Introducing the Plant Humanities Lab

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Introducing the Plant Humanities Lab

*Funded by the Andrew W. Mellon Foundation, Dumbarton Oaks and JSTOR Labs collaborate on a digital space that supports the interdisciplinary study of plants*

Yota Batsaki

Yota Batsaki is the Executive Director of Dumbarton Oaks, and Principal Investigator of the Mellon Plant Humanities Initiative.

Humans rely on plants for our most fundamental individual and social needs: from food, medicine, and construction, to aesthetic pleasure and the solace brought by our encounters with them in the natural world. Although we think of plants as rooted in place, their global travels over the millennia offer fascinating pathways into the past and illuminate some of the most burning issues of today, including legacies of colonial violence and displacement. Climate change, habitat loss, and accelerated species extinctions add to the urgency of researching plant–human interactions and acknowledging the importance of plants in our environment. Digital media are uniquely suited to supporting these interdisciplinary investigations, as they help visualize the mobility of plants and people and the timeline of their interactions.

The Plant Humanities Lab, which launched in beta form on March 9, 2021, is an innovative digital space that supports the interdisciplinary study of plants from the perspectives of the arts, sciences, and humanities, in order to explore their extraordinary significance to human culture. It was developed by Dumbarton Oaks and JSTOR Labs in the context of the Plant Humanities Initiative, with support from the Andrew W. Mellon Foundation.
We coined the term “plant humanities” to emphasize the importance of humanistic modes of interpretation in scholarly investigation of plants and their entanglement with humans. The term embraces aspects of the environmental humanities and critical plant studies, as well as other disciplines, including history, art history, the history of science, and indigenous studies. We are excited to see the concept gaining traction—for example, Royal Holloway University and the Royal Botanical Gardens, Kew, in the United Kingdom, recently embarked on a plant humanities initiative supported by an Arts and Humanities Research Council grant.

History of the Plant Humanities Initiative

A hallmark of the Plant Humanities Initiative is its emphasis on the collaborative production and dissemination of knowledge that brings together researchers, librarians, designers, and developers. Its roots lie in a 2013 symposium, “The Botany of Empire in the Long Eighteenth Century,” which highlighted Dumbarton Oaks’ rare book collection and brought plants to center stage. Preparing for the symposium prompted fresh research into the collection by symposium co-organizer Sarah Burke Cahalan, then Special Projects Librarian, and two Harvard student interns, Jasmine Casart and Deirdre Moore, who created an accompanying online exhibit. The two-day symposium resulted in a 2016 publication that I co-edited with Burke Cahalan and Anatole Tchikine, now Curator of Rare Books. The book in turn kindled a conversation with JSTOR, whose own rich collection of plant resources includes three million high-resolution images of herbarium specimens in their Global Plants database, as well as reference works and primary sources, such as collectors’ correspondence, illustrations, and
photographs.

In December 2017, we met with JSTOR Labs and representatives from botanical libraries and natural history collections to discuss digitization in relation to teaching and research. The meeting provided the impetus for a collaboration between Dumbarton Oaks and JSTOR Labs to create engaging cultural histories of plants—plant narratives—that draw on rich primary sources, from the collections of Dumbarton Oaks and beyond, in an innovative, open-access space. Our respective strengths were clear: In addition to its rare and unique collections, vibrant community of researchers, and scholarly events and publications, over the past decade, Dumbarton Oaks has developed an array of programs that bring together multigenerational teams to undertake projects that combine advanced research with skill building. JSTOR Labs brings invaluable experience in the applied digital humanities—its team uses design thinking, rapid iteration, and user feedback to develop innovative tools (for teachers, students, and researchers) that leverage digital humanities technologies, such as text analytics and geographic information system (GIS) mapping.

Soon after the meeting, Dumbarton Oaks and JSTOR Labs submitted sister applications to the Andrew W. Mellon Foundation and were each awarded three-year grants to develop a digital platform and related scholarly programming to advance the emerging field of plant humanities. In writing the Dumbarton Oaks grant, as principal investigator I drew on our previous experience with directed research in our collections and emphasized our desire to reach a broader audience through digital means.

The centerpiece of the Lab are the plant narratives, which were researched and created by a team of plant humanists whose members span various career stages, from doctoral and post-doctoral researchers and undergraduates to graduate participants in the Plant Humanities summer program. Contributors include historians of art and pharmacy; an ethnobotanist; a botanical artist; students of visual and environmental studies; and scholars of early modern material culture and collecting.

The Lab benefits from an advisory committee that brings together distinguished scholars in the fields of botany, history, and the history of science with digital humanists and library leaders. In addition, on the Dumbarton Oaks side, my co-investigator Anatole Tchikine brings his knowledge of the rare book collection as both researcher and curator, alongside broad scholarly experience. Working closely with us is Alex Humphreys, Principal Investigator and Director on the JSTOR Labs side.

**Plant Humanities Lab Explained**

The Plant Humanities Lab is a source for original digital plant narratives that draw on the holdings of the Dumbarton Oaks Rare Book Library—a rich collection of herbals, horticultural treatises, and albums of botanical illustrations—and other special collections from around the
world. The stories are presented and augmented with a variety of visual digital components, such as annotated high-resolution images, network visualizations, and interactive maps. In addition, the Lab is a search and resource discovery interface powered by [Linked Open Data](https://www.w3.org/2002/07/owl/).

The discovery component presents a plant-oriented window into the wealth of data available in [WikiData](https://www.wikidata.org/wiki/), alongside the ability to discover related primary and secondary sources from vast repositories such as [JSTOR](https://www.jstor.org/) and JSTOR Global Plants, [Biodiversity Heritage Library](https://www.biodiversitylibrary.org/), and [Artstor](https://www.artstor.org/).

Included in the first phase of the Lab are 15 fascinating stories of plants from far-flung places around the world. Consider the **cassava**: poisonous when eaten raw, it was rendered harmless by indigenous methods of processing it into food, so that today it is a diet staple of more than 600 million people. Site visitors can use an interactive map to follow cassava’s travels from the Americas, where it was already being cultivated in 8000 BCE, to its global distribution today. Beautiful images—from a remarkable ceramic by a Moche (100–800 CE) artist living in present-day Peru to a colored print by the 18th-century naturalist Maria Sibylla Merian—allow us to reconstruct this story. The narratives, all of which have been peer reviewed, showcase the global mobility of plants in the context of their economic, aesthetic, medicinal, culinary, political, and cultural significance. Users can follow these guided tours or use the search interface for their own explorations. As we add more stories, data, and additional features and tools, we will continue to broaden the range of perspectives, historical periods, and geographies.

The Plant Humanities Lab is the flagship use of [Juncture](https://www.juncture.org/), a new tool developed by JSTOR Labs that aims to help researchers and students construct complex and compelling narratives using state-of-the-art tools for digital writing. With Juncture, students and scholars will be able to create subject-specific multidisciplinary and multimedia websites consisting of visual narratives featuring interactive map and image components; [IIIF](https://iiif.io/) images, which allow for zooming, panning, and annotation; a comparison image slider; network visualization; and a [Global Plants](https://www.plantnames.info/) specimen viewer. When JSTOR Labs releases a public, open-source version of Juncture later this spring, users will simply need a [Github account](https://github.com/) and enough knowledge of [Markdown](https://daringfireball.net/projects/markdown/)—which can be picked up in less than 30 minutes—to start creating their own visual essays. As their digital skills develop, users’ visualizations can become more complex and compelling, incorporating GeoJSON mapping, Knight Labs’ [TimelineJS](https://www.knightlabs.com/timelinejs/), D3 network and ring visualizations, and more. While these technologies may seem intimidating at first, Juncture makes implementing them feasible both for digital humanists and those without formal computer training. And since the technologies used in Juncture are standard and open, any skills developed will be transferable to other efforts.

Juncture’s development incorporated feedback from the Dumbarton Oaks researchers at every stage and was adapted to suit their needs. It was also tested during Dumbarton Oaks’s 2020 Plant Humanities summer program, where participants worked in teams to research and create narratives for the Lab using a Juncture prototype. The summer program (initiated in 2019 and delivered virtually in 2020 and for the coming 2021 session) brings 12 advanced
undergraduate and graduate students from universities across the world to Dumbarton Oaks for seminars and lectures. During the 2020 program, JSTOR Labs Director of Research and Development Ron Snyder and Dumbarton Oaks Post-Doctoral Fellow Ashley Buchanan delivered a complementary introduction to the applied digital humanities. Participants described the experience of learning basic digital humanities skills as “an enormous leg-up when entering the academic job market.”

The Role of Special Collections in Research Initiatives

The Plant Humanities Lab is an example of how embedding special collections within research initiatives mobilizes the use of their materials for new scholarship and public audiences. At Dumbarton Oaks, it prompted fresh perspectives on our rare and unique holdings and led to a public exhibition, *Margaret Mee: Portraits of Plants*, the first to tie the collections to contemporary environmental issues. Over the past two years, our collection development has also been informed by the focused research on plant humanities. As a result, we have acquired several works that enable in-depth study of the histories and cultural significance of individual plants while enabling us to map their global travels. One such work is *Seikatsu-roku* (ca. 1828), a treatise on the harvesting and processing of kudzu—a plant now reviled in the United States as an invasive, but traditionally used in its native habitat for food and clothing. Written by the Japanese agricultural reformer Ōkura Nagatsune (1768–1860), the treatise was illustrated by Teisai Hokuba (1771–1844), a student of Hokusai.
The first illustration of kudzu in Seikatsu-roku labels each anatomical component of the plant from root to leaf, including flower, stem, and pod, and summarizes its nutritional, medicinal, or ornamental functions. Photo credit: Joseph Mills.

Other recent acquisitions range from Il Fiore della granadiglia (1609), a book of religious poems combining Counter-Reformation spirituality with the interest in New World flora, to a nineteenth-century set of colored botanical illustrations, Sōmoku kajitsu shashin zufu produced by the Japanese artist Keiga Kawahara (b. 1786) at the Dutch factory on the island of Dejima, off of Nagasaki. Another purchase, a series of delicate watercolors of orchids produced in the last quarter of the 19th century by the otherwise unknown Czech painter Caroline Maschek (1857–1938), expands the canon of women botanical artists. Finally, De rosa et partibus eius, a 16th century treatise on the rose, highlights a wide range of botanical interests of its author, Spanish physician Nicolás Monardes (ca. 1512–1588), who has mainly been associated with promoting exotic varieties, such as tobacco, imported from the Americas.

Since we began work on the Lab, we have experienced a substantial increase in the use of our rare materials, with fellows consulting 83 items (an average of 27.67 items per visitor, as opposed to 16.33 across other programs of study). Based on the successful experience of the two summer programs and the enthusiastic response to working with special collections, we are planning a reconfiguration of the rare book reading room to provide space for 10 to 12 students/researchers instead of the current four that can be accommodated.

The Plant Humanities Lab, and the Dumbarton Oaks Plant Humanities Initiative more broadly, are examples of how focused—and often grant-funded—research projects can stimulate new strategic thinking and scholarly programming around special collections, as evinced by the “Before ‘Farm to Table’” initiative at the Folger Shakespeare Library, also funded by the Andrew W. Mellon Foundation. Some of these positive outcomes can have lasting effects by shaping collection development, broadening the pool of researchers, and fueling exhibitions of previously underrepresented areas of the collection.

We hope that visitors of the Plant Humanities Lab will be impressed, intrigued, and perhaps even awed by the extraordinary lives of plants, their relationships with other organisms, and their entanglements with humans. At a time when two-fifths of plant species are at risk of extinction[1], scientists are in a race against time to record and protect as many as possible. As humanists, we can contribute our rich interpretations and visual insights as an antidote to the widespread obliviousness to the importance of plants. Who knew that a species of heliconia—one of the great beauties of the tropics—can recognize and respond selectively to a preferred hummingbird, among its many suitors? Or that dittany has been used as a medicinal herb for women's reproductive health for almost two millennia, perhaps affording them greater agency over their bodies than their 19th-century descendants? Or that seventeenth-century Europeans learned from indigenous peoples in North America—and then forgot—about a cure for scurvy by boiling the needles of conifers, antedating the discovery of the
beneficial effects of citrus? These and many other stories await, ready to inspire further explorations of the cultural histories of plants and their influence on human societies.

Dumbarton Oaks and JSTOR Labs are interested in exploring future applications of Juncture in the classroom and as a resource for students to integrate primary sources and visualizations in their individual or team projects. Interested faculty at Harvard and other institutions are encouraged to contact PlantHumanities@doaks.org to learn more.

Notes