HISTORY OF SCIENCE SOCIETY

HSS ANNUAL MEETING
17-20 November 2022

SUSTAINABILITY, REGENERATION, AND RESILIENCY

CHICAGO, IL
USA
Drake Hotel
001. HSS Executive Committee Meeting  
HSS Annual Meeting  
Business Meeting  
9:00 to 12:00 pm  
Drake Hotel: Floor Mezzanine - Erie  
Chair:  
Fa-ti Fan  
Participants:  
Gwen Kay, SUNY Oswego  
Luis Campos  
Matthew Shindell, Smithsonian National Air and Space Museum  
Rebekah Higgitt, National Museums Scotland

002. HSS Council Orientation  
HSS Annual Meeting  
Business Meeting  
12:00 to 1:00 pm  
Drake Hotel: Floor Mezzanine - Parkside

003. Troubling Temporalities: Approaches to Narrating and Historicizing Deep Time  
Roundtable  
12:30 to 2:00 pm  
Drake Hotel: Floor Mezzanine - Georgian  
How have pollen, ice, tusks, and scallops been constructed as natural chronometers, and how might their study unlock new insights for telling planetary histories? What scales—temporal, geographic, cosmological—might allow us to tell these kinds of stories? What kinds of historical evidence have been used to construct chronologies or demarcate boundaries on the planetary scale? How have forces of historical and geological contingency shaped the Earth sciences as they are practiced today, and what happens when historical and geological periods begin to overlap? Considering earth or planetary history as a case of both history through science, history with science, and classically a history of science, this roundtable seeks to trouble some of our methodological assumptions about the nature of history and deep time.  
Session Organizer:  
Laura Martin, Williams College  
Participants:  
Perrin Selcer, University of Michigan  
Alexis Rider, University of Pennsylvania  
Melissa Charenko, Michigan State University  
Emily Kern, University of Chicago

004. Vernacular Sciences in Asia  
Organized Session  
12:30 to 2:00 pm  
Drake Hotel: Floor Mezzanine - Huron  
The histories of science, technology and medicine in Asia have been dominated by the analysis of hegemonic languages such as Classical Arabic, Chinese, and Sanskrit. This focus has meant that our stories have disproportionately emphasized civilizational sciences and scholarly elites. Occasionally, these civilizational sciences have been shown to travel and translate across cultural borders. But our big-picture stories of global science have missed a lot. This panel brings together scholars who are working to rethink these narratives by turning to vernacular sciences in pre-modern Asia. A focus on vernacular sciences presents a novel set of questions that are rarely asked of materials from Asia. It allows scholars to think about linguistic, epistemic and political questions together. It provides the possibility of working across unexpected scales that are excluded from national or civilizations frames. And it allows scholars to think about local actors who practiced different forms of “sustainability, regeneration, and resiliency” in the face of dominant intellectual and political structures. Our panel includes historians of Asia specializing in science, technology and medicine, who explore the vernacular sciences that existed always alongside and sometimes in opposition to hegemonic languages. Individual papers will discuss projects carried out in Braj Bhasha, Kannada, Korean and Manchu.  
Participants:  
Epistemic Vernaculars of Early Modern Korea: Skill and Script in the Military Workshops Hyeok Hweon Kang, Washington University in St. Louis  
Was the Qing court’s Manchu scholarship vernacular science? Mårten Söderblom Saarela, Academia Sinica; He Bian, Princeton University  
Small is a Big Thing of the Past: Making Local Knowledge and Predicting the Weather in Southern India Eric Moses Gurevitch, University of Chicago  
Treating Venereal Diseases in the Vernacular: A Case Study from Early Modern South Asia Sonia Wigh, Independent Scholar  
Session Organizer:  
Hyeok Hweon Kang, Washington University in St. Louis  
Chair:  
Michael D. Gordin, Princeton University

005. Historiography of Science: From Theory to Practice  
Contributed Paper  
12:30 to 2:00 pm  
Drake Hotel: Floor Mezzanine - Michigan  
Participants:  
Before Sarton: Aksel Josephson’s "A List of Books on the History of Science" Zachary Barr, The University of Chicago  
Introducing a Multi-layered Edition for Science Classics Eunsou Lee, KAIST  
The Historiography of Science in Latin America in the 1980s and 1990s: The Challenges of “Reception” Marcos Cueto, Fiocruz, Brazil  
Positivists and Pragmatists on Science, Knowledge, and Non-Cognitive Grasping Parysa Clare Mostajir, University of Chicago

006. Geo-Resources in the Early Modern World  
Roundtable
Roundtable
12:30 to 2:00 pm
Drake Hotel: Floor Mezzanine - Superior

Geo-resources and the impact of their exploitation on social and natural systems are key concerns for communities around the globe in our present moment of anthropogenic climate change and accelerating environmental degradation. This roundtable seeks to add historical depth to the transdisciplinary conversation about resources, labor, and the environment by rooting it in the early modern, preindustrial world. Showcasing varied sites of resource-management and -extraction from across Europe, East Asia, and Latin America, the presenters will briefly discuss their research on mercury mines in the Andes, silver mines in the Holy Roman Empire, forest management in the archipelagic Ryuku Kingdom, the pastures that supplied Rome's booming meat industry, the coastline of Baja California, and the wetlands of Italy’s Po River Valley. Consideration of these varied landscapes and workshops will open up a series of questions for roundtable participants and attendees to collectively consider: Should the early modern period be considered the origin point of today’s socially and ecologically unsustainable economic policies? Should it alternatively (or additionally) be considered a period of sustainable practices of resource management and forgotten modes of natural knowledge that may be worth recovering? Whose interests did “sustainable” practices of resource management serve? This forum will offer a productive space for conference attendees to engage substantive questions about early modern science, economy, empire, and the environment as well as methodological questions raised by the emerging connections between the history of science, environmental history, labor history, and historical ecology.

Session Organizer:
Lydia Barnett, Northwestern University

Participants:
BuYun Chen, UC Irvine
Sebastian Felten, Universität Wien, Institut für Geschichte
Lydia Barnett, Northwestern University
Renee Raphael, UC Irvine
Nydia Pineda de Avila, UCSD
Bradford Bouley, UCSD

007. Oceans in Depth: Knowledge, Resources, Representations
Roundtable
Roundtable
12:30 to 2:00 pm
Drake Hotel: Floor Mezzanine - Venetian

Historians of science know how energetically oceanographers themselves constructed the identity of their field as an interdisciplinary endeavor. In 1931, for instance, the Harvard zoologist Henry Bigelow called it “a mother science, the branches of which are too intertwined to be torn apart.” It seems appropriate then to use the subject of oceans to discuss the variety of historical writing on oceans today, and the place of the traditional concerns of history of science in them. These concerns include how disciplines have formed and shifted, and whose knowledge counts; how technological mediation in an inhospitable environment for human life shapes our understanding; how scientific, economic and geopolitical ambitions are interwoven; and the importance of myth, art and imagination for all these ambitions. Contributors to this roundtable are Natalia Gandara on nineteenth-century naturalists’ encounters with South American kelp forests; Alison Glassie on selkies, feminism and extinction narratives in the Gulf of Maine; Katherine Sinclair on the subantarctic Kerguelen islands and French sovereignty in the Cold War; Jonas Rüegg on ecological and interregional concepts of the maritime in Japan; Kimia Shah on the visual epistemologies of nineteenth-century American painters; and Katharine Anderson on 1920s scientific internationalism at sea. As environmental crises increasingly focuses attention on oceans, it is critical to explore the complex knot of our shared historical questions.

Session Organizer:
Katharine Anderson, York

Chair:
Helen Rozwadowski, University of Connecticut Avery Point

Participants:
Katherine Sinclair, Rutgers University
Alison Glassie, Mahindra Humanities Center, Harvard University
Rüegg M. Jonas, Harvard University (until May, 2022); The University of Zurich (starting June 2022)
Kimia Shahi, Harvard University Center for the Environment
Natalia Gandara, Pontifical Catholic University of Valparaíso (Chile); John Carter Brown Library (USA).
Katharine Anderson, York

008. HSS Council Meeting
HSS Annual Meeting
Business Meeting
1:00 to 5:00 pm
Drake Hotel: Floor Mezzanine - Parkside

009. Engravers and Engraving: Visions of Natural Philosophy in Early Modern Europe
Organized Session
Organized Session
2:30 to 4:00 pm
Drake Hotel: Floor Mezzanine - Georgian

The role of engraved imagery in early modern science has gained attention in recent historiography. Engravings appeared in printed books in many forms, ranging from allegorical frontispieces and liftable flaps to drawings and diagrams. They served a multitude of functions in the transmission, consolidation, and contestation of scientific knowledge. Engravings were used as pedagogical aide-mémoire, provided expositions of mathematical formulas or physical phenomena, and served up diagrams attesting to the marvels of nature, including the anatomies of humans, animals, and plants. While some engravings complemented their textual counterparts, others served as stand alone components intended to be interpreted without the aid of text. This panel
showcases and problematizes the many forms and functions of engravings in early modern science. We pay special attention to the dynamic interplay between engravers, engravings, and the authors and consumers of printed books, including the diverse institutional, cultural, and religious landscapes in which images were produced and circulated, while attending to the materiality of engravings and the embodied work of the engraver-as-artisan. Each of the three presenters will address these themes through a different case study. While Hannah Wiepke takes up the nexus of the material, medical, and theological in analyzing Johann Remmelin’s seventeenth-century flap anatomies, Katherine Reinhart examines the diverse ways engraved images functioned for early scientific societies. Margaret Carlyle’s paper rounds out the panel with an examination of the “invisible” female engravers whose technical-artistic expertise contributed to the visualization of Enlightenment science.

Participants:

Engraved Visions: The Sacred Anatomized Body in Johann Remmelin’s Catoptrum Microcosmicum Hannah Wiepke, University of Minnesota
Intaglio Inquiries: Scientific Academies & The Engraved Image Katherine Reinhart, SUNY - Binghamton
Women at the Margins of the Printed Page: Engraving Science in Enlightenment France Margaret Carlyle, University of British Columbia Okanagan

Session Organizer:
Margaret Carlyle, University of British Columbia Okanagan
Chair:
JB Shank, University of Minnesota
Commentator:
Suzanne Karr Schmidt, Newberry Library

010. Environmental (In)Justice: Imperial Hegemonies and their Neoliberal Legacies
Contributed Paper
Contributed Paper Session
2:30 to 4:00 pm
Drake Hotel: Floor Mezzanine - Huron
Participants:

Settler rats and imperial sewers: urban environmental justice from below Josh Levy, Library of Congress
Imported Garbage, Colonial Legacy and Global Capitalism: Environmental Injustice in Indonesia Pratama Yudha Pradheksa
*Job-Killing Regulation*: Policy Science, Deindustrialization, and Neoliberal Anti-Environmentalism Erik Baker, Harvard University

The proposed session is sponsored by the International Association for Science and Cultural Diversity (IASCUD) and brings together case studies wherein scientific knowledge grew, not in spite of disagreements between scientists and mathematicians, but precisely because the participants involved disagreed. Recently, Massimi (2021) has suggested that productive scientific disputes often center on big picture questions such as justificatory principles or methodological points of view, rather than on scientific knowledge claims themselves. By bringing together case studies of scientific disagreement from different scientific disciplines, including algebra, biochemistry, computer science, and physics, the session seeks to interrogate this distinction between general methodology, on one level, and specific knowledge itself, on another level. Further, Pronskikh and Sorina (2021) argue that in teaching methodological strategies to future scientists, one should not only focus on consensus but also show students how conflict can be useful. By discussing productive scientific disputes, we not only develop insight into how scientific knowledge is cultivated over time, but also generate case studies to share when training future scientists.

Participants:

Solving the Cubic Equation Peeter Müürsepp, Tallinn University of Technology
The Oxidative Phosphorylation Disputes in Biochemistry, From intuitive judgements to productive disputes: Philosophical education of future scientists Vitaly Pronskikh, Fermilab; Galina Sorina, Lomonosov Moscow State University

Session Organizer:
Madeline Muntersbjorn, University of Toledo
Chair:
Madeline Muntersbjorn, University of Toledo

012. Between Natural and Human Histories
Organized Session
Organized Session
2:30 to 4:00 pm
Drake Hotel: Floor Mezzanine - Superior
It is well-established that modern Western practices of natural and human historiography emerged fairly simultaneously—and in explicit conversation—during the late 18th and 19th centuries. As Martin Rudwick, Paolo Rossi, Peter Bowler, and other historians have shown, conventions of historical periodization, standards of empirical evidence, conceptual understandings of temporal causality, and other central features of historical reasoning and interpretation were co-constructed across disciplinary contexts ranging from antiquarianism, emerging European (German and British) schools of historicism, geology and paleontology, ethnography and archaeology, evolutionary biology, and other areas. What is less well-studied, though, is how cross-disciplinary historical “imaginations” have continued to inform social, cultural, and intellectual understandings of history and historicity up through the present. This panel gathers four papers that explore specific cases of negotiation and co-construction of human and natural historical imaginations across disciplinary spheres in 20th century biology and earth sciences. Elena Aronova examines the feedback loop between the “genographic” project of the Soviet biologist Niko-
lai Vavilov during the 1920s and 1930s (which attempted to correlate the genetics of domesticated plants with study of the history of agricultural societies), and the later emergence of the French Annales school, which drew heavily on Vavilov’s genogeography. Isabel Gabel looks at how molecular biology in France was perceived by liberal and Marxist intellectuals as an unwelcome resurgence of Hegelian idealism, and argues that this political and scientific context is central to understanding the significance of radical historicism in the 1960s and 70s. David Sepkoski explores the constructions of distinct “imaginaries” that informed both biological and political discourses about extinction at key moments of 20th-century crisis, arguing that extinction has always served as a cultural/scientific trope connecting visions of the past with anxieties about the future. Finally, Sophia Roosth takes an anthropological perspective on the recent study of microbial “holobionts” (colonial microbial assemblages) in the context of postcolonial theory, suggesting ways in which analytical categories of human historiography offer insights into ongoing narratives of futurity in environmental science. Overall, this session encourages historians to consider the ways in which co-construction of natural and human historiography has shaped in the past, and continues to shape, cultural imaginations of temporality and historicity.

Participants:
- Bridging Biology and History: the Annales and the Vicissitudes of Soviet Genogeography
  Elena Aronova, University of California, Santa Barbara
- Biology and Critique: Jacques Monod and the Fate of Hegel in France
  Isabel Gabel, University of Chicago
- Geo-Eschatology and the Anthropocene
  David Sepkoski, University of Illinois
- The Fluent Sculpture of Time
  Sophia Roosth, NYU/Max Planck Institute for History of Science

Session Organizer:
- David Sepkoski, University of Illinois

Chair:
- Mark Borrello, University of Minnesota

013. Arctic Materialities: Objects, Collections, and Knowledge in and of the Far North

Organized Session
Organized Session
2:30 to 4:00 pm
Drake Hotel: Floor Mezzanine - Venetian

In his 2017 distinguished lecture at the annual HSS meeting, Sverker Sörlin diagnosed a “northern turn” in the history of science. Responding to a recent flurry of humanities scholarship on the Arctic, Sörlin noted that “the north,” broadly conceived, brought issues of fundamental importance in the history of science and our world at large to the fore, among these often overlooked actants. In this spirit, this panel takes material culture as a lens through which to examine histories grounded in the nineteenth- and twentieth-century Arctic that each have broader implications for how we narrate history. We begin with object-based case studies - from natural history collections and scientists’ personal archives, to paper correspondence and expedition relics - and ask: How do objects help us transcend traditional histories of science, imbued with tropes of discovery and heroic masculinity? How can they help us navigate questions of scale, environment, and agency? And what obligations do settler scholars have to contemporary Indigenous communities whose lives their work touches? In a world throttled by anthropogenic climate change and with global attention focused on the Arctic, how do we write useful or usable Arctic histories? This panel aims to show that, far from being marginal to the history of science, attention to the far north and material culture can help us create, in Sörlin’s words, “meaningful narratives to assist our troubled navigation.”

Participants:
- The Natural Science of Human Culture: Naturalized Data in Ancient Migration Research on the Strait, 1865-1907
  Brooke Penaloza-Patzak, University of Pennsylvania / University of Vienna
- “Exploration Was Already a Joke When I Came to Canada”: Archiving and Objects in the Making of a Scientific Legacy
  Sarah Pickman, Yale University
- “Disappointed at Finding Nothing”: Failures of Inscription in the Polar Expeditions of Franklin and Cook
  Allegra Rosenberg, NYU
- “The Saddest of Membra Disjecta”: 19th Century Arctic Exploration and the Body as Object
  Eva Molina, Princeton University

Session Organizer:
- Sarah Pickman, Yale University

Chair:
- adriana craciun, Boston University

014. HSS Listening Session

HSS Annual Meeting
Sponsored Session
4:30 to 5:30 pm
Drake Hotel: Floor Mezzanine - Venetian

Session Organizer:
- John Paul Gutierrez, History of Science Society

Chairs:
- Fa-ti Fan
- Gwen Kay, SUNY Oswego
- Luis Campos,
- Rebekah Higgitt, National Museums Scotland
- Matthew Shindell, Smithsonian National Air and Space Museum

015. Science, the State, and Second Nature

Opening Plenary
6:00 to 7:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom

How have states functioned as agents of environmental change? What governing logics inform the postures their experts have taken toward ecological systems and natural resources? In what ways have science and technology been mobilized by states to mediate their relationship to nature? Our panel takes up these questions through case studies drawn from twentieth-century China, Brazil, Lebanon, and India. Victor Seow begins from the premise that the modern
state is best thought of as a state of second nature: environmental change has been intrinsic to its form and function. Looking at China in both the Mao era and closer to the present, he contends that this characterization spans the political spectrum and is not merely a feature of the so-called capitalist state. Matthew Johnson explores how, in the face of a domestic environmental movement, the military dictatorship in Brazil came to appropriate claims of scientifically informed environmental stewardship even as it backed dam-building projects that yielded seriously negative socio-environmental impacts, undermining the elusive search for sustainability. Through the contestation between Lebanese and French engineers over Lebanon’s largest river, the Litani, Owain Lawson explores how notions of waste and efficiency became central to colonial and postcolonial claims of territorial sovereignty, in ways that increasingly privileged financial waste over material waste. Finally, Elizabeth Chatterjee shows how the electrified irrigation pumpset in India to show how farmers were able to outmaneuver state technocrats as they secured subsidized electricity from the state. Unsettling top-down narratives of state expansion, she foregrounds bottom-up drivers of envirotechnical change in the interstices of state policy. Together, these papers aim to bring the state back in as the central actor and locus of contestation in the modern history of science, technology, and environmental change.

Participants:
States of Second Nature Victor Seow, Harvard University
Pharaonic Environmentalism: Dam Building and Superficial Efforts at Socio-Environmental Protection in Authoritarian Brazil, 1960s–1980s Matthew P. Johnson, Harvard University Center for the Environment
Wasted into the Sea: Efficiency, Sovereignty, and Lebanon’s Litani River Owain Lawson, Oberlin College
Democracy’s Second Nature: India’s Green Revolution from the Underground Up Elizabeth Chatterjee, University of Chicago

Session Organizer:
Victor Seow, Harvard University
Chair:
Fredrik Albritton Jonsson, The University of Chicago
Commentator:
Fredrik Albritton Jonsson, The University of Chicago

016. HSS Opening Reception
HSS Annual Meeting
Reception
7:30 to 9:00 pm
Drake Hotel: Floor Lobby - Camellia

017. HSS Chair’s Breakfast
HSS Annual Meeting
Business Meeting
7:30 to 8:45 am

018. Forum on the History of Chemical Sciences (FHCS)
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Astor

019. Forum on the History of Health, Medicine, and Life Sciences
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Lobby - Drake

020. Early Science Forum
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Florentine

021. HSS Member Orientation
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Florentine

022. Forum on the History of Mathematical Sciences
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Georgian

023. Forum for the History of Human Science Distinguished Lecture
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Lobby - Grand Ballroom

FHHS welcomes historians of the human sciences, broadly defined, to attend a distinguished lecture and celebrate emerging work in this field. Two awards will be presented: the FHHS/JHBS John C. Burnham Early Career Award and the FHHS Dissertation Prize. Elections will be held for FHHS officers.

024. Earth & Environment Forum
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Huron

025. Visualizing Nature
Contributed Paper
Contributed Paper Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Michigan

Participants:
Four Seasons of Fuchs Eunsoo Lee, KAIST; Kyung Taek
026. Forum on the History of Science in Asia (FHSA)
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Parkside

027. Scientific Animals and Nations
Roundtable
Roundtable
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Superior

Animals are a favored form of national representation. In the last century, national governments loomed increasingly large in funding life sciences. At the intersection of animal symbolism and pursuits of scientific knowledge, a few animal species, such as the American cow, the Chinese panda, various Japanese ornamental fish, and Australian indigenous animals, as both scientifically important for fundamental issues in biology, and economically or culturally important for national regeneration and sustainability. Such presentations of animals as both for science and for the nation had wide-ranging consequences, often creating centers of knowledge production that concentrated resources, altered the trajectories of biological subfields, and in turn changed the fate of these animals and their nations. This roundtable, by bringing scholars researching about animals in diverse contexts that highlight knowledge production and the nation, explores the significance and the varied historical expressions of animals between modern science and the nation. E. Elena Songster discussed how classification and ecological debates became interwoven into the rise of giant panda as a national symbol for contemporary China. Nicole Welk-Joerger explores the complicated place of agricultural bovines as symbols of sustainability in the US. Lijing Jiang explores how the Japanese rice fish was constructed as a model for genetics and organismal development in twentieth-century Japan. Rachel Ankeny comments on how the local significance of native animal research in Australia is used to promote global recognition. Together, we ask what new insights we can gain from taking the nation seriously while thinking with scientific animals.

Session Organizer:
Lijing Jiang, Johns Hopkins University

Participants:
Rachel Ankeny, University of Adelaide
E. Elena Songster, Saint Mary's College of California
Nicole Welk-Joerger, University of Wisconsin, Milwaukee
Phillip Hohenberger, University of Nevada, Las Vegas

028. Physical Science Forum
HSS Annual Meeting
Sponsored Session
9:00 to 10:30 am

029. Childish Subjects: Twentieth Century Clinical Studies of Children
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Astor

Participants:
Hope for Jack Yet. Or, Healy-ian case studies and early 20th century attempts to engineer delinquent kids. Daniel Gibboney Jr, University of North Carolina at Chapel Hill

Interwar child guidance in philanthropic and transatlantic perspective Hannah Blythe, University of Cambridge

Mobilizing Taiwanese Children as Experimental Subjects in the Postwar International Health Campaigns against Trachoma, 1954-1967 Hsinyi Hsieh, University of California, San Francisco

030. Human Descent and Evolution Across Scientific and Popular Literatures in Eighteenth and Nineteenth-Century Britain
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Lobby - Drake

With the 150th anniversary of its publication in 2021, Charles Darwin’s Descent of Man, and Selection in Relation to Sex has attracted renewed attention from historians of science. Scholars such as Evelleen Richards, James Moore, and Adrian Desmond have shown how Darwin drew on ideas from a wide breadth of personal experiences, genres, and disciplines, in some cases, reaching back into the eighteenth century. The vision of human evolution that emerged argued for human’s physical, moral, and intellectual continuity with “lower animals” and offered explanations for gendered and racial hierarchies that suffused British life at the height of the British Empire’s global reach. Likewise, evolutionary science itself ramified through Victorian popular culture, as scholars such as Kimberly Hamlin, Bernard Lightman, and James Secord have explored. Evolutionary ideas were hotly debated across periodicals; discussed in homes, clubs, and public lectures; and re-interpreted through cartoons, children’s books, and novels. This panel brings together these threads, tracing the manifold movements of ideas of human descent through scientific and popular (or popularizing) forms of eighteenth- and nineteenth-century literature. Keeping in mind that the boundaries between scientific and popular were always under construction, we explore how writers such as Joseph Banks, Arabella Buckley, Alfred Russel Wallace, and Darwin himself shaped how readers understood the qualifications of scientific observers; interactions between humans on a global scale; and relationships between humans and their environments in the age of British imperialism. Readers, in turn, actively appropriated what they read, crafting visions as varied as they themselves were.

Participants:
Illustrating Human Evolution: Wonder, Extinction, and...
Love in Victorian Children’s Literature Elizabeth Yale, University of Iowa
Roots of Consciousness: Darwin’s plant studies and human descent Tina Gianquitto, Colorado School of Mines
Inheritance, Class and the Practice of Natural History, 1760–1820 Edwin Rose, Darwin College, University of Cambridge
Wallace and Darwin on Human Evolution: Competing Visions of Race and Gender and Their Influence on Science and Society James T. Costa, Highlands Biological Station, Western Carolina University

Session Organizer:
Elizabeth Yale, University of Iowa
Chair:
Elizabeth Yale, University of Iowa

031. The Soul of the Machine: Computers and Intelligence
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Erie
Participants:
Face Recognition Software and Machine Translation: Why Computers aren’t People Sharrona Pearl, Drexel University
Hacking the Real World: Robots and Manufactured Spaces in Early AI Salem Elzway, University of Michigan
Turtles, Tablets, and Boxes: Computer Technology and Education in the 1970s Elizabeth Petrick, Rice University

032. GECC CV Review
HSS Annual Meeting Workshop
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Florentine
Session Organizers:
Michael McGovern, Princeton University
Taylor Elizabeth Dysart, University of Pennsylvania

033. Settlement and Survival
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Georgian
This panel contributes to a discussion of “settlement and survival.” We consider how the two concepts are deeply interconnected across geographies and temporalities. From studies of empire and colonization that consider “survival” as part of the rhetoric of imperialism, to reimaginings of “settlement” in the context of spaceflight, this panel engages ideas about futures, and futures past. How can ideas “survivability” address the ways that “sustainability” has become increasingly normative, passive, and toothless in discussions of a future that demands immediate action. The historical and critical perspectives we offer on this topic speak to the danger and precariousness of our present. How can studies of scientific and technological imaginaries of sustainable survival, and the problematic of settlement—colonization, displacement, migration, mobility, and placemaking—illuminate paths forward into an uncertain future? How do scientific conceptions of survival and its imperatives animate acts of displacement and dislocation, and whose survival is prioritized in moments of turmoil? We approach these questions as matters of scientific and technical authority, knowledge creation, and sociotechnical imaginaries.
Participants:
Advertising the Impossible Earth: The Visual Culture of Post-Apollo Space Colony Concept Art Rebecca Marcolina, University of Oklahoma
Canaries, Camouflts, and Carbon Monoxide: “Proto Man” and Oxygen Breathing Apparatus in Britain’s Tunneling War 1915-1918 James Esposito, The Ohio State University
Toward a More Perfect Union: Cement Chemistry & Engineering in the Modern United States Kirke Elsass, Montana State University

Session Organizer:
Nathan Kapoor, Illinois State University
Chair:
Anna N Reser, University of Oklahoma

034. FUTURES: Digitizing and Decolonizing Collections.
Challenges and Experiences
Futures Roundtable
Futures Roundtable
11:00 to 12:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom
Many collections-based institutions have embraced large-scale digitization projects as a means of reckoning with the legacies of colonialism and extractivism that permeate their holdings. Such projects promise to expand public access and transparency, but they have also prompted curators, librarians, archivists, and other scholars to reexamine their catalogs and finding aids. Their efforts have prompted critical discussions about the ownership and display of contested objects, as well as debates over reparations. This roundtable will examine what it means to decolonize a collection and how ongoing digitization projects at libraries, museums, and archives have approached these questions.

Session Organizer:
Catarina Madruga, Museum für Naturkunde Berlin
Chairs:
Catarina Madruga, Museum für Naturkunde Berlin
Adrianna Link, American Philosophical Society

Participants:
Anita Guerrini, Oregon State University, and University of California Santa Barbara
Nuala Caomhanach, New York University/American Museum of Natural History
Elena Canadelli, University of Padova
Adrianna Link, American Philosophical Society
Catarina Madruga, Museum für Naturkunde Berlin

035. Natural Philosophy in Early-Modern Europe
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Huron
Participants:
The rise and fall of a natural philosopher in Russia’s Age of Reason Reut Ullman, Columbia University
A Space for Vitruvian Science in the Mid-Sixteenth Century Steven A Walton, Michigan Technological Society
Boyle’s Engines: Elements, Fluids, Analogies, and the Organic Fabric of the Mechanical World Victor Boantza, University of Minnesota
Mining Fossils. Natural History, Labor, and the “European Indigenous” in Eighteenth-century Italy IVANO DAL PRETE, Yale University

036. Evolution, Cosmology, and Empire
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Michigan
Participants:
Radical artisans, divine design, and evolution in Britain, 1819-36 Jonathan Topham, University of Leeds
"Potential in the Fires of the Sun": The Universal Scope of Nineteenth-Century Evolutionism Jennifer Daly, Stanford University
The Dawn of Science as Cultural Authority in China: Tianyanlun (On Heavenly Evolution) in the Post-1895 Debate over Preserving China’s Dogma Sean Hsiang-lin Lei, Academia Sinica Taiwan

037. Biological Lynndividuality
Roundtable
Roundtable
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Parkside
As a historian of the life sciences, Lynn Nyhart has helped the history of biology take form, both through her publications and her collaborations and mentorship. Central to Nyhart’s scholarship is biological organization, from the connections between civic and economic zoology to the conundrum of what makes an individual. When scientists look at dynamic structures – whether in the organization of cells, the politics of organisms, the circulation of ideas, or the rise and fall of institutions – how do they distinguish the parts from the whole? After decades of program-building at Wisconsin and fostering community in the profession (including serving a term as President of the History of Science Society), this roundtable offers six short talks on her work and pedagogy by scholars who have been shaped by her guidance. Mixing personal reflections with historiographic perspective, this roundtable offers an ontogeny and phylogeny of Nyhart’s work, seeking as historians to find the whole among the parts. Collectively, we show how significant her contributions have been to the core themes of this conference, including biodiversity, environmental sciences, teaching, and work/life balance. Erika Milam: “The Publics and Practices of Modern Nature.” Patrick Walsh: “Teaching with (ny)Hart” Emily Hutcheson: “Nyhart’s Oceanic Turn: Genre, Ecology and ‘Life in the Ocean’” Judy Kaplan: “Individuality across the Disciplines” Daniel Liu: “Battling over ‘Wissenschaft und Kunde’” Michael Robinson: “What’s New in Nyhart’s ‘New Biology’”
Session Organizer: Emily S Hutcheson, UW-Madison
Chair: Judy Kaplan, University of Pennsylvania
Participants:
Erika Lorraine Milam, Princeton University
Patrick Walsh, UW-Madison
Daniel Liu, LMU-München Historisches Seminar
Michael Robinson, Professor of History

038. Medical Trash: Ecologies of Health and Waste
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Superior
These papers address the intersection of medicine, technology, and waste, asking not only how waste becomes the subject of sciences of public health and medicine but also how medical technologies become waste themselves.
Participants:
Syringe Tide: Disposable Technologies and the Making of Medical Waste Jeremy Greene, Johns Hopkins University
The Ecology of Medical Waste in Scandinavian Medicine Anne Kveim Lie, University of Oslo
How PM2.5 Became a Cause of Death, and a Matter of Concern David S Jones, Harvard University
Rodents, Rubbish and Responsibility in a “Renaissance” City Graham P Mooney, Johns Hopkins University

039. Meteorology in Context: Weather, Health, and Climate Change
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Venetian
Participants:
Toward an Astrometeorological Theory of Global Climate: John Goad’s Weather Notebooks, 1652-1682 Justin Niermeier-Dohoney, Max Planck Institute for the History of Science
Weathering disease: The meteorology of medicine in treaty-port China Francis Aidan Newman, Harvard University
Lessons from the History of Meteorology for Utilizing Earth System Science (ESS) in Climate Communication Sky Michael Johnston, Wheaton College
...Climate Scientists Assessing Early International Policies on Climate Change: The Case of Bert Bolin

040. Osiris: Translating Medicine Across Premodern Worlds
Roundtable
Roundtable
12:45 to 1:45 pm
Drake Hotel: Floor Mezzanine - Parkside
Research located at the nexus of medicine and translation deals with some of the fundamentals of human experience: the basic drive to survive and flourish and the urge to gather and to share information that might assist in this. Using a series of case studies ranging from ninth-century Baghdad, to fourteenth-century Aragon, to seventeenth-century Cartagena, to nineteenth-century Bengal, Osiris volume 37 (2022) weaves together an interconnected, long-view history of the translation of medicine. The geographically and temporally diverse contexts of our case studies explore common themes and divergent experiences, connected by our historical actors' varied endeavors to “translate” knowledge about health and the body across languages, practices, and media. Collectively, we offer a new approach to histories of knowledge, relocalizing and deconstructing traditional narratives, and de-emphasizing well-worn dichotomies.
Session Organizer: 
Elaine Leong, University College London
Chair: 
Myrna Perez Sheldon, Ohio University
Participants:
Pablo F. Gómez, UNIVERSITY of WISCONSIN–MADISON
Hansun Hsiung, Durham University
Elaine Leong, University College London
Projit Bhari Mukharji, University of Pennsylvania
Ahmed Ragab, John Hopkins University
Alisha Rankin, Tufts University

041. Communicating Science: From Periodical to Popular Science Book
Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Astor
Participants:
What Nineteenth-Century Arctic Expeditions Tell Us About Scientific Journals and Their Editorship Anna Gielas, University of Cambridge
Drawing Down the Moon: The nineteenth century history of the moonscape Martin Bush, University of Melbourne
Popularisation of Geology in Colonía India- Insights from Vernacular Literature Urmila Unnikrishnan, Independent Scholar
Makers of an Improbable Future: How Technocracy Connected the Politics and Science of Three Scientist Luis Felipe Eguiarte Souza, University of Minnesota

042. Women Writing Science: Translations and Popularizations in the Long Nineteenth Century
Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Floor Lobby - Drake
Participants:
Madame Lavoisier’s Translation of Richard Kirwan’s “Essay on Phlogiston” Liz Kambas, Indiana University-Bloomington
Science, Women, and the Mother Tongue: Translating Knowledge in the 19th Century Alan Rauch, UNC Charlotte
Water and Coal: Sustainability in 19thC Information Books for Children Elizabeth Fabry Massa Hoiem, University of Illinois at Urbana-Champaign

043. Natural Philosophy, Evolution, and Science Education
Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Erie
Participants:
Replacing STEM with Natural Philosophy: the Confluence of the Sciences and the Humanistic Modes of Thought in Chemistry and in Mathematics Deepanwita Dasgupta, The University of Texas at El Paso
Inquiry teaching of a case described in the different editions of the "Origin of Species" Maria Elice de Brzezinski Prestes, University of Sao Paulo; Gerda Maisa Jensen, University of Sao Paulo
Evolution and secularism in Mexico Erica Torrens, Universidad Nacional Autonoma de Mexico; Ana Barahona, Universidad Nacional Autonoma de Mexico

044. Deconstructing the “Psychedelic” and its Sciences from Latin America
Organized Session
Organized Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Georgian
“Deconstructing the ‘Psychedelic’ and its Sciences from Latin America” contributes to and complicates the existing and emerging scholarship on so-called “global psychedelics,” by calling into question whether “psychedelic” is itself a global phenomenon. Alongside the resurgence scientific studies of psychedelics in the North America and Europe, there has been growing historical attention paid to the history of psychedelic sciences (Dyck 2008; Langlitz 2013; Oram 2018; Richert 2019); with a few exceptions (Breen 2022; Jay 2019), much of this historical scholarship has remained focused on North America and Europe and has yet to fully consider whether and how the “psychedelic” exists in the Global South. Collectively, these three papers center Latin America as a crucial site in which knowledge of and relations to the “psychedelic” have been forged, contested, and rendered multiple (Mol 2002). The panel begins in the mid-nineteenth century, where Marco A. Ramos begins his reconstruction of how botanists, anthropologists, and psychiatrists...
encountered ayahuasca in the Amazon. Drawing from recent work in Indigenous studies and biomedical sciences, Ramos explores how twenty-first-century scientists’ claims to a shared Indigenous past were built on ongoing harm towards Amazonian communities, ecologies, and knowledge. Taylor E. Dysart picks up in the Brazilian Amazon where Ramos ends, in the late twentieth century where researchers undertook studies of hoasca, commonly referred to as a Portuguese translation of ayahuasca. Inspired by post-colonial science studies, Dysart takes the case study of the “Hoasca Project” to demonstrate how hoasca was variously co-constituted by an asymmetric network of human and non-human actors, practices, and knowledges. The panel ends in the field with Estrella V. Castillo, whose work demonstrates that the lingering history of the “psychedelic” is one that never gained traction amongst Indigenous and xicanx imbiers of peyote. Her research compellingly invites scholars to consider what is lost in the process of “psychedelicization”? Gabriela Soto Laveaga, a Professor of the History of Science and Antonio Madero Professor for the Study of Mexico at Harvard University, will provide commentary.

Participants:
- Ayahuasca, Whiteness and the History of Psychedelic Science
  Marco A. Ramos, Yale University
- How Hoasca Makes: The União do Vegetal and the Hoasca Project in the Brazilian Amazon
  Taylor Elizabeth Dysart, University of Pennsylvania
- What Has Been Lost in the “Psychedelicization” of Hikuri (Peyote)?
  Estrella V. Castillo, Yale University

Session Organizer:
- Taylor Elizabeth Dysart, University of Pennsylvania

Chair:
- Gabriela Soto Laveaga, Harvard University

046. Expanding the Scope of Late Renaissance Medicine and Anatomy
Organized Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Huron

Later Renaissance physicians and anatomists increasingly moved into new cultural debates and practices in post-Reformation Europe, and adopted knowledge, materials, and techniques from a variety of sources, from New World Indigenous peoples to chymical authors, empirics, and their own contrived experiences and experiments. Scholars have increasingly realized that this was not a stale period of rigid Galenism or bookish pedantry, but what was the scope of learned medicine from the several decades around 1600? This session moves from pedagogy at a new and increasingly popular medical school at Leiden University, to Venetian physicians’ philosophical-theological interventions in the care of patients’ souls and minds at times of their deaths, to a Jesuit priest's anatomical-optical reconstruction of experience to include novelties and set-piece experiments within an Aristotelian axiomatic science. These papers present new research that demonstrates the productive tension between tradition and innovation in the medicine of this time, and points to future directions.

Participants:
- Death in Venice: the Role of Physicians in the late Renaissance
  Cynthia Klaesiniec, Miami University
- Sources of Knowledge and Practice in Early Modern Medical Education:
  Leiden University, 1575-1640
  Evan R Ragland, University of Notre Dame
- Christoph Scheiner’s The Eye, That is, The Foundation of Optics (1619) and Aristotelian Experimental Methods
  Tawrin Baker, University of Notre Dame

Session Organizer:
- Evan R Ragland, University of Notre Dame

Chair:
- Evan R Ragland, University of Notre Dame
Animal Knowledge Farther Afield: Menageries, Breeding Colonies, and Cities in the History of Animal Science

Artisans Under Stress: Epistemological divides in the demarcation of Tordesillas (1494) José Maria Moreno Madrid, Centro Interuniversitário de História das Ciências e da Tecnologia (CIUHCT) / University of Lisbon; Henrique Leitão, University of Lisbon

Cure to Quell: Medicine, Body, and Military Technology in Early Modern China Chang Xu, Washington University in St. Louis

Harsh winters and epidemics: Crisis and resiliency in the early modern pharmacy Valentina Pugliano, Massachusetts Institute of Technology

American Chimpanzees: Caretaking Practice and Reproduction in the Establishment of a U.S. Chimpanzee Colony, 1913 - 1940 Brigid Prial, University of Pennsylvania

Creating the Mercury 13 Veronica Tuthill, Georgia Institute of Technology

The Emergence of Observational Astronomy in Colonial America: Late 17th century to the late 18th century Tofigh Heidarzadeh, University of California, Riverside

Capturing the Stars: The Untold History of Women at Yerkes Observatory, 1900-1930 Kristine Palmieri, University of Chicago

Astro-Activism: A History of the Movement for Diversity and Inclusion in Modern Astronomy Jörg Matthias Determann, Virginia Commonwealth University

Creating the Mercury 13 Veronica Tuthill, Georgia Institute of Technology

A Cultural History of Chemistry: Putting the Series to Work for Historians of Science

This roundtable brings together several authors and editors of the six-volume A Cultural History of Chemistry (Bloombury, 2022) to discuss the scope and content of this new series, its place in the historiography of chemistry, and its intellectual and pedagogical uses for the broader fields of the history of science, technology, and medicine. Encompassing new work written and edited by nearly fifty historians, the series examines chemistry and its contexts from antiquity to the present, with essays addressing theoretical, experimental, laboratory, cultural, social and environmental, industrial, institutional, and artistic matters in each period. During brief presentations, speakers will discuss the span and potential impact of the series, addressing questions such as: What defining features of chemistry emerge from the perspectives taken in these volumes? What connections emerge from cultural historical investigations across two thousand years.
of history? What new scholarly avenues and research opportunities emerge from individual volumes and from the series as a whole? With a mind toward its use in the classroom, museums, podcasts, and other venues of historical practice, speakers will also be asked to consider ways historians might make use of the series, and to suggest additional resources would usefully complement it. Taking the new Bloomsbury history as a starting point, this panel asks, “How do we put it to work?” Substantial time will be set aside for audience participation. This session is organized and sponsored by the HSS Forum on the History of the Chemical Sciences (FoHCS).

Session Organizer:
Charlotte Abney Salomon, Science History Institute
Chair:
Simon Werrett, University College London
Participants:
Margaret Garber, California State University Fullerton
Alan Rocke, Case Western Reserve University
Peter Ramberg, Truman State University
Donna Bilak

051. Unsustainable Resiliency: Regenerating Failure in the History of early modern European Projects
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Astor

This year’s call for papers relating sustainability, regeneration and resiliency suggests that these three themes historically have worked in concert. This session questions that premise through the history of projects, a topic located at the intersection of the histories of science, technology, capitalism, colonialism, and the environment. Three historians of projects and a commentator explore the immense costs of frequent rebounding from crisis. Projectors continually picked themselves up from failure, cobbbling together pieces of previously unrealized plans or projects that had been attempted but had failed disastrously. The continual re-amalgamation and deployment of parts of projects (their own or others) meant that projects retried the same plans, often in new locales, with new funders, new partners, or in new combinations with a wide range of other enterprises. Such resilience supported the continuation of projects often over a very long term. It also allowed proposals to be retried in varied settings by many different hands. This attention to the regeneration of projects allows for a new understanding of the temporality of the project. Far from castles in the air that fade quickly from view, even very unlikely and failed projects remained on the horizon as continually redeployable intellectual resources. This perspective also offers an account of resiliency, might well have been the more sustainable option.

Participants:
Transplantation in early Stuart Projects and the Costs of Removal Vera Keller, OU
Perpetual Motion and Labour in the British Atlantic World: Cressy Dymock’s “Marriage of Strength and Time” (1648-60) Ted McCormick, Concordia University
Labor, energy and the power of the young in early modern projects Kelly Whitmer, Sewanee

Session Organizer:
Vera Keller, OU
Chair:
Matthew David Mitchell, Sewanee: The University of the South
Commentator:
Matthew David Mitchell, Sewanee: The University of the South

052. Resourcing and Restoring Nature
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Lobby - Drake

Participants:
Geology, Political Economy, and Settler Colonialism in the Upper Mississippi Valley, 1780-1840 Gustave Lester, PhD Candidate

A Colossal Laboratory of Soil: The Chemicalization of Fertilization in Republican China Yu Shan Chen, Harvard University

Caught in the Prairie Weeds: Plant Community Structure and the Historicist Paradigm of Restoration Ecology Andrew Mitchell Hoyt, Trent University

053. Mathematics, Measurements, and the Making of Standards
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Erie

Participants:
The Trinity House Mathematical Examiners: insights into London mathematical careers in the long eighteenth century Rebekah Higgitt, National Museums Scotland

Neither A Gentleman Nor A Scholar: Paul du Chaillu and the New Empirical Standards for Geography Oliver Lucier, Yale University

The Krypton project and the implementation of the Brazilian National Metrology Institute ALIINE DE OLIVEIRA COELHO, INMETRO / UNIVERSITY OF COIMBRA

054. HSS Poster Session
Posters
Poster Session
4:00 to 5:30 pm
Drake Hotel: Floor Lobby - French

Participants:
A Closer Look at Agnes Block's Bird Illustration: A Case
Study in Recovering the Histories of Women in Early Modern European Science Deniz Martinez, Lindenwood University

Photography and the Material Legacy of Yerkes Observatory Lauren Boege, Richard Kron, The University of Chicago; Isaiah Ramon Escapa, The Department of Astrophysics and Astronomy at the University of Chicago; Rowen Glusman


Tracing the resilience concept through the history of science and the lens of Indigenous knowledge Thi Mai Anh Tran, Michigan Technological University; Valoree S. Gagnon, Michigan Technological University

Why Historians Need Herbaria Maura C Flannery, St. John’s University, NY

Session Organizer: John Paul Gutierrez, History of Science Society

055. The Care and Keeping of Animals and Humans in the History of Science
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Georgian

The ‘animal turn’ is well-established in the history of science. It ranges from scholarship that considers science’s long-standing dependence on animals as experimental subjects to scholarship that tracks the way animals have come under the scientific management of veterinarians, agricultural workers, and ecologists alike. Throughout this literature, care emerges as a crucial, yet undertheorized analytic for understanding animal-human encounters and the production of scientific knowledge. This panel foregrounds how science has depended on raced, gendered, and classed dynamics of care and juxtaposes case studies of multispecies care across scientific disciplines. Shira Shmuely reassesses the meaning of domestication and species kinship as coercive care through the story of American zoologist Henry Raven’s temporary ‘adoption’ of an African chimpanzee, Meshie, into his household in the 1930s. Kat Poje examines the way eugenics has shaped the concept and practice of animal eutanasia in the United States since the turn of the 20th century, tracking how, from the point of view of city governments, humane advocates, and veterinarians, caring for companion animals came to mean killing them. Jongsik Yi explores how the Maoist ideology of animal care was an integral part of the authoritarian state’s imperative to establish collectivism yet facilitated the development of the peasant knowledge about animal nutrition, health, and behavior. And Kim Sanchez addresses the way animal husbandry has been redefined by experimental agricultural scientists on ranches in contemporary Wyoming. This panel would include a hybrid of virtual and in-person presentations.

Participants:
Chimpanzee Child: Meshie Mungkut and the Failure of Domesticity, 1930s America Shira Shmuely
“We Only Keep the Best We Receive”: Eugenics, Mercy Killing, and the American Humane Movement Kat Poje, Harvard University
Becoming “Livestock Maniacs”: The Maoist Ideology and Knowledge of Animal Care in More-than-People’s Communes Jongsik Christian Yi, Harvard University

Working Knowledge: Scientific Expertise, Labor, and Livestock Care in Wyoming Kimberly Susan Sanchez, University of Michigan

Session Organizer: Kat Poje, Harvard University
Chair: Etienne Benson, University of Pennsylvania

056. Climate knowledge and race in the nineteenth century
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom

The accelerating threat of climate change has brought new significance and urgency to the history of climate knowledge. Often forgotten in the present crisis is the deep entanglement of climate knowledge with racial classification. This panel reexamines three critical moments in nineteenth-century empire when climate expertise was employed to adjudicate questions of race. Andersson Burnett looks at the critical role of natural historians and physicians in interpreting racial boundaries in the European exploration of Australia. Eddy explores how a black physician from Sierra Leone deployed climate knowledge to undermine racial classification in West Africa. Albritton Jonsson shows how the fossil economy of Great Britain gave rise to a new science of heat stress in labor that combined features of racial and climatological comparison.

Participants:
A Natural History of Man: Race, Climate and European Exploration Linda Andersson Burnett, University of Upsala
Race, Health and Climate Data in 19th Century British West Africa Matthew Eddy, Durham University
Heat Stress, Race, and Fossil Capitalism Fredrik Albritton Jonsson, The University of Chicago

Session Organizer: Fredrik Albritton Jonsson, The University of Chicago
Chair: Anita Guerrini, Oregon State University, and University of California Santa Barbara

057. Biomedicine in Socialist Contexts
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Huron

This session brings together scholars interested in exploring socialist contexts where biomedicine became a tool in health
policies and global diplomacy. As the Cold War evolved, health and research networks in the so-called Second and Third Worlds participated in the development of vaccines, drugs, medical technologies, and treatments. Many of the countries, experts and practices were connected through socialist networks, whether as led by political aims of states, ideological convictions of actors, or as a matter of convenience. While research on this subject has seen a significant increase in recent years, master narratives of the history of biomedicine are mainly Western, even as a focus on empires and colonial/post-colonial contexts have shifted the historiography significantly. An inclusion of seemingly peripheral actors and sites of knowledge production and scientific practice, namely the ‘socialist world’, and its integration into the overall historiography is still to be achieved. Therefore, these papers engage with intersections of geopolitics, (post-)colonial contexts and political ideology, and biomedicine’s place in the global Cold War.

Participants:
Reframing biomedical education – the struggle against global diplomacy by the Latin American social medicine
Sebastian Fonseca, University of Exeter
From ‘those who exploit and murder’ to ‘those who save lives’: Transformation and resiliency of indigenous practitioners of Islamic medicine in late Soviet Central Asia
Alisher Latypov, Humboldt University
Bridging the Baltic: Insights into transfers of knowledge in gynecology and obstetrics in the Baltic Sea Region during the Cold War
Nils Hansson, University of Dusseldorf
The 1960s revolution: electrophoresis and blood diseases in the Third World
Edna Suárez-Díaz, UNAM, Mexico City

Session Organizer:
Dora Vargha, University of Exeter / Humboldt University
Chair:
Dora Vargha, University of Exeter / Humboldt University

058. Medicalizing Colonial Subjects: Peoples, Poisons, and Pupils
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Michigan

Participants:
Melancholic Turks: Medical Theory, Race, and Climate in Early Orientalist Thought
ZEYNEP KULELI KARASHAN, Johns Hopkins University
Noxious Empiricism: Poison, Pharmacy, and Localized "Colonial" Science: John Brian Christopher and Sudanese Knowledge in Anglo-Egyptian Sudan (1904-1919)
Miguel Angel Chavez, Vanderbilt University
“Protecting” the Sigh or “Passing” as Sighted?: Sunglasses and Eye Preservers in British India, 1850-1950
Aparna Nair, University of Oklahoma-Norman

059. Movement and action: between life and discursive knowledge
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Parkside

In the last decades of the nineteenth century and the first decades of the twentieth, philosophers, psychologists, and social scientists in the United States and Europe paid substantial attention to experiences of movement and action, placing them at the core of new ways of thinking about the human being, society, and reality and using them as instruments for reconfiguring fields of knowledge. This session follows discursive conceptions and techniques of movement and action as they crossed boundaries between academic and popular discourses, different fields of inquiry, and public and private spaces in the hands of rhetoricians, scientists, artists, poets, and men and women busy negotiating their everyday lives. Susan Lanzoni’s paper examines Jewish neurologist Erwin Straus’s phenomenological psychology, the challenges it posed to behaviorism, and the ways it informed experiments at the Black Mountain College in Asheville, North Carolina, and the work of musicians and artists associated with the institution. Daniel Huebner’s essay, “Language as Social Action: Gertrude Buck, the ‘Michigan School’ of Rhetoric, and Pragmatic Philosophy,” unearths the approach to communication and rhetoric developed by Gertrude Buck, a professor of English and Rhetoric trained in John Dewey’s pragmatist functional psychology. It recovers Buck’s understanding of language as a dynamic action human organisms carry out to engage in necessary cooperative relations and explores some of the implications of Buck’s “social-pragmatic theory of literary action.” Francesca Bordogna unpacks a regime of action crafted in the first decade and a half of the twentieth century by Italian philosophy student journalist Giovanni Amendola, placing it in the context of his relationships with his wife, Eva Kuhn. It shows how Amendola repurposed William James’s psychology of movement and the will to confine action to the inner core of the psyche and make himself and his wife into ethical subjects, and how Eva, in response, transformed herself into a futurist woman, committed to the equation of life with art and the bodily expression of the will.

Participants:
Between the Inner and the Outer: Giovanni Amendola and Eva Kühn
Francesca Bordogna, University of Notre Dame
Language as Social Action: Gertrude Buck, the ‘Michigan School’ of Rhetoric, and Pragmatic Philosophy
Daniel Huebner, University of North Carolina Greensboro
A Psychology of Movement at Black Mountain College: The Phenomenology of Erwin Straus
Susan Lanzoni

Session Organizer:
Francesca Bordogna, University of Notre Dame
Chair:
Francesca Bordogna, University of Notre Dame
Commentator:
Robin Veder, Smithsonian American Art Museum and
060. Physics in Perspective
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Superior

Participants:
- Effective or/and possible? Historical considerations on the notion of virtuality in modern physics. Jean-Philippe Martinez, RWTH Aachen University
- Conceiving Noise: Transformation from Disturbing Sounds to Informational Errors, 1900-1955 Chen-Pang Yeang, University of Toronto
- Discoverer and Methodologist: Alfred O. C. Nier and the Instrumental Revolution in Geochemistry, 1935-1948 George Borg
- Political Origins of High Energy Physics in Japan Kenji Ito, SOKENDAI

061. Looking to what isn’t there: The cybernetic, ecological human and theories of absence and excess in psychological experience
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Venetian

This panel examines how ecological theories of the human coming out of Cold War rationality and cybernetic thinking was involved in considerations of the effects of absence and deprivation on the human mind, brain, and soul. This set of papers looks to how mind and brain scientists in particular gave attention to experiences of absence, such as spiritual isolation, sensory deprivation or emotional neglect in childhood. This panel explores how looking at what was not there called attention to the ways lack can create excess, as seen in the vibrancy of psychedelics, psychotic hallucinations and over the top emotional reactions or hyperarousal. Each of the panelists investigate a different manifestation of absence and its connections to the ecological mind/brain from Cold War cybernetic thinking. We will move through a diverse set of spaces, including a retreat center for New Age thinkers, child psychiatric clinics, family homes, laboratories, and the vastness of outer space. Alison Renna’s paper kicks us off by tracing the emergence of the idea of the ecological mind or consciousness at the Esalen Institute in California during the 60s and 70s, including how it articulated an investment in resisting spiritual isolation through a renewed intimacy with nature and redirecting the excess of human behavior or feeling. Jeffrey Mathias analyzes theories of isolation in the early American space program, showing how the figure of the astronaut alone in space brought together work on sensory deprivation, models of psychosis and theories of human-environment interaction. Finally, Angélica Clayton considers the neuroscience of childhood neglect and cybernetic theories of the human in the decade of the brain Angelica Barbara Clayton, Yale University

Session Organizer:
Angelica Barbara Clayton, Yale University
Chair:
Hannah Zeavin, University of California, Berkeley

062. HSS Distinguished Lecture
Contributed Paper
Contributed Paper Session
6:00 to 7:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom

Participant:
HSS Distinguished Lecture Michelle Murphy, University of Toronto

063. Women's Caucus Breakfast
HSS Annual Meeting
Breakfast
7:30 to 8:45 am
Drake Hotel: Floor Lobby - Camellia

064. Sown Tensions: Agricultural and Environmental Sciences in Context
Contributed Paper
Contributed Paper Session
9:00 to 10:30 am
Drake Hotel: Astor

Participants:
- “Encouraging Useful Knowledge”: Environmental Crises and the Development of American Agricultural Science, 1862-1939 Joshua Tonkel, University of Notre Dame
- Indian Responses to the Application of Modern Science and Technology to Production under Colonialism: The Case of Agriculture Sandipan Baksi, Foundation for Agrarian Studies
- Soils, Stars, and Statecraft: Cosmological Conceptions of Agriculture in China and Europe, ca. 1600-1789 Gianamar Giovannetti-Singh, University of Cambridge

065. History for the Future: Regeneration in a Complex World
Roundtable
Roundtable
9:00 to 10:30 am
Drake Hotel: Floor Lobby - Drake

Since 2019, the McDonnell Initiative at the Marine Biological Laboratory (MBL) in Woods Hole, MA has been exploring how regeneration works in a diversity of complex living sys-
066. Reassessing Ancient Sciences
Contributed Paper
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Erie
Participants:
Variety and Uniformity in an Ancient Knowledge System
Robert Middeke-Conlin, University of Copenhagen
The Quest for the Original Astronomy and its 17th-Century Commentators Filip Geaman, Johns Hopkins University
Correcting Modern Misunderstandings of Ancient Planetary Orders: Plato, Aristotle, Cicero, Ptolemy on Mercury & Venus James Brannon

067. Cancer’s Contested Causes: The Science and Politics of Research into Exposures, Genes, and Populations
Organized Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Georgian
Participants:
The Making (and Unmaking) of Environmental Carcinogens Angela Creager, Princeton University
Reconfiguring Cancer Genetics with p53 Ella Feiner, Princeton University

068. In Search of Habitable Worlds
Organized Session
9:00 to 10:30 am
Drake Hotel: Floor Lobby - Grand Ballroom
The concept of habitability is used in past, present, and future tense to describe the worlds humans explore, inhabit, and wish to transform. It represents stability, describing habitable zones around suitable stars. It represents change in terms of planetary evolution, dying magnetic fields, water and oxygen loss. And it represents anthropogenic transformations that limit habitability at home while seeking to create...
interplanetary humanity. Habitability connects narratives of home to worlds within and beyond our grasp. It likewise connects the susceptibility of humans to their environment to the ability of humans to change and build environments. The search for habitable other worlds arguably emerged out of a Cold War atomic context of a destroyed Earth with the implicit question of second chances on second earths we might inhabit. But how large is the circle of “we”? From the Nazi legacy of Hubertus Strughold’s The Green and the Red Planet to exoplanetary speculations in Habitable Planets for Man, the question of the human and the habitable have long been interwoven. This panel seeks to connect the deeper colonial, political, and scientific explorations of “habitability” in the twentieth and twenty-first centuries, and to bring the history of science to bear on perennial questions: What does it mean to live in a habitable world? To be at home in a world, or to think of a planet as a place where we can thrive? To think about human agency and responsibility? When we talk about habitability, whose habitability is envisioned?

Participants:
- The Habitable Worlds We Build and Destroy: Constructing “Ourselves” on Planetary Scale Matthew Shindell, Smithsonian National Air and Space Museum
- Cyborg Evolution and Microbial Geoengeers: A Gaian Take on Habitable Pasts and Futures Caitlin Kossmann, Yale University
- Homo universalis: Queering “Habitability” Luis Campos
- Military Models of Mars: The Cold War Politics of Habitability in Early Astrobiology Jordan Bimm, University of Chicago

Session Organizer: Jordan Bimm, University of Chicago
Chair: Jordan Bimm, University of Chicago

069. Colonial Natural Histories
Contributed Paper
Contributed Paper Session
9:00 to 10:30 am

Drake Hotel: Floor Mezzanine - Michigan

Participants:
- From Canton to the World: The Introduction and Knowledge of Lychee from the 18th Century to the 20th Century Shiyi Teddy Xiang, Journal of Academic Research (Xueshu yanjiu), Guangdong Social Sciences Association
- Empire and Rebellion: EJH Corrner, Mycology, and Singapore Nathan Smith
- The Gwillim Project: Managing a global network Lauren Williams, McGill University Library; Victoria Dickenson, McGill University Library
- Hidden Hands in Colonial Natural Histories Gloria Bell, McGill; Anna Winterbottom, McGill

070. Inclusion and Exclusion in Scientific Internationalism
Organized Session
Organized Session
9:00 to 10:30 am

Drake Hotel: Floor Mezzanine - Parkside

In recent years, historians of science have explored more the internationalization of science, especially through the examination of international collaborations and multi-lateral initiatives. This is partly because of their significance in shaping the global scientific enterprise, but especially due to their impacts on international relations and diplomacy. This historical exploration, however, has so far been asymmetrical, prioritizing inclusivity aspects attached to individual episodes, and overlooking instead the parallel exclusion of individuals and groups. So is it scientific internationalism geared more towards including or excluding? And what factors are decisive in shaping both? This session looks for answers to these questions by focussing at key scientific initiatives during the second half of the 20th century. Session sponsored by the IUHPST/DHST Commission on Science, Technology and Diplomacy (STAND)

Participants:
- Sixty-six in, but who was left out? The IGY in historical perspective Simone Turchetti, University of Manchester
- How inclusion and integration helped make CERN a competitive laboratory in the 1960s Barbara Hof, University of Zurich
- Science Diplomacy ‘from below’ in the 1970s and beyond Gerardo Ienna, University of Verona & University of Maryland

Session Organizer: Simone Turchetti, University of Manchester
Chair: Melinda Baldwin, University of Maryland

071. Biology in Modern China: Naturalists, Nationalism, and Periodicals
Organized Session
Organized Session
9:00 to 10:30 am

Drake Hotel: Floor Mezzanine - Superior

Biology in modern China has always been a history broader than just “biologic” or “biological.” As James Reardon-Anderson showed in his celebrated book The Study of Change: Chemistry in China 1840-1949, there was practically no biology in the modern sense at all in China until 1925 and the popularization of Darwinian theory was eclipsed by the Chinese version of social Darwinism since the late nineteenth century. In the first four decades of twentieth-century China, internal issues of disciplinary formation trailed behind larger socio-political forces such as industrialization and modernization. Intersecting with nature study, collection of organisms (both living and dead), ideas of progress and evolution, and populated by mostly Western and some domestic naturalists, biology in Republican-era China has been a more-than-specialty enterprise, sharing major characteristics with natural history, crossing boundary of cultural nationalism, and disseminated with the advent of science periodicals.
This panel brings together three young scholars working in the history of biology and modern China studies. Each attempt to show how social and political forces shaped the identity, classification, and popularization of biology in the first four decades of twentieth-century China. Christine Luk examines the shifting identities of a British sportsman-turned-naturalist named Arthur de Carle Sowerby between 1907 and 1922. She argues for an awareness of the range of identities and strategies that Sowerby adopted during his zoological odyssey. Aijie Shi examines “stasis” as a lens to rethink the relationship between science, evolutionism, and nationalism in early twentieth-century China. She discusses the linguistics and symbolism of living fossils during a period when modern vernacular Chinese was in the process of forming, in alignment with the incipient idea of modern nation-state and the evolutionary narrative of extinction. Noa Nahmias’ paper examines the relationship between biology, gender, and nationalism in the context of popular science writings. The paper explores how knowledge of animal and human biology was framed as necessary knowledge for modern Chinese women, by linking it to China’s social and political problems in the mid-1930s.

Participants:
The Biological Odyssey of a Naturalist in Manchuria: the Shifting Identities of Arthur de Carle Sowerby, 1907-1922 Christine Yi Lai Luk, Tsinghua University Making Living Fossils Symbol of the Nation: Nation and Evolutionism in Early Twentieth-Century China Aijie Shi, University of Wisconsin-Madison Nature as Common Knowledge: Biology in Chinese Popular Science Writings for Women, 1930s Noa Nahmias, York University

Session Organizer:
Christine Yi Lai Luk, Tsinghua University

Chair:
Christine Yi Lai Luk, Tsinghua University

Commentator:
Bernard Lightman, York University

072. Writing Transnational History of Science and Technology
Roundtable
Roundtable
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Venetian

This roundtable will critically discuss Krige's edited volume, Knowledge Flows in a Global Age: A Transnational Approach, published in April this year. Its specificity lies in taking knowledge itself as it flows across national borders as the object of analysis, and in its exploration of the negotiated processes that either impede or facilitate its transnational movement in global spaces. The diverse intellectual profiles of the participants will facilitate a discussion of the theoretical approach, and the wide coverage of the case studies from the late 19th to the present, in various fields of science, technology and agriculture, and in both advanced industrialized countries and in North-South relationships

Session Organizer:

John Krige, Georgia Institute of Technology

Chair:
Fa-ti Fan

Participants:
Prakash Kumar, Pennsylvania State University
Mary Mitchell, University of Toronto
Austin Cooper, MIT
Gisela Mateos, UNAM, Mexico

073. Water and Power: Fluid Technoscience for Empire and the Postcolonial State in East Asia
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Astor

Scholars have long understood that 1) the Japanese empire deployed technoscience to build infrastructure and propel expansion, and 2) after WWII, formerly colonized nations reclaimed those tools for independent development. But how did technoscientific expertise shape political and social spaces? How did it travel from metropole to colony and from colony to a postcolonial state? Focusing on aqueous environments—fluid and flowing spaces that enabled transportation, supplied resources, generated energy, and sometimes posed dangerous threats—this panel examines the localized creation and recreation of technoscience in East Asia during and after Japanese imperial rule. Rachel Wallner (Northwestern) looks at how Japanese-led expeditions and fishing technology in the South China Sea helped shape a maritime geography for China’s Nationalist government. John Hayashi (Harvard) highlights the fraught position occupied by Japanese corporate engineers in building a dam in southwestern Taiwan in the 1960s and 70s. Seohyun Park (Virginia Tech) studies how South Korean state engineers collaborated with Japanese experts to design the nation’s flood forecasting system. Yuting Dong (Harvard) discusses how a water purification plant in northern China became a cite of technological and social repair between China and Japan. Several of these papers draw particular attention to the well of colonial experience from which engineers drew to support postcolonial hydraulic projects across the region. All of them reveal that indigenized technoscience in East Asian watery realms empowered both colonial empire and postcolonial nation alike. In doing so, they also center East Asia in the story of twentieth century technoscience.

Participants:
Politics, Place, and Japanese-Taiwanese Cooperation in Engineering the Zengwen Dam, 1965-1973 John Hayashi, Harvard University
Saving Seoul from Floods: Reconstructing Japanese Colonial Infrastructure for the Flood Forecasting System in South Korea Seohyun Park, Virginia Tech
Water Plant of Friendship? The Afterlife of Japan’s Imperial Infrastructure in Northeast China, 1972–1991 Yuting Dong, Harvard University
074. Resilience and Vulnerability in Psychedelic Science
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Lobby - Drake

Scientific and medical experimentation with psychedelic drugs has a rich and controversial history that stretches back to studies with mescaline and cannabis in the 19th century. As scholars increasingly chart this history, there is a need to investigate how diverse patient narratives, psychedelics' changing historical connotations, and the politics of self-experimentation shaped drug therapy and drug research. Our panel aims to contribute to this work by examining novel cases in the history of psychedelic science that highlight tensions between resilience and vulnerability. These tensions are found throughout patient and researcher accounts of their drug experiences. For some patients, the psychedelic experience was a way to increase resilience. For example, the presentation by Andrea Ens explores how postwar conversion therapists convinced patients that psychedelic therapy could increase their resilience to same-gender attraction. Other patients encountered the psychedelic experience as something to be resilient towards. The presentation by Andrew Jones investigates psychedelic therapy for "emotionally disturbed" children in a crowded state psychiatric ward in the 1960s. Despite these unfavourable circumstances, some children were still able to have positive LSD reactions. Researchers too displayed resilience and were confronted with vulnerability when conducting self-experimentation. Many pioneers in drug research blurred the boundaries between research and recreation by taking the drugs themselves, which raised questions and concerns about researcher competency, bias, and health risks. The presentation by Jacob Green looks at the American psychologist James McKeen Cattell's self-experimentation with cannabis, ether, and caffeine in the 1880s to highlight the role of pleasure and the concern about addiction involved in this work.

Participants:
"I Have to Face It": Psychedelic Conversion Therapy and Patient Resilience in Postwar North America Andrea Ens, Purdue University
Positive Experiences, Difficult Conditions: Psychedelic Therapy in the Children's Ward at Fairview State Hospital, 1962-1963 Andrew Jones, University of Toronto
James McKeen Cattell's Self-Experimentation with Drugs Jacob Green, UCLA

Session Organizer:
Jacob Green, UCLA
Chair:
Lucas Richert, University of Wisconsin-Madison

Commentator:
Lucas Richert, University of Wisconsin-Madison

075. Internationalism in the Advancement of Science and Environmental Justice in the Twentieth Century
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Erie

Participants:
"The Scientific World" of the Pacific during the Interwar Jonathan Victor Baldoza, Princeton University
The 1972 Stockholm Conference and China's Diplomatic Response Xiaoxuan Wang, University of Chinese Academy of Sciences
Physicist of the People: Isolation, Internationalization and Autarky in Abdus Salam's Policy Propositions for Third World Science Education Mariam Mariam Sabri, UC Berkeley
Corporate Responsibilities in the Genealogy of International Law: Competing Myths and a History of Present Zhonghua Du, University of Amsterdam

076. The Public and its Sciences
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Georgian

"The Public and its Sciences" examines in a global context the relationship between sciences and the ideologies, identity categories, and forms of ignorance that animate the publics within which scientific knowledge is produced. The research this panel assembles provides broad multi-disciplinary coverage of scientific fields, including agriculture and invasive insect control, thermodynamics and print media, and technosciences in postcolonial settings. The papers range in period from the late eighteenth century to the twenty-first, and across European, Pacific Island, Middle Eastern, and North American cultural contexts.

Participants:
Parasites and Their Publics: Science, Lay Communities, and Invasive Species Control in Early Twentieth-Century Hawai'i Jessica Wang, University of British Columbia
Islamic technoscience and the revolutionary image of colonial science in postrevolutionary Iran (1980-1983) Ata Heshmati
Current Events: Electrical Experimentation, Print Media, and Popular Energy in Eighteenth-Century Britain, France, and Germany David AP Womble, University of Houston

Session Organizer:
David AP Womble, University of Houston
Chair:
Alexei Kojevnikov, University of British Columbia
Commentator:
Andrew Jewett

077. FUTURES: Sexual Harassment, Power, and the Futures of Equity and Inclusivity
“Futures” Roundtables
Futures Roundtable
11:00 to 12:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom

Historians of science have long examined the impact of sexual harrassment, especially gender based harrassment, on the lives and careers of scientists. However, we have had few public conversations about these same impacts on our own scholarly community. In light of the highly-publicized Comaroff affair at Harvard University in fall 2021, we believe that it is important to acknowledge systemic forms of harassment in the academy and create a space to discuss these problems and potential solutions—essential work for increasing equity and inclusion. The History of Science Society is a professional organization that brings together a wide group of scholars. The aim of this panel is to discuss not only the history of sexual harassment in the discipline, and in the wider academy, but also the future of respectful, just, and equitable behavior at HSS. As an academic society, what is our role in protecting our members from this kind of behavior during Society-sanctioned events and in the wider discipline? What should our role be in the future? How can we appropriately support victims both personally and professionally? And what is our role in discouraging this behavior or adjudicating its consequences if a member has committed misconduct? We aim to discuss and develop concrete practices and strategies that we can implement at HSS meetings and in our other academic spaces - including online - to prevent harassment and abusive behavior. We recognize that this panel is organized by and made up of mostly (but not all) cisgender women and we feel that this is indicative of the state of the field of both study as well as the experience of harassment, respectful behavior, and gender climate. We request that this panel follow a hybrid format due to the sensitive nature of the content and the importance of centering access in terms of in person and online participation. We would invite all audience members to register to view this "unrecorded" panel online.

Participants:

Power, Accountability, and Possible Pasts and Futures
Joy Marie Lisi Rankin, Al Now

Examining Title IX at the University Level: How local committees can inform national organizations
Samantha Muka, Stevens Institute of Technology

The Future of Positive Change in Structures of Adjudication
Mar Hicks, Illinois Institute of Technology

Sexual Harassment of Women: Climate, Culture, and Consequences
Frazier Benya, National Academies of Sciences, Engineering, and Medicine

Lessons from the HSS Ombuds
Tina Gianquitto, Colorado School of Mines; Jenna Tonn

The HSS Co-Ombuds will discuss the development of the Ombuds position within HSS, the role and relationship of the Ombuds to the Respectful Behavior Committee, lessons learned over the past two conferences, and revisions to reporting mechanisms. We will ask for comments from the community on how this role can be enhanced.

What's Next?: Ongoing Challenges in Respectful Behavior

Chairs:
Sarah Elizabeth Naramore, Northwest Missouri State University
Sarah Pickman, Yale University
Sarah Qidwai, University of Regensburg
Dalena Ngo, Yale University

Commentator:
Kathleen Sheppard, Missouri S&T

078. CHROMOSOME WOMAN, NOMAD SCIENTIST, E.K. Janaki Ammal, A life, 1897-1984
Roundtable
Drake Hotel: Floor Mezzanine - Michigan

This first biography of an Asian woman scientist, (Routledge, August 2022) raises new and timely questions which are of great interest to HSS members. E.K. Janaki Ammal had a global career, including a Ph.D. in USA, extensive research in UK, and directorial positions in many sites in India. This roundtable will attract historians of biology, scholars of women and gender, biography, colonial and post-colonial studies, and scientific institutions in South Asia, USA, and UK. The six speakers illuminate diverse facets of Janaki Ammal’s pioneering and remarkable life in science: 1) “The role of gender, race, class, caste, region, and post-colonial mentalities in shaping the identity of women scientists in India”. (Abha Sur, M.I.T.; author of Dispersed Radiance: Caste, Gender, and Modern Science in India, 2011) 2) “The delayed recognition for women in genetics” Marsha Richmond, Wayne State University. (Author of “The Imperative for Inclusion: A Gender Analysis of Genetics“, SHPS, 2022) 3) Was E.K. Janaki Ammal an Indian Barbara McClintock? (1902-1992) Comparative aspects of two contemporary plant cytogeneticists”, Lee B. Kass, Cornell University. (Author of “A New Look at Barbara McClintock”, Genetics, 2003) 4) Cultural, scientific, technical, and institutional patterns of collaboration pursued by Janaki Ammal at John Innes in the 1940s, Oren Harman, Bar Ilan University. (Author of …A Biography of C.D. Darlington, 2004) 5) Striking a balance between a wo/man scientist’s life and her/work. Georgina Ferry, London. (Author of biographies of Dorothy Hodgkin, ‘98 & Max Perutz, ‘07. 6) Janaki’s nomadic life, all over India as well as in UK & USA, as constitutive of her science, as well as her scientific persona. Response by Savithri Preetha Nair.

Panel Organizer and Chairperson: Pnina G. Abir-Am, WSRC, Brandeis University. (Author of the Foreword to S.P. Nair’s biography of E.K. Janaki Ammal, Routledge, August 2022)

Session Organizer:
Pnina Geraldine Abir-Am, Brandeis University

Chair:
Pnina G Abir-Am, Brandeis University

Participants:
Abha Sur, MIT
079. Naming Stakes: Critical Histories of Classification and Categorization
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Parkside
Questions of taxonomy and ontology—what makes a thing a thing, which things cluster together, how to define a thing’s boundaries—have long interested scholars in the history of science and STS. This panel brings together new methods for approaching these questions, and foregrounds postcolonial, feminist, disability, and queer and trans approaches that highlight both the hegemonic “points of view” enshrined in classification systems and the fragility of those systems. Each of the papers looks at the messy, on the ground work of how categories get made, and the mechanics of their enforcement and enactment. They examine practices of classification in realms of administrative technology; mental health and obstetrics; embryology and eugenics; and statistical studies of sex. Together, these talks offer concrete examples for understanding how classificatory regimes make bodies and individuals governable, legible, and practicable. They emphasize that classification systems are always a means to an end: each talk considers not only what entities are created, but also how they are used in broader social and political contexts and which interests are served by different kinds of sorting. Collectively, these talks place histories of classification in dialogue with critical studies of race, gender, colonialism, and health, and open up possibilities to extend conversations beyond the existing literature.
Participants:
Individuating the Classified Self Zehra Hashmi, Brown University
Classifying Maternal Mental Illness: Race and Diagnostic Categories in the Early Twentieth Century Udodiri Okwandu, Harvard University
Monstrous Taxonomies: Teratology and Classification in the Nineteenth Century Miriam Rich, Dartmouth College
‘A 2-Way Breakdown’: Statistical Methods and Sex Categories in the Kinsey Studies Beans Velocci, University of Pennsylvania
Session Organizer:
Beans Velocci, University of Pennsylvania
Chair:
Miriam Rich, Dartmouth College

080. Measures of Happiness: Perspectives on Gender, Sexuality, and Disability
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Superior
Participants:
Precarious Masculinity? Male Hysteria and Male Identity in Late Nineteenth-Century France Daniela S Barberis, North Central College
The ‘Disappointed Man’: Masculinity and Disability in Science Leore Joanne Green, University of Cambridge
Democratizing, Popularizing and Vernacularizing Science through Sex: Exploring the Uniqueness of Sexology in Twentieth Century India Arnav of Bhattacharya, university of pennsylvania
"Happier and More Useful Citizens." The Making of the ‘Transsexual’ Patient at the Gender Identity Clinic at the Johns Hopkins Hospital, 1966-1979 Sandra Eder, Univ. of California, Berkeley

Roundtables
Roundtable
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Venetian
A new generation of scholars has complicated human-focused narratives in the history of science. Through the promotion of animal histories, they have troubled the boundary between humanity and nature, expanded the categories of agency and knowledge in a more-than-human world, and reimagined at what scales history could be written. How does thinking with animals provide access to other kinds of knowledge? What knowledge do animals generate? Have such knowledges been mobilized for their own ends or merely to explore humanity’s exceptionalism? How might centering animals challenge Western racist constructs or help understand the discontents of scientific categorization? This roundtable weighs the potential and pitfalls of tracing developments in natural history and biology through the animal rather than the naturalist and the place of sentient ecosystems in the history of thought.
Participants:
Immortal Mammoths: Remains, Relics, and Ressurection Rebecca Woods, University of Toronto
Silent Birds, Loud Plants: Agency and Agony in the History of Animals, Plants, and Empire in the Dutch East Indies Genie Yoo, Princeton University
Knowing Raccoons From Early America to the Anthropocene Whitney Barlow Robles, Dartmouth College
Breeding Animal Knowledge in Eighteenth-Century French Natural History Jens Amborg, University of Uppsala
Animal Mixing and the Columbian Exchange Mackenzie Anne Cooley, Hamilton College
Parasitical Histories daniel margocsy, university of cambridge
Chair:
Mackenzie Anne Cooley, Hamilton College

082. Sarton Medalist Q&A
HSS Annual Meeting
Plenary Session
The formation of new epistemologies of early modern science.

083. Taxonomies, Taxidermies, and Technologies in Systematizing Nature

Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Astor

Participants:
- Mythical Creatures and Hybrid Realities: The Development of Zoology in Europe Florencia Pierri, MIT Museum
- Producing and Preserving Nature: The International Standardization of Taxidermy in the Early Nineteenth-Century Yotam Tsal, Hebrew University of Jerusalem
- "The Realm of the Artificial" and Ethnology in Washington DC, 1876-1904 Henry Schmidt

084. The formation of new epistemologies of early modern science

Organized Session
Organized Session
2:00 to 3:30 pm
Drake Hotel: Floor Lobby - Drake

Throughout the Renaissance and the early modern time a new attention to the sciences developed, something interpreters and historians have traditionally called the scientific revolution. While this definition may be subject of debates, the aim of this panel is to focus on the formation of new epistemologies as a benchmark to evaluate the transformations in the sciences in the pre-modern times. In this sense, our aim is to stress the importance of constructing new attempts of dealing with disciplines in diverse fields of knowledge, from medicine and anatomy to natural history and botany. The first paper concerns the changing perceptions of medicine in Arabic tradition from the thirteenth to the mid-Cinquecento. The second paper deals with the Italian physician Berengario da Carpi and anatomical knowledge. The third paper focuses on Ulisse Aldrovandi’s working method shaping new heuristic categories to describe and study nature. The fourth paper discusses the role of plants in crafting a new understanding of living nature in William Harvey. As a result, we aim to highlight the ways constructing new epistemologies shape the sciences.

Participants:
- What kind of ‘ilm (science) is medicine? Epistemological Debates within Arabic Medical Commentaries, 1240–1520 Nahyan Fancy, DePauw University
- Berengario da Carpi and the Problem of Knowledge from Books (as well as bodies) in the Early 16th Century Robert Allen Shotwell, Ivy Tech Community College - Terre Haute Campus
- New Epistemologies of Nature: The Case of Ulisse Aldrovandi Florilegium admirandorum naturae et artis historia and and his Acanthologia Monica Azzolini, University of Bologna
- The Fabric of Life: A new Heuristic Role for Plants from Bacon to Harvey (and Beyond) Fabrizio Baldassarri, Ca Foscari University of Venice/Indiana University Bloomington

Session Organizer: Fabrizio Baldassarri, Ca Foscari University of Venice/Indiana University Bloomington
Chair: Fabrizio Baldassarri, Ca Foscari University of Venice/Indiana University Bloomington

085. Materials Science: Industrial Imperatives for Innovation

Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Erie

Participants:
- Glass and glass and … glass, celebrating the Int. Year of Glass Dr.habil. Henk Kubbanga, University of Groningen
- Crafting an Aromatics of Modernity: DuPont, Arthur D. Little and a new American smellscape Galina Shyndriayeva, University of Tokyo
- “Unsurpassed concentration”: competing visions of science in efforts to promote Cambridge, UK as a biotechnology cluster Alistair Sponsel, Tufts University

086. Tacit Knowledge: Writing Practices

Roundtable
Roundtable
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Georgian

GECC’s Tacit Knowledge Series brings together established scholars with a wide array of experiences to discuss an array of topics that are important to junior scholars and that are difficult to learn about independently or without prior experience. Our first program, "Academic Internationalisms," took advantage of our Dutch location to reflect upon cultural norms and standards in academia, while our second, virtual panel offered a teach-in about the law and politics of visas. At the 2021 Virtual Meeting, we hosted a roundtable geared toward equipping grad and early career scholars with the tools they need to comprehend the post-pandemic landscape of working with a PhD beyond the purview of tenure-track academia. This year, we will zoom in on the writing process itself, with the ultimate aim of understanding how writing different practices and venues for publication fit into a career.

Session Organizer: Michael McGovern, Princeton University
Participants:
- Michael McGovern, Princeton University
- Taylor Elizabeth Dysart, University of Pennsylvania
- Gina Surita, Princeton University
- Iris Clever, University of Chicago
- Michael McGovern, Princeton University

087. FUTURES: Digital History of Science

Roundtable
Roundtable

GECC's Tacit Knowledge Series brings together established scholars with a wide array of experiences to discuss an array of topics that are important to junior scholars and that are difficult to learn about independently or without prior experience. Our first program, "Academic Internationalisms," took advantage of our Dutch location to reflect upon cultural norms and standards in academia, while our second, virtual panel offered a teach-in about the law and politics of visas. At the 2021 Virtual Meeting, we hosted a roundtable geared toward equipping grad and early career scholars with the tools they need to comprehend the post-pandemic landscape of working with a PhD beyond the purview of tenure-track academia. This year, we will zoom in on the writing process itself, with the ultimate aim of understanding how writing different practices and venues for publication fit into a career.

Session Organizer: Michael McGovern, Princeton University
Participants:
- Michael McGovern, Princeton University
- Taylor Elizabeth Dysart, University of Pennsylvania
- Gina Surita, Princeton University
- Iris Clever, University of Chicago
- Michael McGovern, Princeton University
2:00 to 3:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom
Presentation of ongoing relevant programmes, discussion of objectives and methods.
Session Organizer:
Alain Touwaide
Participants:
Stephen P Weldon, University of Oklahoma
Timothy Boon, Science Museum Group
Stefania Zardin Lacedelli, Science Museum Group
Kathryn B. Carpenter, Princeton University
Paul Vieth, University of Oklahoma

088. Food and Vermin: Encounters between Settler and Indigenous Knowledge Systems
Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Michigan
Participants:
A community of recipes past and present: Reading kitchen knowledge in Sotuta, Yucatan Olin Moctezuma Burns, University of Cambridge
Building a Better Bee: 19th-Century American Beekeepers’ Quest for Reproductive Control Leah Malamut, University of Minnesota
From Food to Allies – Herpetology and the Contesting Knowledge of Human-snake Relations in Colonial Hong Kong (1947-1980) xin xie, Chinese University of Hong Kong
Immortal Flora: Mummy Plants and Plant Time, 1760-1870 adriana craciun, boston university

089. Boundless Precedents, Early Science
Roundtable
Roundtable
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Parkside
Historians of science are taught to abhor the teleological. Fating an explanation of how things worked according to the knowledge held by an observer centuries down the line tends to sacrifice contingency and personal agency. Despite this canonical warning, the field of early science is growing with a wide array of recent scholarship seeking to identify the many precedents – and sometimes alternatives – for modern scientific knowledge across the ancient, medieval, and early modern world. Sometimes the specter of the modern sciences continues to teleologically linger in the background underwriting the stakes, as biochemistry and innovative cures loom large behind endeavors such as the collection of materia medica. In other cases, however, scholars pushed to expand the category of science to include not only elite theories of nature and experimentation but any engagement in, or manipulation of, the natural world—however successful or not according to modern standards. By this definition, African witches can contribute to scientific knowledge, forests can think, and breeders can be natural philosophers. Furthermore, awareness of the geographic range of human inventiveness has likewise pushed for a more capacious understanding of science as scholars seek to understand the systems of knowledge behind Andean agriculture, Chinese river management, and wheel use in Roman antiquity. This roundtable, hosted by the Early Science Forum, aims to facilitate a conversation about what is to be gained by expanding the definition of science and understanding how it may specifically apply to the early modern period or non-Western contexts.
Participants:
Bamboo Swords and Stone Needles: Early Modern Herbal Technologies Lan Li, Rice University
How is ‘ilm science and why should we care?! Ahmed Ragab, John Hopkins University
The Song of Nature. Medicine as teleological mysticism in Galen of Pergamon Enrico Piergiacomi, Bruno Kessler Foundation
Island Laboratories: The Long Histories of Colonialism and Scientific Knowledge Thomas C Anderson, Yale University
The History of Science as Archives of Slavery Hannah Murphy, King’s College London
Technologies of Health: Histories of use and reuse Elaine Leong, University College London
Chair:
Patricia Martins Marcos, UCSD

090. In Pursuit of Equity in Science: Lessons from History
Contributed Paper
Contributed Paper Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Superior
Participants:
Resiliency in Credit Misallocation: Gender, Race, and Epistemic Justice in the Discovery of RNA splicing Pina G Abir-Am, Brandeis University
Exclusion: A History of the Schism between Science and Ideology in Postwar United States Nayanika Ghosh, Harvard University
Scientific Elitism and Barriers to Minority Recruitment, Retention, and Inclusion Andrew Hogan, Creighton University

091. Mycology and its Discontents: Fungi and Category Confusion in the 19th and 20th Centuries
Organized Session
Organized Session
2:00 to 3:30 pm
Drake Hotel: Floor Mezzanine - Venetian
Judging by their (lack of) attention within the history of science, fungi aren’t particularly great to think with. Although covered occasionally within larger histories of medicine and of biology, fungi and the field of scientific inquiry directed at understanding them—mycology—have seen minimal critical historical attention despite their significance within anthropology and queer studies. And yet we live in the shadow of the fungal escape from the plant kingdom, a time when fungi dominate media headlines and raise critical questions about agriculture, sustainability, climate change, laboratory prac-
tice, design, cuisine, and much more. This panel turns attention to the forms, structures, and places of mycological knowledge, particularly during the nineteenth and early twentieth centuries, a period when mycologists began to organize large-scale taxonomic projects and to reimagine themselves as independent researchers from the field of botany. We ask how classification schemes and category dilemmas propelled new modes of knowledge production and contributed to the emergence of transnational (or “global”) mycology.

Participants:
- **Species Definition and Category Confusion: Plants, Fungi, and Taxonomic Debates in Nineteenth Century Colonial Natural History**
  - Elaine Ayers, New York University
- The Global Language of Mycology: Pier Andrea Saccardo, the Sylloge Fungorum, and Fungal Material Culture
  - Brad Bolman, University of Chicago
- Gathering Knowledge: Sustenance, Science, and the Woman Mushroom Hunter in American Culture, 1880 - 1930
  - Madeline DeDe-Panken, Graduate Center CUNY
- The Stinkhorns: A cultural and evolutionary history of a fungal outlier and those who studied them
  - Nuala Caomhanach, New York University/American Museum of Natural History

Session Organizer:
- **Brad Bolman**, University of Chicago

Chairs:
- **Elaine Ayers**, New York University
- **Brad Bolman**, University of Chicago

**092. From Skulls to Complete Humans: Reconfigurations of Biological Anthropology in the Post-War Decades**

Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Lobby - Drake

Historians have long studied how biological or physical anthropology had intimate links with racial biology and eugenics in the first half of the 20th century. They have also explored to what extent anthropology and the race concept transformed in postwar population genetics. This panel extends this well-established historiography by shifting the spotlight from population genetics to human biology. The papers, which bring together three case studies from Germany and the UK, suggest that post-war anthropologists and biologists severed ties with racial biology and eugenics by seeking wider and more varied fields of application, in academia and society at large. After the foundation of UNESCO in 1945, one of its first major initiatives was drafting statements “on the race question”. German scientist Hans Nachtsheim negotiated the space between “race biology” and socially constructed ethnicities in drafting the second UNESCO statement of race. In Britain, a group of emerging physical anthropologists catalyzed an effort to carve a new academic niche for physical anthropology by refashioning it into human biology. A declining interest in physical anthropology forced British biometrician Geoffrey Morant to put his body-measuring skills to work in aviation medicine, designing cockpits and pilot clothing. Together, the papers address how older generations of biological anthropologists redefined their field of study in light of shifting national and international science policies and how a new generation of anthropologically-trained researchers revised anthropology’s epistemological and methodological foundations. The papers will explore how these methodological and epistemological shifts related to the post-war economic and socio-political order, nationally and internationally. At a theoretical level, they will provide historical instances of the circularity inherent in exploring the biological root of culture, while articulating the cultural value of biology.

Participants:
- Hans Nachtsheim, the UNESCO Declarations on Race and the Reintegration of West German science after 1945
- Matthias Krischel, Heinrich Heine University Düsseldorf, Germany
- Geoffrey Morant and the Unexpected Connections Between Racial Science and Human Growth Studies in the 1940s and 1950s
  - Iris Clever, University of Chicago
- Adaptation: Biological, Social, Academic. Defining the science of Human Biology in post-WWII Great Britain (ca. 1950s-1960s)
  - fabio De Sio, Heinrich Heine University Düsseldorf

Session Organizer:
- **Matthias Krischel**, Heinrich Heine University Dusseldorf, Germany

Chair:
- **Soraya de Chadarevian**, University of California, Los Angeles

Commentator:
- **Soraya de Chadarevian**, University of California, Los Angeles

**093. Bridging the global and the local in agricultural science**

Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Erie

In many parts of the world, the systematic study of agriculture long predated the rise of modern science. From the late nineteenth century, new types of state-run institutions like agricultural experimental zones, many conducting trial planting of new crop varieties and use of technologies from other parts of the world, appeared in Asia. These agricultural experimental zones, which were modeled upon institutions for agricultural research and extension from other countries, gave rise to new approaches to the study of farming, often on nation-wide scales. At the same time, they brought renewed attention to the problem of agricultural knowledge on smaller scales. This panel examines efforts to manage and modernize agriculture, with immense implications for the environment in Asia, in imperial and twentieth century China and colonial era Korea, through the development of agricultural experimental stations. Peter Lavelle explores the relationship between agricultural science and the environment in nineteenth century China, a period that saw a series of dev-
094. Transmissions and Traditions of Mathematics
Organized Session
Organized Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Georgian

Participants:
Plants for Troubled Times: Climate and the Science of Agriculture in Late Qing China Peter Lavelle, Temple University
Seeding the Frontiers of the Chinese Nation Shellen Wu, University of Tennessee, Knoxville
The Ecology of Authority: Agricultural Science and Destruction in Modern Korea Albert L. Park, Claremont McKenna College

Session Organizer:
Shellen Wu, University of Tennessee, Knoxville
Chair:
Shellen Wu, University of Tennessee, Knoxville
Commentator:
Arnab Dey, State University of New York at Binghamton

Sessions:

094. Transmissions and Traditions of Mathematics

095. HSS Flashtalk Session
Flashtalks
Flashtalk Session
4:00 to 5:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom

Participants:
Al-Suﬁ and Arabic-Islamic Observational Astronomy Aneka Kazlyna, Columbia University
Fossils and culture: inclusion, instruction, and identities in paleontology Megan Marjorie Rich, Georgia State University; Leonardo Andres Maduro-Salvarrey, Georgia State University; Christy C. Visaggi, Georgia State University
Modelling Food Policies: how to describe Science-based policies through nineteenth-century Portuguese Chemistry on Food Regulations José Ferraz-Caetano, REQUIMTE-LAQV Faculty of Sciences, University of Porto (Portugal)
Publicity Hounds: The Manufacture of Scientiﬁc Authority in the Atomic West Keely Mruk, University of Wisconsin - Madison

Chair:
Fa-ti Fan

096. Explorations, Expeditions, and Extractions
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Michigan

Participants:
Coral Fisheries, Neglected: Peter Lund Simmonds, H.M.S. Challenger, and the Economics of Depth-Dependent Research, 1873 Anne Ricculli, Morris Museum
Extreme Science in the Age of Extremes: the Finsterwalders, Mountaineering, and the Emergence of Glacial Science, 1889 - 1934 Tatjana Bakhmetyeva, Tatjana Bakhmetyeva; Stewart A Weaver, University of Rochester
The Royal Society Expedition to Brazil (1969-1971) Carlos Alberto Haag, York University
Notes on History of Archaeology in Brazil: “Only Foreigners Research Brazilian Prehistory” Tainã Moura Alcântara

097. (Im)materiality and the (Un)representable at the Intersections of Early Modern Artistry and ‘The New Sciences’
This panel builds on recent work in the deeply interdisciplinary relationship between the premodern arts and sciences in the development of imperial knowledge production. We will examine the uneasy disjunctions between material culture and abstract ideas/concepts – how authors of all stripes struggled to understand, calculate, and taxonomize the incalculable, the unclassifiable, the foreign, and the unknowable in an era of profound epistemological transformation. Papers (by an English literary scholar and two historians of Golden Age Spain) explore how in early modern culture the physical and material collided with the abstract and the ideal to reconstruct early modern ideas of difference and belonging. The panel is organized around the topic of the uncomfortable tensions between materiality and immateriality to question how methodologies of early modern science were adopted as tools for inquiry of non-material concepts, the results of which challenged notions of collective identities in England and Spain. The comparative scope of this panel, which includes a response by an art historian of seventeenth-century France, allows for a broader consideration of how this irreconcilable epistemological issue developed in parallel yet distinct ways in three burgeoning European empires and their respective colonies.

Participants:
- The (Im)materiality of Blood Purity and the (Im)materiality and Belonging in early modern Spain Elizabeth Neary, University of Wisconsin - Madison
- The (plant) matter of the national spirit in early modern England Kat Lecky, Loyola University Chicago
- Imagined Materialities: Theaters of the Unseen in Early Kat Lecky, Loyola University Chicago

Chair: Kat Lecky, Loyola University Chicago
Commentator: Katherine Reinhart, SUNY - Binghamton

098. Case Notes: Comparative Histories of Health and Medicine
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Superior

Participants:
- Monkeys, Public Health, and Breathing Tuberculosis: A Zoo Story, 1901-1914 Daniel Vandersonmers, University of Dayton
- Development of Comprehensive Hemophilia Care in Canada, 1954-1984 Fedir Razumenko, University of Calgary

"Strain for Research, Not for Production": The Development of Typhoid Vaccine in South Korea, 1963-1993. Kyoryen Hwang, Department of Science Studies, Seoul National University

099. Gender and Eugenics in Applied Social Sciences
Contributed Paper
Contributed Paper Session
4:00 to 5:30 pm
Drake Hotel: Floor Mezzanine - Venetian

Participants:
- Medicalizing Suffrage: The Use of Health and Disease Rhetoric in the Late-Nineteenth Century United States Woman Suffrage Movement Alex Worrall, University of Pennsylvania
- "A bad inheritance can be overcome by a good environment": The Legacy of Euthenics in the History of American Eugenics. David Munns
- How to De-Gender a Field in One Easy Step? The transformation of Consumer and Family Science Gwen Kay, SUNY Oswego
- "Should Men Always Marry For Money": A History of Psychology and IQ, Eugenics, and Manhood Abigail Grace Cramer, Kent State University

100. HSS Prize Ceremony
HSS Annual Meeting
Plenary Session
6:00 to 7:30 pm
Drake Hotel: Floor Lobby - Grand Ballroom

Session Organizer: John Paul Gutierrez, History of Science Society
Chair: Fa-ti Fan

SUNDAY, NOVEMBER, 20

101. HSS Member Business Meeting
HSS Annual Meeting
Business Meeting
7:30 to 8:45 am
Drake Hotel: Floor Lobby - Grand Ballroom
Chair: Fa-ti Fan

Participants:
- Gwen Kay, SUNY Oswego
- Luis Campos
- Matthew Shindell, Smithsonian National Air and Space Museum
- Rebekah Higgitt, National Museums Scotland

102. Roger Bacon's Scientia Experimentalis
Organized Session
Organized Session
9:00 to 10:30 am
Drake Hotel: Floor Lobby - Grand Ballroom

The sixth part of the Franciscan polymath Roger Bacon’s (d. 1292) Opus maius is concerned with a field Bacon termed...
scientia experimentalis. Consisting of three prerogatives, including the creation of new scientific instruments, scientia experimentalis was meant to serve the other sciences by overseeing their trajectories and validating their conclusions. This panel explores three aspects of Bacon's scientia experimentalis: the tension between the desire for empirical verification and those ideas that are purely conceptual; the role of scientia experimentalis in harnessing natural forces to create new optical technologies; and finally, the way in which Bacon's conception of scientia experimentalis changed over time, especially in relation to his other 'special sciences' such as perspective and alchemy.

Participants:
- Actuality of First Matter and Experimental Science: Two Conceptions Involved in the Thought of Roger Bacon
  Celina Lertora-Mendoza
- The Sciences of Illusion Elly Truitt, University of Pennsylvania
- The Evolution of Roger Bacon's Scientia Experimentalis Meagan S. Allen, Science History Institute

Session Organizer: Meagan S. Allen, Science History Institute

Chair: Ashley Inglehart

103. Engineering China: Worldviews and Statecraft in Technological Innovation

Organized Session
Contributed Paper
Contributed Paper Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Michigan

Participants:
- Self-Strengthening in Late Qing China: Why did the Chinese "want" science? Gabriel Sze Man Chan, University of Hong Kong
- Sensing Wind in Architecture: The encounter between feng shui and ventilation in Fin-de-siècle China Yang Wang, Department of History, Fudan University
- Beyond Input: A History of MingKuai Typewriter Miaofeng Yao
- "The Launch of a Political Satellite": the Construction of China's Ming Tombs Reservoir in 1958 Yejing Ge, University of Science and Technology of China; Weimin Xiong, University of Science and Technology of China

104. Early Modern Histories of Science

Organized Session
Organized Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Parkside

This panel combines several studies showing how early modern historical narratives and methodologies affected the development of natural philosophy. It is especially interested in history's polemical uses in scientific disagreements, and how historical evidence was used to support controversial scientific and philosophical claims in early modern Europe. During the 16th and 17th centuries, developments in humanism pushed scholars to reflect on how philological evidence could support or undermine claims of intellectual legitimacy, continuity, or priority. The rhetoric of prisca sapientia allowed some natural philosophers to canonize certain historical figures – some much earlier than Aristotle – as authoritative progenitors of scientific knowledge. The following studies recognize that the Scientific Revolution involved – in some form or another – a reevaluation of the epistemic relationship between history and the study of nature. Some during this period argued that the dominant Scholastic paradigm had to be reformed through intellectual renewal of a since-degraded ancient knowledge. Others challenged the notion that past sources had anything at all to tell today's students of nature. The papers listed here all discuss various scientific modalities of the "Quarrel of Ancients and Moderns" from the 16th to the 18th centuries. They assemble a wide range of thematic interests that are woven throughout the content of everyone's talks. The different presenters of the panel explain how tensions between ancient authority and observational evidence played a role in natural philosophy. They show how scientific historiography was incorporated into a nascent nationalist discourse. Projecting these themes into later periods, these panelists also teach us how the lasting impact of the early modern culture around textual authority featured in Enlightenment-era scientific disputes.

Participants:
- Fossils and Nations: The Politics of History in the early Enlightenment
  Ancient Authors, Early Modern Physicians, and their Chemical Reluctance Alyssa Peterson, University of Texas at Austin
- Interactions between Visual Modes of Evidence in Early Modern Botany _1 Maura C Flannery, St. John's University, NY

Session Organizer: Filip Geaman, Johns Hopkins University

Chair: Filip Geaman, Johns Hopkins University

105. Trans-Asian Sciences, Interventions, and the Diplomatic Roles in Postwar Japan and South Korea

Organized Session
Organized Session
9:00 to 10:30 am
Drake Hotel: Floor Mezzanine - Superior

At the end of the war in 1945, the collapse of the Japanese empire and the rise of the United States as the most powerful nation in the world shifted how science, technology, and medicine were practiced in Asia. South Korea and Japan came under the US Occupation, followed by post-Occupation strategies in which cultural diplomacy played a crucial role. Scientists and administrators in the region were, with or without clear realization, absorbed in the carefully planned scheme of US science diplomacy. What came out was not necessarily what the US had planned, however, because Asian scientists had their own diverse interests. Scientific practice in the postwar years was inseparably colonial, national, and international and was also rooted in each local context. Our panel explores the history by paying attention to
trans-Asia relations shaped by the superpower dynamics, old networks of the Japanese empire, and new networks established for postcolonial nation-building and development in Asia. Our papers examine the ways science practice in those multilayered contexts impacted health and environment in the region through topics such as immigration and public health, migratory animal pathology and conservation, rural development and agricultural technology, and an alternative (non-US) agricultural vision and environment.

Participants:
- Public Health, Quarantine, and Shaping Hygienic Borders (1945-early 1960s) John P. DiMoia, Seoul National University
- American Geographer Transplants Japanese Walking Tractor into Korean Soil: Cold War Rural Research in East Asia as a Carrier of Agricultural Technology Hidekazu Sensui, Kanagawa University
- Kyoto University Mountaineering Group’s Alternative Vision in Cold War Asia: From Nakao Sakuke’s Theory to Japan’s Agricultural Aid in Bhutan Kaori Iida, The Graduate University for Advanced Studies, SOKENDAI

Session Organizer:
Kaori Iida, The Graduate University for Advanced Studies, SOKENDAI

Chair:
Jaehwan Hyun, Pusan National University

Commentator:
David Fedman, University of California, Irvine

106. Historical Epistemology of Particle Physics and Quantum Gravity

This session discusses practices of modern high-energy physics from the viewpoint of historical epistemology. The establishment of the Standard Model of particle physics in the mid-1970s changed the relation between theorists and experimenters, from experimenters leading the way by providing new empirical findings in need of phenomenological analysis, to theorists suggesting possible tests to experimenters by exploring the framework of gauge theory. In addition, physicists became increasingly occupied with the search for a quantum theory of gravity. For this a wide variety of approaches was developed, by both gravitational physicists and particle physicists. As a result of these developments, from the 1980s onwards the position of theory in high-energy physics had shifted: heuristics of theoretical judgment increasingly replaced comparison to new experimental data. This shift also implied new norms and standards of evaluating theory, leading to philosophical debates on how to assess progress in theory construction in the absence of empirical data. We aim to offer historical insights in these changing ways of constructing and assessing novel theory in modern high-energy physics. How were the leading frameworks for quantum gravity research shaped, and what were their epistemological implications? How has the concept of supersymmetry acted in large-scale endeavors to find physics beyond the standard model? How did epistemic strategies in particle physics change in reaction to experimental null results? Answers to these questions can also enrich our understanding of current developments in high-energy particle physics and quantum gravity research.

Participants:
The Schism Revisited: Origins of Diversification in Quantum Gravity Alexander Simon Blum, Max Planck Institutes for History of Science and Gravitational Physics
- String Theory from Regge Phenomenology to Quantum Gravity Robert van Leeuwen, University of Amsterdam
- Something from Nothing: ‘Non-discovery’ and Transformations at the Large Hadron Collider Sophie Ritson, University of Melbourne
- The Many Faces of Supersymmetry: A Quantitative Approach to the Historical Study of SUSY across Cultures of High-Energy Physics Lucas Gautheron, University of Wuppertal

Session Organizer:
Robert van Leeuwen, University of Amsterdam

Chair:
Robert van Leeuwen, University of Amsterdam

107. Ventilation, Breathing and Airborne Disease

This round-table will bring together a panel of scholars who study ventilation, air and disease in a variety of thematic and chronological contexts. By bringing together scholars of early modern and modern science, medicine, and technology, this discussion will productively bridge temporal and disciplinary boundaries to examine the role of the aerial environment in medicine and society. This round-table will include short presentations by Dr. Elaine LaFay, who works on wind and environment in the ante-bellum south, Dr. Rebecca Mueller, who will discuss on disability, masking, contagion, and airs in the age of COVID, Dr. Oriana Walker, who will discuss the history of assisted breathing machines, Dr. Marie-Aline Thebaud-Sorger, who writes about the emergence of public understandings of the aerial environment, and Dr. Paul Sampson who will speak about ventilation machines and institutional reform in long eighteenth century. By discussing historical understandings of the aerial environment and its role in human health, we hope that this round-table discussion will help to illuminate the longue durée history of attempts to control airborne disease that has been at the heart of the ongoing COVID-19 pandemic.

Chair:
Paul E. Sampson, University of Scranton

Participants:
Elaine LaFay, Rutgers University
Rebecca Mueller, University of Pennsylvania
108. Harmony and Discord: Conceptualizing and Categorizing Mental Health
Contributed Paper
Contributed Paper Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Michigan
Participants:
The Harpsichord Brain Edward Halley Barnet, Hamilton College
Two Views On Criminal Behavior Ambika Natarajan, UM- DAE Centre For Excellence in Basic Sciences
Facts of Insanity From Around the World: Towards a Global History of Lunacy Certificates (1850s-1910s) Filippo Maria Sposini, University of Toronto
Clinical Temporalities: Psychiatry at Two (or more) Speeds in the French Mental Hygiene Movement Maia Woolner, McGill

109. Paradigms of Scientific Knowledge in Colonial Contexts
Organized Session
Organized Session
11:00 to 12:30 pm
Drake Hotel: Floor Mezzanine - Parkside
This panel addresses the historic role of knowledges of nature in constructing and sustaining colonial and imperial ideologies. The natural sciences provided powerful techniques for establishing hierarchies between governing colonialists and colonised subjects. Crucially, our papers don’t just focus on promoters of Western science and imperialists, but analyze the experiences of non-western actors who left varying degrees of written documentation. While the three papers deal with distinct geographies and temporal boundaries, we demonstrate how science’s mobilisation within imperialism was not simple, but involved a complex interaction between a broad range of communities, including race-making, instruments, and institutions. By unpacking the agency of these often ignored audiences and agents, we complicate science’s role in the history of empire, identifying shared patterns running through each of our areas of focus.
Participants:
Absented Presences: Rethinking Chronologies of Scientific (Early) Modernity Patricia Martins Marcos, UCSD
The magnetism of empire: dipping needles and the experimental encounters of nineteenth-century expeditionary science Edward J Gillin, UCL
Situated Scientific Knowledge Sarah Qidwai, University of Regensburg
Session Organizer:
Edward J Gillin, UCL
Chair:
Elise K Burton, University of Toronto

110. Social Engineering: Technical Knowledges for Governance and Surveillance
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<td>Forum for the History of Human Science Distinguished Lecture</td>
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<td>Forum on the History of Chemical Sciences (FHCS)</td>
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<td>Forum on the History of Health, Medicine, and Life Sciences</td>
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<td>9:00am - 10:30am</td>
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<td>Early Science Forum</td>
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<td>HSS Member Orientation (1)</td>
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<td>Forum on the History of Mathematical Sciences</td>
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<td>Earth &amp; Environment Forum</td>
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<td>Visualizing Nature</td>
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<td>Forum on the History of Science in Asia (FHSA)</td>
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<td>Scientific Animals and Nations</td>
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<td>Forum on the History of Science in Asia (FHSA)</td>
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<td>11:00am - 12:30pm</td>
<td>Drake Hotel Lobby Grand Ballroom</td>
<td>FUTURES: Digitizing and Decolonizing Collections: Challenges and Experiences</td>
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<td>11:00am - 12:30pm</td>
<td>Drake Hotel Astor</td>
<td>Childish Subjects: Twentieth Century Clinical Studies of Children</td>
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<td>Drake Hotel Lobby Drake</td>
<td>Human Descent and Evolution Across Scientific and Popular Literatures in Eighteenth and Nineteenth Century Britain</td>
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<td>The Soul of the Machine: Computers and Intelligence</td>
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<td>GECC CV Review</td>
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<td>Settlement and Survival</td>
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<td>Natural Philosophy in Early-Modern Europe</td>
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<td>Evolution, Cosmology, and Empire</td>
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<td>Knowledge under Stress: Early Modern Science, Technology, and Medicine</td>
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<td>Medical Trajectories: Ecologies of Health and Waste</td>
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<td>Drake Hotel Lobby Grand Ballroom</td>
<td>FUTURES: Life in the Retirement Lane</td>
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<td>Communicating Science: From Periodical to Popular Science Book</td>
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<td>Drake Hotel Astor</td>
<td>Unconscious Writing: Translations and Popularizations in the Long Nineteenth Century</td>
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<td>Women Writing Science: Translations and Popularizations in the Long Nineteenth Century</td>
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<td>Natural Philosophy, Evolution, and Science Education</td>
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<td>Resourcing and Restoring Nature</td>
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<td>Mathematics, Measurements, and the Making of Standards</td>
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<td>The Care and Keeping of Animals and Humans in the History of Science</td>
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<td>Biomedicine in Socialist Contexts</td>
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<td>Drake Hotel Mezzanine Michigan</td>
<td>Medicalizing Colonial Subjects: Poop, Poisons, and Pupils</td>
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<td>Movement and action: between life and discursive knowledge</td>
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<td>Drake Hotel Mezzanine Superior</td>
<td>Animal Knowledge Farther Afield: Menageries, Breeding Colonies, and Cities in the History of Animal Science</td>
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<td>Biomedicine in Perspective</td>
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<td>Climate knowledge and race in the nineteenth century</td>
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<td>Unsustainable Resiliency: Regenerating Failure in the History of early modern European Projects</td>
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<td>4:00pm - 5:30pm</td>
<td>Drake Hotel Lobby Drake</td>
<td>Mathematics, Measurements, and the Making of Standards</td>
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<td>Resourcing and Restoring Nature</td>
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<td>Movement and action: between life and discursive knowledge</td>
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<td>Animal Knowledge Farther Afield: Menageries, Breeding Colonies, and Cities in the History of Animal Science</td>
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<td>In Search of Habitable Worlds</td>
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<td>FUTURES: Sexual Harassment, Power, and the Futures of Equity and Inclusivity</td>
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<td>History for the Future: Regeneration in a Complex World</td>
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<td>The formation of new epistemologies of early modern science</td>
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<td>From Skills to Complete Humans: Reconfigurations of Biological Anthropology in the Post-War Decades</td>
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<td>Cancer's Contested Causes: The Science and Politics of Research into Exposures, Genes, and Populations</td>
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<td>In Pursuit of Equity in Science: Lessons from History</td>
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<td>Gender and Eugenics in Applied Social Sciences</td>
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<td>Meteorology in Context: Weather, Health, and Climate Change</td>
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<td>A Cultural History of Chemistry: Putting the Series to Work for Historians of Science</td>
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<td>Looking to what isn’t there: The cybernetic, ecological human and theories of absence and excess in psychological experience</td>
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<td>HSS Member Business Meeting</td>
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<td>Roger Bacon's <em>Scientia Experimentalis</em></td>
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<td>Engineering China: Worldviews and Statecraft in Technological Innovation</td>
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<td>Harmony and Discord: Conceptualizing and Categorizing Mental Health</td>
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<td>Early Modern Histories of Science</td>
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<td>Paradigms of Scientific Knowledge in Colonial Contexts</td>
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<td>Trans-Asian Sciences, Interventions, and the Diplomatic Roles in Postwar Japan and South Korea</td>
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<td>Social Engineering: Technical Knowledges for Governance and Surveillance</td>
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<td>Historical Epistemology of Particle Physics and Quantum Gravity</td>
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<td>Recent Advances in Digital History of Science</td>
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