ethnic Minority Psychology* called *Innovative Theory and Methods for the Next Generation of Diversity and Inclusion Sciences*. The articles are in addition to research briefs and communications that are accessible to laypeople within the Deaf community. To expand on the community-engaged scholarship, the research team also submitted a research grant proposal to the National Institute on Deafness and Other Communication Disorders, which is currently being reviewed and scored.

When AIDS struck in the 1980s, Deaf Gay men were left out of critical information about prevention and as a result were disproportionately infected with HIV. In the short historical documentary “Hot & Safe: Deaf Gay Men Surviving the Epidemic,” a story is told about Tommy Saavedra, a Deaf Gay man, and John McBride, an ASL interpreter and AIDS activist, who produced an explicitly sexual education video in ASL that would become viral in the Deaf Gay communities worldwide. The documentary includes archival images, video clips from the original “Hot & Safe,” and interviews with surviving members of the crew and those close to Tommy and John.

As chair of RICDHH, Riker committed to countless hours of community-engagement and public service. Notable accomplishments of the RICDHH during 2019-2020 include: 1) conducting an executive director search, in which diverse Deaf, deafblind, and hard of hearing community members and leaders had a vital role in selecting the next executive director; 2) supporting the executive director during his transition; 3) obtaining over \$640,000 in funding related to the Health Systems Transformation Project to conduct a study on health disparities and begin the process of establishing an interpreter training program at Rhode Island College; 4) responding to the coronavirus pandemic by being one of several states consistently using a model Deaf/hearing interpreting team to provide access during Governor Gina Raimondo’s press conferences; 5) [creating a website](#) with information and resources about COVID-19 accessible in ASL; 6) establishing a COVID-19 Community Support Team to bring community volunteers together to identify and address challenges within the Deaf, deafblind, and hard of hearing community; 7) holding public meetings through Zoom that are accessible to the Deaf and hard of hearing community; and 8) continuing to address systemic racism affecting Black and Indigenous people and people of color within Rhode Island’s Deaf and hard of hearing community.

As a certified Deaf interpreter, Riker provided over a thousand hours of atypical language interpreting for Deaf and deafblind individuals in medical, mental health, legal, and community settings in New England. During the coronavirus pandemic, Riker interpreted several press conferences held by Massachusetts Governor Charlie Baker and Boston Mayor Marty Walsh, translated over one hundred daily communications into ASL, and used innovative solutions to provide remote interpreting services to ensure access in the community.

Rachel Rojanski

JUDAIC STUDIES • FALL 2019

Rachel Rojanski dedicated the first weeks of her sabbatical to proofreading the final galleys of her new book: *Yiddish in Israel — a History*. The book was released in January 2020 and has already raised a lot of interest. She spent the rest of the semester doing research in libraries and archives in Israel, Poland, and New York for her new book project titled: *Rachel Auerbach: A Life of Yiddish Writing and the Creation of a Post Holocaust Memory*.

In *Yiddish in Israel — a History*, Rojanski focuses on questions of hegemony, transnationality, nostalgia, and the creation of a usable past, as well as other questions central to the study of immigrant societies. In this new project, she seeks to expand the scope of her study by investigating other key aspects of the post-Holocaust Yiddish cultural scene through the lens of the life story of Holocaust survivor, Yiddish writer, and public activist Rachel Auerbach (1903-1976). These include attitudes in early Israel to writing about the Holocaust, the development of Holocaust commemoration, the creation of Holocaust memory, and also gender issues.

Auerbach came to Israel in 1950 as one of only three survivors of the clandestine *Oyneyg shabbes* group of historians, writers, and social workers, who had risked their lives daily to document life in the ghetto for those who would come after them in the Jewish future. In Israel, she hoped to become a Yiddish writer and help create the public memory of the Holocaust and pre-Holocaust Jewish cultural life in Eastern Europe. However, she soon found herself in triple jeopardy: she was a Yiddish writer in a country that put an enormous emphasis on the Hebrew language; she was a Holocaust survivor at a time when survivors were marginalized; and she was a single woman in a society that worshiped motherhood.

Nonetheless, during the 26 years she lived in Israel, she published eight books in Yiddish; wrote film scripts, radio dramas, and dozens of Yiddish articles; and founded and directed the testimonies department at Yad Vashem (The World Holocaust Remembrance Center in Jerusalem). She was soon an important part of a world network of Yiddish writers and activists. But her most significant impact, as yet unacknowledged, was in shaping the collective memory of the east European Jewish past and especially of the Holocaust.

The book will explore the parts of the past Auerbach chose to emphasize and the ways she presented them, as it seeks to understand how she and other Yiddish writers created their collective memory. It will also examine the battles she had to fight and the struggles she had to go through in order to publish her books, to focus the attention of the Israeli public (and some of the country's leadership) to the importance of documenting the Holocaust, and to win respect as both a female and a survivor.

Auerbach's papers are kept in archives all over the world: in Jerusalem, in Tel-Aviv, in New York, and in Warsaw.

During her sabbatical, Rojanski was able to do a significant part of the archival research and is now studying the materials she collected and preparing to gather more before she starts actually writing the book.

Felipe Rojas Silva

JOUKOWSKY INSTITUTE FOR ARCHAEOLOGY AND THE ANCIENT WORLD AND
EGYPTOLOGY AND ASSYRIOLOGY • SPRING 2020

Felipe Rojas Silva spent spring 2020 in Bogotá, Colombia. For eight weeks, he taught two undergraduate classes at Universidad de Los Andes: one on the history of fakes and forgeries, and another, co-taught with Sarah Newman (University of Chicago), on “invisible landscapes” — landscapes that for various cultural, political, technological, and other reasons have not been seen or studied by anthropologists and archaeologists. (The lasting effects of the decades-long Colombian wars on local landscapes and people were a recurrent topic of discussion, even though the expertise of the instructors lay in different periods and places.) He had intended to teach related courses in Sao Paulo, Brazil, but the pandemic forced him to remain in Colombia. Rojas Silva received a Brown Office of the Vice President for Research grant for continued archaeological research at Petra: a University of Chicago Neubauer Collegium multi-year fellowship to expand work with Newman and with Brazilian archaeologist Eduardo Góes Neves on unseen and understudied landscapes. Finally, Newman, Jeff Moser (Brown, History of Art and Architecture), and Rojas Silva also received funds from the University of Chicago to host a conference on global antiquarianism in Hong Kong in 2021.

Harold Roth

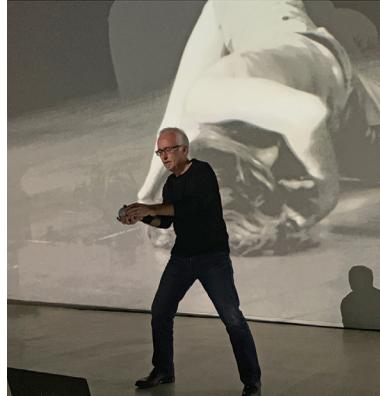
RELIGIOUS STUDIES AND EAST ASIAN STUDIES • FALL 2019

During his sabbatical, Harold Roth gave five academic lectures at Dartmouth University, Duke University, and the University of Beijing on topics related to his book project, *Principles and Practices of Contemplative Studies*, as well as researched and wrote major parts of the book. He also completed the editing and writing of a second book, *Manifesting Zen*, which is now in publication production, and did significant research for a third book on the famed Daoist work *The Way and Its Potency* (Daodejing), including determining the semantically significant textual variations in seven major witnesses to the text and translating them. Further, Roth traveled to Kyoto, Japan, and Beijing, China, to do research on Chinese philosophy and religion and engage in discussion with a range of people, from Zen clerics to Chinese philosophy scholars.

In addition to these research activities, Roth organized the Contemplative Studies unit programs of the American Academy of Religion and attended the American Academy of Religion Annual Meeting in San Diego. At the Mt. Baldy Zen Center in California, Roth also organized and lectured at two “sangha seminars” that included lectures and workshops by famed Zen scholars Michel Mohr, Robert Buswell, Masaki Matsubara, and Paula Arai.

Joseph Rován

MUSIC • 2019-2020



During Joseph Rován's year-long sabbatical, he was actively engaged in performances using musical instruments of his own design, furthering his research into musical interfaces, and working on a new commission for orchestra, gestural conductor interface, and live electronics.

He began his sabbatical by commencing development on a new musical interface designed to allow an orchestra conductor to shape live electronic processing of orchestral sounds via the conductor's own physical gestures. The device comprises custom hardware and software, communicating via Wi-Fi to a computer that uses the gestural data to shape the live electronic sound. This new conductor interface will be used in the performance of a newly commissioned work for orchestra that Rován is composing: *Scattering*, for orchestra, gestural conductor interface, and real-time electronics. The work will be a one-movement piece inspired by William Meredith's poem "Examples of Created Systems." Meredith was the former poet laureate to the Library of Congress.

In parallel with Rován's new instrument design research, he continued to perform with other musical interfaces he has created: The GLOBE and MiMICS. The GLOBE was featured in his invited performance at the October 2019 Seoul International Computer Music Festival in Seoul, South Korea, where he performed *of the survival of images*, for custom GLOBE controller, interactive video, and live electronics. He was also invited to perform with his MiMICS system (a system that extends the capabilities of acoustic instruments) at the 14th International Symposium on Computer Music Multidisciplinary Research in Marseilles, France.

Unfortunately, the coronavirus pandemic caused the cancellation of two of Rován's spring 2020 invited performances. He was invited to perform and lecture in March at the fifth International Conference on Live Interfaces, at the Norwegian University of Science and Technology in Trondheim, Norway. In March, he was scheduled to perform at the Society of Electro-Acoustic Music in the U.S. international conference. Both of these live performances had to be canceled.

The pandemic also thwarted a week-long residency he had scheduled in April at the University of Oslo RITMO Centre for Interdisciplinary Studies in Rhythm, Time, and Motion. There he was invited to participate, with collaborator Ami Shulman, in a think tank/workshop focused on gesture and rhythm.

Before the pandemic hit, Rován was fortunate to participate in the annual meeting of the Association of American Colleges and Universities Annual Conference, held in Washington, D.C. There he participated on the panel discussion "Making Inclusive Music: A Dynamic Celebration of Liberal Learning."

Brenda Rubenstein

CHEMISTRY • FALL 2019

As a junior faculty member, Brenda Rubenstein spent the majority of her sabbatical in residence, still actively engaged in department activities such as leading the department's Diversity and Inclusion Action Committee, teaching Independent Studies, and providing input into a faculty search. However, in order to strike a balance between furthering her group's current research and exploring new research fields, Rubenstein decided to use this opportunity to spend six weeks in the [Texas A&M Chemistry Department with Professor Michael Hall](#). Hall has long been a leader, if not the founder, of the field of computational homogeneous catalysis, which attempts to computationally predict the outcomes of catalytic reactions in solution. Rubenstein has long been interested in computational catalysis because it is a natural future application for the high-accuracy, yet low-cost, electronic structure techniques (quantum Monte Carlo methods) that her group has been developing over the past decade. Hall was kind enough to invite Rubenstein to attend his group meetings, give her advice on problems worthy to pursue, and invite her to give a department seminar accompanied by faculty visits. She learned a lot from his deep perspective that will serve her well as she embarks upon future work in this direction. It was moreover educational to see another chemistry department in action. It goes without saying that changing one's rhythm to fully experience a new place, even if within one's own country, is always reinvigorating — Rubenstein greatly appreciated this opportunity, minus the Texan cockroaches.

Beyond her visit, Rubenstein used her additional time to grow her knowledge of molecular computing and quantum computing algorithms. She additionally wrote the following manuscripts with her students and postdoctoral research associates during this time, most of which have since been published: "[A Language for Molecular Computation](#)" (*Chemistry*, 2019); "[QMCPack: Recent Advances in Auxiliary Field and Real-Space Quantum Monte Carlo](#)" (*The Journal of Chemical Physics*, 2020), selected as the editor's pick; "[Evidence from First-Principles Calculations for Orbital Ordering in Ba₂NaOsO₆: A Mott insulator with Strong Spin-Orbit Coupling](#)" (*Physical Review B*, 2019); "[First Principles Calculations of the Electric Field Gradient Tensors of Ba₂NaOsO₆, a Mott Insulator with Strong Spin Orbit Coupling](#)" (*Journal of Physics: Condensed Matter*, 2020); "[Metal-Insulator and Magnetic Phase Transitions of Ca₂RuO₄ from Auxiliary Field Quantum Monte Carlo and Dynamical Mean Field Theory](#)" (*Physical Review B*, 2020); "[Predicting the Viability of Beta-Lactamase: How Thermodynamic Measures Correlate with Beta-Lactamase Fitness](#)" (*PLOS One*, 2020); "[Unveiling the Finite Temperature Physics of Hydrogen Chains via Auxiliary Field Quantum Monte Carlo](#)" (*Journal of Chemical Theory and Computation*, 2020); "How Anomalous Heating in Ion Traps May Be Explained by Simple Dielectric Models" (submitted to *Applied Physics Letters*, 2020); and "How Molecular Adsorbate Dynamics on Realistic Surfaces Can Give Rise to 1/f Noise in Ion Traps" (submitted to *Physical Review X*).

Joshua Schechter

PHILOSOPHY • FALL 2019

Joshua Schechter took a research sabbatical in fall 2019, supported in part by a fellowship from the George A. and Eliza Gardner Howard Foundation. During his leave, Schechter worked on four papers, concerning topics in epistemology, metaethics, and the philosophy of logic. One paper, “The Theoretical Significance of the A Priori/A Posteriori Distinction,” discusses the nature of a priori knowledge and argues that the distinction between a priori and a posteriori knowledge should be superseded by a pair of distinctions that are more philosophically significant. (This paper will be published in an Oxford University Press volume on a priori knowledge.) A second paper, “Rational Defeat beyond Belief,” discusses the rationality of states of mind other than belief, such as emotions, intentions, and desires. It argues that many of the same phenomena that epistemologists study in the case of belief also apply to other kinds of mental states. For instance, learning information about the causal history of an emotion or desire can serve to undermine the rationality of that emotion or desire. (This paper will be published in an Oxford University Press volume on defeat.) A third paper, “Does Expressivism Enjoy an Epistemological Advantage over Realism?” argues against a prominent view about ethical language and ethical thought, according to which ethical language is not used to report facts about the world but instead is used to express one’s emotional reactions. The paper argues that contemporary versions of this view face the very same epistemological difficulties as views on which ethical language has the function of reporting facts, and so do not have an advantage over them. The fourth paper, “Weakly Classical Logic,” is a technical paper that explores so-called “weakly classical logics,” which are logical theories that share the same axioms and rules of inference as classical logic, but lack some of the standard meta-rules (such as *reductio ad absurdum* and conditional proof). Such logics have philosophical applications to (for instance) the liar paradox and the formal treatment of vague language but have not been systematically studied. The paper develops an algebraic model theory for such logics and proves various results about these logics (such as that there are infinitely many of them).

Brian Sheldon

ENGINEERING • FALL 2019

Brian Sheldon spent a one-semester sabbatical leave at MIT during fall 2019. He pursued collaborative research on chemo-mechanical phenomena in energy storage materials, with several MIT faculty in the Department of Materials Science and Engineering (Professors Craig Carter, Yet-Ming Chiang, and Krystyn Van Vliet). This work was focused primarily on emerging solid electrolytes for lithium-ion batteries. These materials are currently at the center of considerable international efforts to create all solid-state batteries with increased energy storage capacity and improved safety. Because they are brittle ceramics, significant improvements in their mechanical properties are needed to make them viable. The new work that Sheldon

conducted during his sabbatical focused on fundamental studies of several different phenomena. Combining unique capabilities at Brown with more extensive ongoing efforts at MIT led to several new insights into stresses that evolve during electrochemical cycling in these materials.

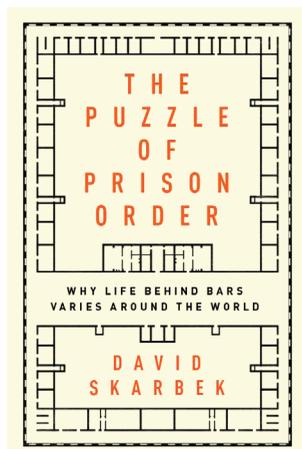
The research conducted during Sheldon's sabbatical is included in three joint manuscripts with MIT researchers. Key results in these papers are:

- Direct measurements showing that Li metal penetration in LLZO (nominal composition $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$) is accompanied by large internal stresses. This type of metal penetration at relatively low current densities has emerged as a fundamental barrier to their implementation.
- Demonstration of new methods that increase the critical current density in LLZO electrolytes. Achieving higher current densities is critical for the successful implementation of these materials in electric vehicles and other emerging applications.
- Development of a new model that describes the stress-driven propagation of lithium-filled filaments in LLZO and other ceramic electrolytes.

One of these papers is currently in review. The other two are in preparation, and Sheldon expects to submit these for publication before the end of this year. Sheldon's research group at Brown is also currently pursuing several continuing collaborations with MIT researchers that are a direct outgrowth of the work conducted during his sabbatical.

David Skarbek

POLITICAL SCIENCE • 2019-2020



David Skarbek spent the 2019-2020 academic year as a visiting scholar at the Center for the Study of Law and Society at the University of California, Berkeley School of Law. The center is home to a group of scholars engaged in interdisciplinary and multi-methods research to better understand legal institutions. In line with this mission, Skarbek completed his second book manuscript, which seeks to explain variation in informal institutions within prisons. The book, [*The Puzzle of Prison Order: Why Life Behind Bars Varies around the World*](#), will be published by Oxford University Press in 2020. Many people think that prisons are all the same — rows of cells filled with violent men ruled by officials with an iron fist. Yet, there is a tremendous diversity of informal institutions and practices in prisons. The book examines cases in Brazil, Bolivia, England, women's prisons, and a gay and transgender unit to understand why life on the inside varies in such novel ways.

In addition to this work, and based on discussions with faculty across the Berkeley campus, Skarbek wrote and published an article titled “Qualitative Research Methods for Institutional Analysis” in the *Journal of Institutional Economics*. In it, he argues that economists who study institutions miss an opportunity to learn when they overlook the value of qualitative evidence. In collaboration with Danilo Freire and Umberto Mignozzetti, he published an article, “Institutional Design and Elite Support for Climate Policies: Evidence from Latin American Countries,” in the *Journal of Experimental Political Science*. Skarbek began several new research projects as well. He is collaborating with Wanlin Lin (Hong Kong University) to better understand variation in the success of community redevelopment projects across six Chinese villages, with an empirical focus that includes extensive engagement in the field and interviews with residents and developers. Finally, in collaboration with Freire, he developed a survey experiment to understand why some people view vigilantism favorably and to test what type of interventions can reduce approval of extralegal judicial activity. While on leave, Skarbek also gave talks at California State University, Sacramento, Duke University, San Jose State University, Stanford University, Syracuse University, and University of California, Berkeley.

Daniel Jordan Smith

ANTHROPOLOGY • 2019-2020

During his 2019-2020 sabbatical, Daniel Jordan Smith carried out research and began writing a book about infrastructure in Nigeria, where people say that “every household is its own local government.” What they mean is that politicians and government institutions have not delivered — and cannot be trusted to ensure — even the most basic services that people expect as citizens of Africa’s richest and most populous nation. Households have to fend for themselves. Nigeria is a place where, for many people, water must be purchased daily from vendors carting jerry cans filled from boreholes dug in wealthier neighbors’ compounds. Small businesses rely on mini-generators for electricity because the national grid supplies power only sporadically. “Public transportation” depends mostly on networks of privately-owned buses and armies of independent motorcycle-taxi drivers. Security in the face of rising crime requires neighborhood vigilantism because police are ill-equipped and often suspected of colluding with criminals. Even relatively poor families pay for tutors to teach their children outside of school because state-run education is perceived as inadequate to the task of enabling promotion to the next grade level, much less admission to university. The hopes created by independence nearly 60 years ago, the anticipated benefits of being one of the world’s leading oil-producing nations, and the promises put forward when civilian rule was reestablished in 1999 after decades of military dictatorship have all been dashed in the eyes of average citizens.

In his research and book project, for which he won a [Guggenheim Fellowship](#) in April 2020, Smith is examining the ways that Nigerians across multiple social strata develop technologies, businesses, social networks, political ties, and other cultural strategies to cope with major infrastructural deficiencies. Innovative entrepreneurs and ordinary citizens hustling to survive create vibrant informal economies that provide basic infrastructure where the Nigerian state does not. But the state is not so much absent as

complicit. Political and economic elites benefit from the government's seeming dysfunction and they steer the state accordingly. While Nigerians' ingenuity in the face of extreme challenges can and should be admired, in his book manuscript Smith argues that these (only apparently) state-absent solutions come at great cost, including fueling corruption, exacerbating inequality, and deflecting attention away from more viable paths forward. The book focuses on how — and with what consequences — Nigerians create and maintain basic infrastructure in the domains of water, power, transportation, security, communication, and education. The comparison draws out important patterns and interconnections, particularly with regard to the relationship of these entrepreneurially-maintained infrastructures and services to political culture, state practices, and citizenship. In an era when governments and governance around the world face rising popular skepticism, understanding the consequences of infrastructure developed and sustained without effective state support — indeed, often marked by deliberate state neglect — offers lessons relevant not only in Nigeria and Africa, but also globally.

Derek Stein

PHYSICS • FALL 2019

Derek Stein spent his sabbatical working to commercialize a technology that he invented at Brown. In 2018, Stein founded a company called [Techstyle Materials](#) to bring to market a material technology with advanced moisture-management capabilities that can increase the durability, energy efficiency, and air quality of buildings.

In summer 2019, Techstyle Materials received a [Catalyst grant](#) from the Massachusetts Clean Energy Center to begin research and development work on the company's multifunctional material technology. The company hired its first full-time research scientist and relocated to [Greentown Labs](#), the largest cleantech incubator in North America.

Stein's sabbatical gave him the time to write applications for grants and to participate in contests that are helping to advance the technology and build relationships with strategic partners in the construction industry. Techstyle Materials was selected to participate in the [inNOVAte 2019 Challenge](#), a six-month, construction-focused startup accelerator sponsored by Saint-Gobain. Techstyle Materials was also [selected](#) to participate in the Wells Fargo Innovation Incubator (IN2), a program that sponsors year-long [collaborations](#) between building innovation companies and the building research group at the U.S. Department of Energy's National Renewable Energy Laboratory.

Two patent applications owned by Brown University are the foundation of the company's technology. Stein helped with the prosecution of those patents during his sabbatical. The key invention claims of one of the patents were recently allowed by the U.S. Patent and Trademark Office.

Stein's sabbatical also gave him time to complete and submit papers on his academic research projects.

Mark Steinbach

MUSIC • SPRING 2020

Mark Steinbach began his sabbatical by editing a recording he made on the exquisite 1755 Gottfried Silbermann pipe organ at the Cathedral (Hofkirche) in Dresden. For the past five years, he has conducted on-site research of 17th- and 18th-century pipe organs from the Saxony, Brandenburg, and Thuringia regions of Germany and how the instruments themselves inform performance practices of the music of J.S. Bach, his contemporaries, and also of new music. For organists, hearing and playing the historic pipe organs in the former East Germany where Bach lived and worked is especially important for understanding and interpreting his compositions. During the Cold War, when musicians became interested in historically informed performance practices and instruments, many misconceptions about baroque organ design were fostered, primarily because Western Europe and the United States did not have access to these instruments. Visiting the instruments in person allows one to examine the tonal design, keyboard, and pedal action, spatial placement, acoustical and timbral properties, and overall character of the organs.

Having performed invited recitals on over eight of these instruments and played over 12 other historic organs in (East) Germany over the past five years, Steinbach chose Silbermann's magnum opus in Dresden to document his research. Silbermann is one of the most respected builders of the baroque era and was highly regarded by Bach. Although Bach did not know this specific instrument, as it was completed five years after his death, he did play the two other Silbermann organs in Dresden, which he greatly admired. Both of these instruments were destroyed in the bombing of Dresden in 1945. Miraculously, however, the Cathedral organ's 3,500 pipes and windchest escaped destruction, as they were stored safely outside the city, shortly before the bombing. This instrument, now restored, is an outstanding example of a baroque organ of significant proportions (three manuals, 43 stops) in a stunning acoustic. It navigates music of its contemporaries (Bach) beautifully, but also music of living composers.



Steinbach pictured with the 1755 Silbermann organ at the Cathedral in Dresden, where he made the recordings “Glass and Bach in Dresden” and “Immeasurable”

This recording project evolved into two separate CDs/digital releases. Philip Glass's record label Orange Mountain Music is producing "Glass and Bach in Dresden" (CD and digital release anticipated in 2020). "Immeasurable," the other CD, comprises compositions of Bach and Brown University faculty members Wang Lu and Eric Nathan. The remainder of this CD was to be recorded in Dresden this summer, but these plans were delayed because of COVID-19. The projected release date is now 2021 (Supertrain Records). Steinbach wrote program and liner notes for the recordings, describing the historical importance of the organ and the music.

During his sabbatical, Steinbach continued researching historic pipe organs of Bach's milieu while preparing to co-lead "Bach's Organ World," a study tour in Germany scheduled for June 2020. He was invited to teach master classes and present lectures and demonstrations on historic organs, which Bach knew or "could have known." Unfortunately, the trip was canceled because of COVID-19.

Steinbach's research on how historic instruments themselves inform performance practices of musics both old and new turned to North America in 2020. In February, he participated in the Instituto de Órganos Históricos de Oaxaca's 13th Conference, a study tour of 17th-to-18th-century pipe organs in Oaxaca, Mexico, which included presentations on historic organ preservation and restoration and also concerts and demonstrations. The concerts included both historic Spanish and indigenous Oaxacan repertoires. He was able to play several of the instruments and also had the opportunity to play the José Nassarre organs in Mexico City's Cathedral, the largest 18th-century organs in the Americas. He had also planned to travel to Spain to research Iberian organs, which influenced the Oaxacan art of organ design, and to study repertoire, which was conceived for these instruments, but this trip also had to be postponed because of COVID-19.



Steinbach at the 1735 organ at Mexico City's Metropolitan Cathedral

During his leave, Steinbach also dedicated research and applied study to the music and theoretical writings of Olivier Messiaen, specifically *La Nativité* for organ (1935). Steinbach learned Messiaen's entire *La Nativité* suite and will present a live and/or virtual performance at Brown in spring 2021, which will coincide with MUSC 1500B, his seminar on Messiaen. A professional recording will follow. He had intended to visit, play, and inspect the organ at la Sainte-Trinité in Paris for which Messiaen composed the majority of his organ compositions (1935-1992), but this trip was also postponed due to COVID-19.

Nina Tannenwald

POLITICAL SCIENCE • SPRING 2020

Nina Tannenwald was on a scholarly leave in spring 2020. Unfortunately, because of COVID-19, most of her sabbatical plans collapsed. She began the semester as a visiting scholar at the U.S. Naval War College in Newport, R.I. The War College closed down in early March. She had research travel plans to Vienna and Geneva to do research on the International Atomic Energy Agency, the Nuclear Nonproliferation Treaty, and humanitarian law, but these trips got canceled. Tannenwald was supposed to lead a Brown alumni travel trip to Slovenia, but this was also canceled. She spent most of the semester back home in Providence supervising the remote learning of her two children.

Tannenwald completed one short paper for a journal roundtable in January, and she just completed a second paper (on nuclear weapons policies in India and Pakistan) and is about to submit it to a journal. The second is not one she had originally planned to do, but it was something she could do based on open sources while sitting at home. Tannenwald did get some reading done for her new project on new weapons technologies, changing norms and the laws of war, although not nearly as much as she had planned. She will eventually use this new project as the basis for developing a new course for 2021-22. Before the War College closed down, she participated in their seminars, sat in on some sessions of their Grand Strategy course for mid-level officers, and served as a reader for a master's thesis on US strategy toward Iran.

Joshua Tucker

MUSIC • 2019-2020

Joshua Tucker spent his 2019-2020 sabbatical year in Nova Scotia, pursuing research related to two ongoing projects about music and society in Canada's eastern Maritime provinces.

One project revolved around the personal archive of Helen Creighton, a 20th-century folklorist who almost single-handedly crafted the dominant image of Nova Scotia in the Canadian and international imagination. Creighton has been lambasted over the last 25 years for the severely anti-modern slant of her work. She consolidated Nova Scotia's reputation as a conservative region locked in temporal stasis, where superstitious folk cleave to ancient traditions like Elizabethan balladry, rejecting the complexities of modern life from within the comfort of picturesquely underdeveloped villages. This trite, superficial, and blatantly false image continues to underpin the tourist industry upon which the province depends, but it also frames discourse about the province at the federal level, where anti-maritime stereotypes drive national development priorities and foster the ongoing marginalization of the impoverished province.

Despite Creighton's monumental influence, little attention has been paid to her massive personal archive, which was donated to the Public Archives of Nova Scotia after her death in 1989, and which awaited organization for decades thereafter. A lifetime's worth of sound recordings, field diaries, personal journals,

correspondence, and broadcast transcripts, it may constitute the single largest body of observation ever pieced together on the province's cultural life. Combing through these materials before the archive's March closure in the face of COVID-19, Tucker uncovered a wealth of unpublished — indeed, auto-censored — materials that belie the bowdlerized image of 19th- and 20th-century Nova Scotia that Creighton codified in her public work, allowing for a reconstruction of the province's dynamic cultural past and pointing the way toward new narratives for its future. His research focused especially on observations made in her personal diaries and letters, as well as the texts of unpublished songs, most of which were sent to Creighton unsolicited, by provincial residents who had become aware of her work via radio broadcasts. These texts severely undermine Creighton's image of backward-looking, stoutly British imperial subjects, dignified by their simple poverty and fearful of a corrupted metropolitan world. They provide ample evidence of a province steeped in transregional commercial endeavor, linked in cosmopolitan fashion with the Atlantic world; they testify to rampant, class-based femicide, as well as ethnic tension, within a countryside that was not nearly as uniformly British as supposed; they document labor unrest, and early instances of anti-immigrant rhetoric (largely aimed at Newfoundlanders). In short, they allow for the development of a maritime counterhistory, wherein the province's experience exemplifies the complex cultural effects of uneven modernization, allowing us to tease out its lingering effects in a region undergoing a new wave of sociocultural change.

A second project focuses instead on the burgeoning transatlantic revival of Scottish Gaelic music and language, which is largely centered in Scotland and in Nova Scotia's northern Cape Breton region. Spoken Gaelic language and music remained central to everyday life in the towns and villages of Cape Breton well into the 20th century. There, performers continue to develop certain traditions that were displaced within Scotland itself, due to the efforts of English and Lowland Scottish intellectuals and self-styled aficionados, who often engineered the wholesale replacement of Gaelic song and instrumental music with invented traditions, steeped in their own stereotypes about Gaelic society. In recent decades, the longstanding efforts of Gaelic intellectuals to shield their language and music from complete disappearance have intersected with theories of decolonial anti-imperialism, with a surge in Scottish nationalist politics (often framed in decolonial terms), and with widespread Scottish horror at Brexit discourse and its anti-minoritarian biases, to foster successful efforts at vitalizing Gaelic cultural practices that had long been on the wane.

Many of the musicians and intellectuals involved turn to Cape Breton as a source of musical vitalization, taking the island's distinctive traditions of dance fiddling and piping, its historic body of Gaelic-language periodicals and publications, and its well-preserved song repertoire, as a sort of secret passage toward the wellsprings of Gaelic culture. The revival presents a highly volatile mix of elements, with some currents of self-aware self-critique standing alongside the frank exoticization of Gaels, and particularly of Cape Breton Gaelic culture. Nowhere are these currents more tangible than in the performances of contemporary bagpipers, whose instrument is perhaps more closely identified with imperialism than any instrument on earth, having been cultivated in the post-Culloden era largely by British military forces, on one hand, and by non-Gaelic "Highland societies" based in London or Glasgow, on the other. In the face of this legacy, pipers involved with Gaelic revivalism have increasingly turned away from the Great Highland bagpipe — recreating and performing on cognate bagpipe types that had otherwise disappeared from common use — to Cape Breton's distinctive tradition of dance piping (which survived up until the 1970s) and to

historical research on pre-Culloden and hence pre-British Gaelic piping traditions, in a decolonial effort to provide pipers with an anti-imperialist genealogy for their art. In pursuance of this project during his sabbatical, Tucker undertook intensive study of Gaelic language and song, and studied with renowned pipers affiliated with different piping legacies, in both Nova Scotia in Scotland, including world champions like Bruce Gandy and Allan MacDonald.

Tucker also continued to publish materials related to his previous research projects on indigenous music and society in highland Peru, including a chapter on music, emotion, and alcohol sales forthcoming in *The Oxford Handbook of Global Music Industry Studies*, and an entry on Peruvian ethnomusicology for inclusion in *The Study of World Music: Ethnomusicology, Popular Music Studies, Sound Studies*, a volume in the benchmark New Grove series of music reference texts.

John Tyler

EDUCATION AND ECONOMICS • FALL 2019

John Tyler spent fall 2019 working on research into an examination of the extent to which there may be negative spillovers from the nation's opioid crisis that are negatively impacting the education outcomes of children. The idea is that there are multiple ways in which the crisis could negatively impact children's education, from the direct (e.g., a child's family member suffers from opioid substance use disorder, leading to disruption in the home) to the less direct (e.g., a child lives in a community where the crisis has led to social network disruption and resource diversion).

Tyler and his co-authors (Rajeev Darolia, University of Kentucky; Anna Aizer, Brown; Alex Bolves, Brown; and Angelica Meinhofer, Weill Cornell Medical College) compiled national and state-specific (Florida) data sets containing information on education outcomes (e.g., test scores, absences, graduation rates), opioid-related indicators (e.g., mortality rates, emergency department visits, hospital in-take records), and other factors needed for quantitative analysis (e.g., unemployment rates, demographics). Preliminary analysis of these data led to the publication of a Brookings Institution report, "[The opioid crisis and community-level spillovers onto children's education](#)," authored by Tyler and Darolia. The fall 2019 work also provided the basis for a grant application that was submitted to the Spencer Foundation in February 2020 and a paper submission to the *American Educational Research Association (AERA) Open* journal (decisions pending on both the grant application and *AERA Open* submission). Finally, the fall 2019 work provided the foundation for a deeper dive into the impact of the crisis in Florida where 2010 legislative action closing many "pill mills" across the state can be exploited for causal inference studies into the opioid crisis-education relationship. The Florida work is ongoing and in the early stages.

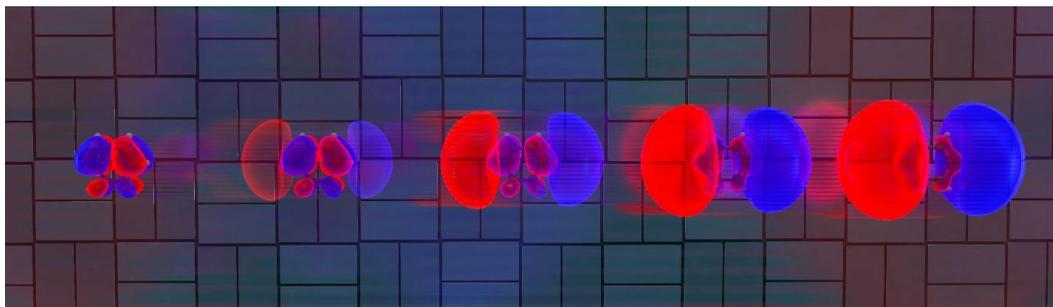
Peter Weber

CHEMISTRY • 2019-2020

Peter Weber used his 2019-2020 sabbatical year to focus on one of chemistry's most fundamental questions: how can we truly observe molecules just as they undergo a chemical reaction? While chemists have of course monitored chemical reactions using a multitude of indirect methods, the dream is to actually record a slow-motion movie of molecules as they transform from one form to another. To achieve such a movie, molecular structures need to be observed on the time scale of femtoseconds — i.e., a millionth of a billionth of a second!

Leading an international team of researchers, including scientists from SLAC National Accelerator Laboratory, the U.K., and New Zealand, and including a group of currently seven graduate students and one postdoc, Weber embarked on an ambitious experiment to use ultrashort x-ray pulses from a free electron laser to determine molecular structures of molecules that are photonically nudged to undergo a chemical reaction. The experiments produced many terabytes of data, which were painstakingly analyzed by Weber's team.

The results were exceptionally interesting: in a series of publications that were finalized this sabbatical year (*Nature Chemistry*, 2019; *Science Advances*, 2019; *The Journal of Chemical Physics*, 2019; and *Nature Communications*, 2020), Weber's team reported that they were able to measure precise structures of molecules in excited and transient molecular states with unprecedented temporal and spatial resolution. They could “see” how molecules move, and how coherent molecular vibrations dephase into the bath of thermal states. And most intriguingly, they were able to glimpse the signatures of how electron densities change upon optical excitation (see figure).



The time sequence of how the electron density distribution of 1,3-cyclohexadiene changes upon optical excitation

Weber complemented the intense research activity with global travel to disseminate his research findings, presenting his results at many domestic meetings and in far-flung places such as South Korea, Austria, and Saudi Arabia. With the travel cut short by the COVID-19 pandemic, Weber then worked on devising methods to spectroscopically identify biomarkers for rapid detection of COVID-19. With the Weber laboratory designated to perform “essential COVID-related research,” Weber's team was among the first to resume laboratory research. This project is ongoing and will continue as Weber returns to teaching in the fall semester.

David Weil

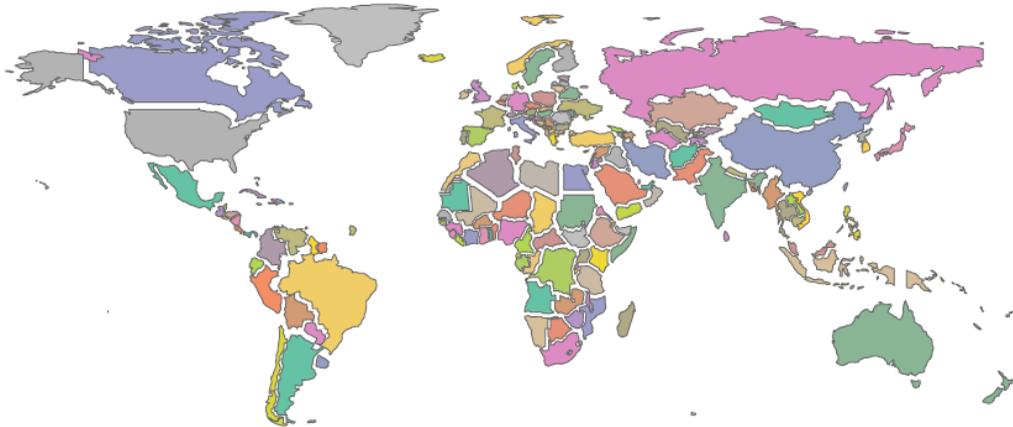
ECONOMICS • 2019-2020

David Weil spent both semesters of his sabbatical in residence at Brown. His work was divided between two large, ongoing projects and several smaller ones.

His first ongoing project, joint with Adam Storeygard of Tufts University and Vernon Henderson of the London School of Economics, uses fine-scale geospatial data on population and physical characteristics to estimate the value of different characteristics in supporting human settlement and economic activity. Population density — that is, the ratio of people-to-land — is a fundamental element of how economists, demographers, and ecologists think about the interaction of humans with their environment. But in many applications, how one interprets a given level of density depends on what the land itself is like. The goal of this project is to create measures of population density that adjust for the quality of land and other aspects of the environment. Their adjustment procedure only uses information on within-country variations in population and geography so that differences between countries in factors such as institutional quality, technology, and history do not influence their estimates.

The figure below shows an example of how the information that is generated can be used. The top panel shows a standard world map (equal area projection), with extra white space introduced between countries for legibility. The bottom panel shows a similar world map in which each country's shape has been distorted so that its area on the map is proportional to its "quality adjusted area." Countries such as Japan, which are richly endowed with characteristics associated with high population density, grow much larger going from the top to the bottom panel, while countries with poor average endowments, such as Canada, get smaller. Particularly notable is that western Europe is much larger in the bottom panel than in the top, while Sub Saharan Africa is much smaller. Translating the results shown on the map into density terms changes how we understand differences among countries. For example, using the conventional measure of density (people per square kilometer), Rwanda and the Netherlands have roughly equal levels. But using our quality adjusted density measure, the Netherlands has a value that is near the world median, while Rwanda is one of the densest countries in the world.





Weil's second ongoing project is a book about the history of population, centered on the 20th century. World population almost quadrupled between 1900 and 2000, while average life expectancy doubled and the number of children that the average woman bore fell by more than half. All of these were unique occurrences in human history. His book project encompasses, on the one hand, a description of how these events were linked to each other and to the processes of economic growth and diffusion of technology from rich to poor countries, and, on the other, a narrative of how scholars and policymakers came to understand and respond to ongoing demographic change. Specific dimensions of these intertwined stories include an exploration of historical economic-population equilibrium, the transfer for health and contraceptive technologies from developed to developing countries, the discovery of the population explosion, the Green Revolution, the population control movement, heavy-handed family planning programs in some developing countries (particularly China), the economics of the "birth dearth," and the relationship between population growth and environmental degradation at local and world scales.



BROWN