Robert Morrison (Bowdoin College) “An Economy of Knowledge in the Eastern Mediterranean”

In a (hopefully) recent article in Isis, I have described how a network of Jewish scholars in the late fifteenth and early sixteenth centuries connected Crete, Istanbul, and Renaissance Italy. Among other things, this network transmitted elements of Islamic astronomy that reappeared in Copernicus’ work. This presentation will explore how the broader context of the transmission of astronomy was one of bi-directional exchange.

My more recent research has shown that the Jewish scholars in this network were very interested in Latin philosophy and medical texts. These Latin texts never appeared in Islamic languages meaning that the Jewish scholars’ knowledge of these texts was a valuable currency. For example, the Ottoman Sultan Beyazit patronized a brief medical text, composed in Ottoman Turkish, but which drew on Jewish and Latin sources. Not only did these scholars’ skills bring commissions from the Sultan, but also aided some of them in intellectual one-upmanship. Using any means available to show up a rival could be more important than taking intellectually coherent positions.

Although the Jews in the network were not in politically dominant positions, neither in the Republic of Venice nor in the Ottoman Empire, the Jews’ trans-national character enabled them to facilitate an economy of knowledge that transcended boundaries.

Daniela Bleichmar (University of Southern California) “Indigenous Knowledge and the Limits of Circulation: the Codex Cruz-Badianus in Early Modern Europe”

This paper examines the circulation of knowledge about Mexican indigenous botanical medicine as it traveled from Mexico to and through Europe during the sixteenth and seventeenth centuries. I am particularly interested in noting both the flows and the blockages in knowledge networks that traversed not only space and time but also cultural boundaries. Can we identify factors that made New World knowledge move through European networks with greater or lesser difficulty and success? I will investigate this issue through the Codex Cruz-Badianus, an illustrated manuscript created in 1552 by Nahua authors at the Franciscan College of Santa Cruz de Tlatelolco, in Mexico City. The Codex is the earliest colonial source on Mexican healing traditions and botanical knowledge, and can be connected to later and related investigations that awoke great interest among European scholars, physicians, pharmacists, and collectors, most notably the Mexican expedition of Spanish royal physician Francisco Hernández (1570-1577). The Lincei published a version of Hernández's work; however, although they studied the Codex Cruz-Badianus in detail and commissioned a manuscript copy, they did not ultimately include it in their publication. One source could be assimilated while the other could not. By following the Codex in movement and stasis, as knowledge inscription and as rejected source for knowledge production, the paper will consider the different routes that non-European things and practices followed in early modern Europe, exploring flow and friction in cross-cultural knowledge networks

Carla Nappi (University of British Columbia) “Following Ghosts: Skinning Science across Early Modern Eurasia”

What kind of object would “information” have to be in order to be a stable thing that moved? Information and knowledge don’t preexist their traveling; instead, they emerge out of motion. What
if we don’t take the existence of objects and the knowledges in which they are embedded as already
given, as prior to our archival encounter with the movements from which they emerge? How would
this change what constitutes evidence for a historian of early modern science? How might it allow us
to reframe our histories of early modern science as histories of movement? Taking these questions as
guides, this paper will explore the emergence of natural knowledge from movements across early
modern central Eurasia. It is designed to do four things. After (1) opening with an introduction and
exploration of the contexts of scientific and medical translation in eastern part of early modern
Eurasia, the paper will (2) focus on the translations of skin, an object that created time, space, and
history around itself, especially in the context of work in Manchu, an important language of scientific
diplomatic exchange in Qing Eurasia. In doing so, it will (3) consider the problem of “silk road”
science and medicine in early modernity, and (4) bring the study of early modern science and its
movements together with recent literature on object-focused ontologies and speculative realism,
giving special consideration to the possibilities opened up by the recent “modes of existence”
approach for historians.

Robert Hatch (University of Florida)
“Inventing the Republic of Letters: Gassendi and Peiresc – Legend and Legacy”

When N-C Fabri de Peiresc (1580-1637) died he left a large legacy of letters, and soon after his death,
Pierre Gassendi (1592-1655) immortalized him in a classic biography. This case study focuses on the
Peiresc Legacy and the Peiresc Legend. Over the last four centuries the “Prince of Erudition” has
emerged as a leading-contender for “Renaissance Man.” Celebrated in life and made famous by
Gassendi’s Vita (1641), the Peiresc Legend was spread posthumously. It is a touching and telling
tale. As his intimate friend and biographer, Gassendi sought the true meaning of Peiresc’s life. But
there was a puzzling—albeit public—paradox. Although he led a scholarly life, Peiresc published
nothing: Nary a jot or a tittle. Practiced with paradox, Gassendi struggled to find a solution.
Because he had lived a Life of Letters—sometimes writing dozens of letters each day—Peiresc would
become the “First Citizen of the Republic of Letters.” And further, if Peiresc’s life was not about
publishing books, the Republic of Letters was not about an ideal state or an imaginary book club of
isolated hermits. In truth, Gassendi made the Peiresc Paradox the Peiresc Virtue.

Over the last century scholars have continued to fashion Peiresc’s image, now as Humanist, Patron,
and Scholar, and finally to round out his image as Amateur of Science. To be sure, Peiresc was no
one-trick pony. After Tamizey de Larroque published most of his extant letters—a century ago—
Peiresc became pivotal. Marking geographical, temporal, and disciplinary boundaries, Peiresc defined
transitions between Italy and France, Provence and Paris, between the Renaissance and the Scientific
Revolution, and equally telling, the gentle shift from correspondence networks to published journals.
A turning point came with Robert Mandrou—the noted Annales historian—who claimed that the
transition from ‘Humanism to Science’ was shaped by a new cultural landscape, a community of new
intellectuals that transformed Europe’s ‘geography of ideas.’ Importantly, in identifying this new
cultural terrain, Mandrou created telling maps plotting universities, printing presses, Jesuit Colleges,
and of interest here, the correspondence networks of two noted humanists, Erasmus (1466-1536)
and Peiresc. The maps were simple but telling. Tracing scholarly commerce across space and time,
Mandrou challenged historians to explore a lost world, a hidden world, but a world far from
imaginary, idealized, or invisible.

Mandrou’s maps were ingenious but incomplete. In this case study, I expand his early vision into
uncharted territory to present a ‘Big Picture’ of Peiresc’s correspondence network. Here I argue that
Gassendi and Peiresc effectively invented the Republic of Letters by transforming a Renaissance ideal
into a daily reality. They helped create a new kind of space without boundary or center. This was the
Promised Land foretold—but only glimpsed—by Mandrou.
Carol Pal (Bennington College) “Samuel Hartlib’s Information Factory: Turning Correspondence into Knowledge”

The seventeenth-century Republic of Letters was an amorphous, unbounded, and multilayered conversation; like Pascal's infinite sphere, its center was everywhere, and its circumference was nowhere. Yet embedded within that infinite sphere were smaller subsets, in which learned men and women conducted focused conversations – and one of these was the communications network powered by the intelligencer Samuel Hartlib. Hartlib's network was more than just an association of like-minded scholars and scientists. Instead, it functioned quite literally as an information factory, creating what Hartlib deemed useful knowledge – not just knowledge for its own sake, but knowledge that might be useful in constructing a new world. Using case studies taken from Hartlib's correspondence, this paper considers his epistolary network as a locus of knowledge production, with the name "Samuel Hartlib" as its intellectual brand. This was a conscious, deliberate, and targeted process from beginning to end. Hartlib would solicit new ideas, collect the ones currently circulating, and combine these various bits of data and discussion into what he deemed useful information – then, directing traffic at the center of a world-wide web, he took it upon himself to make an enormous range of distribution decisions for the network's content, based on resources, need, and agendas. Some of these were new letters, and some were printed texts, many listing Samuel Hartlib as the author. The result was that Hartlib's network reversed the usual function of the Republic of Letters; and instead of discussing ideas and texts already in circulation, Hartlib created new content to be discussed.

Iordan Avramov (Bulgarian Academy of Sciences) “Letters and Questionnaires: The Correspondence of Henry Oldenburg and the Royal Society’s Inquiries for Natural History”

An important question in studying early modern learned correspondences is how the letters interacted with other texts – books, journals, experimental protocols, minutes of the academic meetings, etc. In this paper I shall look at certain specific texts, the so-called “inquiries for natural history” of the early Royal Society of London, trying to analyze how they functioned in the network of Henry Oldenburg (c.1619-77), the first secretary of the Society and the dominant figure of scientific communication of his day. The inquiries were questionnaires on various topics (countries, mines, sea, cold, etc.) designed by the Fellows of the Society and meant to guide the persons observing such things far away from London. Oldenburg was extremely active in this Baconian research program, because he participated in composing the inquiries, distributed them via his network and his journal Philosophical Transactions, searched for suitable correspondents to answer them, and processed the answers coming to London. I shall try to describe these activities in some detail, seeking to understand how his epistles helped the inquirers to achieve their objectives, and, vice versa, how the inquiries affected and stimulated the epistolary exchange within his network.

Nicholas Dew (McGill University) “Concerted Observations: The Paris Académie’s Networks”

The late seventeenth century saw rapid shifts in the scale of scientific networks, carried on the routes of global commerce. In the same period, observation was becoming increasingly quantitative, powered by instruments capable of new levels of precision. How did contemporaries conceptualize these shifts in the reach and the scale of scientific practices? (Or, if a "scientific network" is an analytic category, what were the corresponding early modern actors' categories?) This paper explores these questions, through the long-range astronomy and geodesy projects of the Paris Académie des Sciences (and its Observatory). The Académie and Observatoire were conceived (jointly) as a centre for long-range survey expeditions for mapping both France and the world. The paper shows how the program for the Académie’s first long-range expeditions emerged from discussions in the experimental community of the mid-century. By the 1690s, the Académie was to celebrate the possibilities afforded by the collaborative use of new instruments and techniques to carry out
"concerted observations" at places across the globe. The paper will consider both the rhetoric, and the practical implications, of building and maintaining such networks.

Ivano Dal Prete (Yale University) “Ingenuo us Investigators’: Antonio Vallisneri’s Regional Network and the Making of Natural Knowledge in Eighteenth-Century Italy”

Antonio Vallisneri’s (naturalist and physician, 1661-1730) vast correspondence constitutes a unique window on the social and intellectual structure of naturalistic research in early modern Italy. While Vallisneri was a naturalist of European renown, the overwhelming majority of his letters circulated within a tightly-knit web of short-range relations that largely defined his agendas and practices. The “ingenuous investigators” who corresponded with him – noblemen, physicians, apothecaries or country surgeons – elaborated research projects and obtained credit for observations; entertained autonomous relations with the best-known scholars, manufactured and disseminated scientific instruments and experimental practices. Furthermore, their knowledge of the territory enabled them to play a crucial role in the complex economy of exchange that brought natural specimens from remote locations to the most celebrated museums. Natural knowledge was thus negotiated within socially diversified local and regional networks where scientific credibility could, and did straddle class differences.

Londa Schiebinger (Stanford University) “The Atlantic World Medical Complex”

These Observations determined me to try some Experiments…A. J. Alexander, planter, Bacolet, Grenada, 1773

This paper explores an extraordinary experiment pitting slave cures against European treatments that took place in 1773 in Grenada (a small island south of Barbados) in the West Indies. This example illustrates how Europeans tested and evaluated slave cures. It also sheds light on the circulation of medical knowledge in the Atlantic world.

When looking at medical testing in the Atlantic World, the circulation of knowledge takes center stage. This paper focuses on the knowledge and practices of three groups: African slaves—both men and women—who transported African flora and knowledge of its uses with them to the West Indies; Amerindians, the peripatetic Arawaks, Tainos, Caribs, and Galibi, who moved much knowledge and many plants from place to place in the Caribbean basin; and Europeans—mostly men—who carried out and recorded experiments with potential cures in the Atlantic World plantation complex. The West Indies is a fascinating setting for this study because still in the eighteenth century there was a robust mixing of and competition between scientific traditions of Africans, Amerindians, and Europeans—and increasingly, their Creole descendants. This paper investigates—to the extent possible the contributions of each of these groups to the cure and prevention of yaws, a tropical disease. Amerindians and Africans were often already experts in tropical medicine. Europeans, who suffered extraordinary morbidity and mortality in the Torrid Zone, were in many cases dependent on Africans and Amerindians in those areas for their very survival.

Benjamin Breen (University of Texas, Austin), “Mapping Pharmacological Go-Betweens in the Portuguese Tropics”

In the hybrid spaces of seventeenth-century Brazil, Angola, and Goa, non-European healers emerged as viable alternatives to Galenic physicians. Amazonian, African, and South Asian medical practitioners became valuable informants regarding tropical drugs for networks of natural philosophers like London’s Royal Society. Yet these “pharmacological go-betweens” were more than purveyors of knowledge: they were active consumers and sellers of novel drugs in their own right. Although the seventeenth- and eighteenth-century Portuguese world has typically been portrayed as intellectually moribund, closer attention to drugs as a category of transcultural exchange tells a
different story. Quina, ipecacuanha, guiacum bark, bezoar stones, cacao, tobacco and opium were not only objects of scientific curiosity: they were religious sacraments, valuable commodities, and icons of sociability and status. These multiple valences make their historical trajectories difficult to track, but also hugely important in establishing shared realms of experience where different epistemologies and visions of nature came into contact (and conflict). By mapping the networks of apothecaries, druggists and colonial medical practitioners, I attempt to trace these interactions. Ultimately, I argue, the trade in tropical drugs from the Portuguese Empire helped lay the foundation for the rise of chemical medicine during the Enlightenment and the globalized pharmaceutical industry of the nineteenth and twentieth centuries.

Adam J. Mosley (University of Swansea) “Bearing the Heavens 2.0: Prospects and Problems for the Machine-Aided Analysis of Early Modern Scientific Networks”

The purpose of this paper is not only to explore the character of early modern correspondence networks in one domain of scientific endeavour, the study of the heavens, but also to investigate some of the newest ways in which such networks are being visualised, represented, and analysed. It shall consider the extent to which twenty-first-century technologies and disciplines provide us with both analogies and tools to help us understand sixteenth- and seventeenth-century networks. And it shall try to identify those respects in which such analogies and tools stand in need of further development. In doing so, it shall draw on such resources as Bearing the Heavens 1.0 (the doctoral thesis of that name, completed in 2000) and 1.5 (the book of the thesis, published in 2007); recent experiences of participating in a multidisciplinary Network seminar at Swansea University; and projects such as Oxford University’s Cultures of Knowledge, to which I have recently contributed data. Among other things, it will ask whether scientific networks of the past are, like some social networks in the present, best seen as proxies for, rather than embodiments of, the communities and cultures in which we are really interested.

Matthew Sargent (California Institute of Technology), “Decentering Centers of Calculation”

Where was knowledge about the non-western world constructed? Studies of the aggregation and dissemination of knowledge in the early modern world have largely assumed, either explicitly or implicitly, that experts in European “centers of calculation” occupied central positions in knowledge networks and were responsible for gathering, processing, and disseminating reports gathered from other regions. By following the Dutch East India Company’s (VOC) efforts to access and codify indigenous botanical knowledge in seventeenth-century India, I demonstrate that these centers of calculation were not always geographically central. Because information transfer and error connection were difficult to accomplish through long distance networks, the VOC instead gathered, processed, and prepared research for publication locally, in Asia. The process by which Hendrik Andriaan van Rheede researched and compiled his twelve volume Hortus Malabaricus (Garden of Malabar) offers a unique insight into the ways in which network topology and composition shaped information exchange in early modern Asia. While van Rheede, the Dutch commander of India, was able to deploy the local resources of the VOC to complete his massive project, a parallel project undertaken by an individual Italian Carmelite priest highlights the limitations faced by researchers who relied on long-distance networks to disseminate their discoveries. By examining the ways in which the VOC was able to manage and reconfigure its knowledge networks, this essay offers a new insights into the ways in which commercial empires transformed the globalization of knowledge in the early modern world.

Marcelo Aranda (Stanford University) “Shadow of the Ignatian Tree: Jesuit Scientific Networks and Aristocratic Patronage in the Seventeenth-Century Spanish Empire”
In his *Ars magna lucis et umbrae*, Athanasius Kircher produced a schematic map depicting the seventeenth century network of Jesuit missions and schools as a gigantic olive tree. Kircher highlighted the global nature of the Society of Jesus by declaring, “From East to West, praiseworthy is the name of the Lord.” Of the thirty-nine provinces within the tree, seventeen lay within the Spanish Empire, the largest Catholic monarchy in the early modern period. The Jesuits used both their religious and scientific knowledge to convert new territories and educate students throughout the empire. The Society of Jesus was able to accomplish these evangelical and pedagogical goals through the support of both the Crown and influential Spanish aristocrats. Drawing on interactions among Jesuit mathematicians, missionaries and aristocrats this paper will argue that through their patronage, aristocrats were significant scientific actors in the Spanish context, in effect, forming a network in the shadow of the well-known Ignatian Tree.

Caroline Winterer (Stanford University) “What is a ‘Scientific Network’? The Place of Scientists in Benjamin Franklin’s Correspondence Network, 1757-1775”

My paper will explore where scientists figure in Benjamin Franklin’s correspondence network for the period 1757-1775. (The term “scientist” is of course anachronistic for the eighteenth century, but for the purposes of this paper I will define it as people who devoted significant amounts of time to empirical investigation of the natural world.) My hypothesis is that Franklin’s international scientific reputation grew quickly and robustly through publication, but that it grew far more slowly and modestly when measured by actual human contacts forged on the ground and measurable through letters exchanged. The roughly two decades of 1757-1775 were a transformative moment for Franklin: internationally famous since the early 1750s for the published versions of his electrical experiments, he spent most of those nearly two decades in London, the political, scientific, and economic headquarters of the British Empire. Yet in fact scientists do not rank nearly as high as we might imagine in his correspondence network for that time period: his top correspondents in terms of volume were business contacts and family members rather than scientists. This talk will discuss the significance of that finding, using the opportunity to explore the larger question of what historians mean by the idea of “scientific networks” and how the concept might be most usefully deployed.


This paper probes the resumption in Anglo-French scientific communication during the Peace of Amiens (March 1802-May 1803), the only period of European-wide peace between 1792 and 1814. During this period, the volume of transnational scientific correspondence rebounded, and a number of savants resumed their foreign travels. This paper argues, however, that the Peace was too tense and too short to precipitate a full normalization of Anglo-French scientific correspondence, let alone to compensate for a decade of hampered communication. Using the writings of Joseph Banks, Charles Blagden, and James Edward Smith, it shows how Anglo-French scientific relations remained constrained by the British public’s nationalistic concerns, by the fine line between the gathering of scientific intelligence and espionage, and by a perception that savants were primarily servants of their nation.

Lydia Barnett (Bates College) “Giant Bones and Taunton Stones: Circulating Curiosa Americana in the Protestant Republic of Letters”

At the turn of the eighteenth century, the Boston scholar and minister Cotton Mather sent news to the Royal Society of two significant historical artifacts. The first was a set of enormous, fossilized bones, unearthed in the colony of Connecticut; the second was a large rock perched on a riverbank in Taunton, Massachusetts, with characters from an unknown language carved into one side. Mather hoped to bring metropolitan attention to these and dozens of other ‘Curiosa Americana’ in order to
prove the uniqueness of America's antediluvian history as well as its relevance to the history of the Old World.

I track the circulation of Mather's reports in order to reconstruct networks of knowledge within the transatlantic Protestant world. Mather's argument that the bones belonged to antediluvian nephelim, proving that biblical history had unfolded in American soil, received little attention in Europe. But his report of the Taunton stone circulated widely within Protestant networks on the Continent, where it was interpreted as proof of the Asian origins of the Native American and this as justification for Protestant missionary efforts among them.

The circulation of these reports enables is to better appreciate how knowledge from and about the New World was consumed by European savants, and also highlights the coincidence of scholarly and evangelical goals within the Protestant Republic of Letters.

**Alex Statman (Stanford University) “The French Story of the Chinese Discovery of America: Enlightenment Interpretations of Chinese Geography”**

The academician and sinologue Joseph de Guignes must have been right when he wrote in a 1761 essay that readers "will be surprised to see Chinese vessels making the voyage to America many centuries before Christopher Columbus." Yet according to him, missionary accounts and original Chinese sources left no doubt that the land of "Fou-sang," (Fusang 扶桑) was indeed the coast of North America, where medieval Chinese monks and merchants had brought customs "not ordinary among savages". Supplementing de Guignes's essay was a map drawn by Philippe Buache, "Premier géographe du Roi", which charted the epic journey.

This paper shows how an intercontinental network spanning from the last Jesuit missionaries in Beijing to the first European sinologues at the Bibliothèque du roi in Paris encouraged eighteenth-century French savants to open the treasure trove of Chinese geographical knowledge. In their pursuit of an ecumenical science of the earth, French geographers invoked Fusang in cartographical descriptions of the Pacific Rim, physical-geographical theories of continental structure, and historical-geographical accounts of human civilization. At stake was nothing less than the universal progress of natural philosophy, which the story of Fusang seemed both to describe and itself to exemplify.

**Kapil Raj (Ecoles des Hautes Etudes en Sciences Sociales) “When Empires Meet: Mughal and British Bureaucracies and the Making of British Cartography, Linguistics and Ethnography in the Late Eighteenth Century”**

While the conquest in the mid-18th century of portions of the crumbling Mughal Empire by the English East India Company inaugurated British colonial rule over much of South Asia, much of the new administration continued to be manned by erstwhile Mughal bureaucrats.

In the years that followed, British administrators sought frantically to know the principles by which the land had thus far been governed. They were thus driven to collaborate with indigenous administrators and literati to learn about the instruments and devises necessary to get a sense of the land and to legitimize minority rule by a foreign regime, a common problem for both imperial regimes. This paper will show the knowledge flows between the two imperial spaces involved in the construction of James Rennell’s map of Hindustan – the first British attempt at country-wide mapping – as well as in William Jones’s comparative linguistics and Mosaic ethnology. It will conclude with a brief reflection on the comparative merits of spaces of knowledge circulation and scientific networks in understanding intercultural relations in the making of modern science.