



Maura Flannery, *In the Herbarium: The Hidden World of Collecting and Preserving Plants*, New Haven: Yale University Press, 2023, ISBN: 9780300247916, 335 pp.

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“Moonstruck” is how Maura C. Flannery, professor emerita of biology at St. John’s University, New York, described her first encounter with a herbarium. And unlike Cher when she slapped the love-struck Nicolas Cage to “snap out of it” in the popular film *Moonstruck*,¹ Flannery invites us to fall in love with herbaria arguing that these botanical wonderlands are a hidden treasure trove awaiting for the botanically curious of all types. *In the Herbarium: The Hidden World of Collecting and Preserving Plants* traces the origin and development of herbaria, repositories of preserved plant specimens collected for scientific study. Covering 500 years of these “dry gardens” from 1540s Italy to the present day, Flannery’s accessible, lively, and engaging narrative will have every reader moonstruck.

By situating the herbarium as the focal point under study, Flannery’s macrohistory of plant collecting offers the reader a methodology to explore multiple categories of analysis, from labor to gender to capitalism. As Flannery reveals how herbaria shifted from being privately owned collections into being absorbed into institutional spaces, such as botanical gardens, the reader understands how the field of botany emerged as a professional science, how knowledge was created from the collections, and how scientific authority was claimed and maintained. As empires rose and fell, Flannery maps the ways in which herbaria underpin and continue to anchor modern biology today.

In the Herbarium is a lavishly illustrated book that presents the history of plant collecting and herbaria across sixteen chapters and an epilogue. Within each chapter, Flannery presents vignettes exploring particular themes, such as Indigenous knowledge during a specific time period. For example, in 1571 when King Philip II of Spain sent his personal physician Francisco Hernández de Toledo to Mexico, Toledo

¹ *Moonstruck*, directed by Norman Jewison, (Metro-Goldwyn-Mayer, 1987).

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worked with over twenty Indigenous medical practitioners. This bricolage-style of narration is effective as Flannery highlights the critical historical junctures within the field of botanical science from the attachment of naturalists to early modern commercial and expeditionary sea voyages to the global digitization of herbarium specimens. This approach pulls the reader into a rich history of serendipitous plant discoveries, rambunctious rivalries, and collectors' anxieties. Her narration vividly portrays how the development of herbaria is a reflection of the politics, science, and cultural norms over time.

Flannery's botanical journey begins with the American botanist Oakes Ames (1874–1950) and his wife and collaborator, the artist Blanche Ames (1878–1969). This botanical couple frame the broader argument that art and science are not discrete entities but are co-conspirators in the goal of documenting and cataloging every plant on earth. Since the 17th century, botanical drawings have served as a communication tool to substitute for plants themselves, thereby forming a symbiotic relationship of art as a tool of science and science as a tool of art. Art rendered plants visible in ways, as the British plant morphologist Agnes Arber (1879–1960) argued, that the “verbal framework” was inadequately equipped to do (p. 38). Here in this opening chapter, Flannery lays out the stakes of the field, the tension among practitioners of all types on how best to communicate and study the diversity of the plant world.

In the following two chapters, we move back in time to the 16th century and the creation of the first herbarium by the Italian botanist Luca Ghini. Ghini is representative of the ways in which botany developed, as Flannery shows how observation in situ, experimenting, networking, and mentoring younger naturalists drove the rise of early botany with specimens and information traded, shared, and discussed. As the community of naturalists grew, Flannery explains how the field's biggest knot formed, stabilizing species names, one that persists to the present day. Paper revolutionized this exchange as pressing plants between sheets increased their mobility across the globe. In the fourth chapter, Flannery unfurls the map of the 16th and 17th century world as the scale of plant collecting increased with the beginning of colonial exploration and the desire for high value botanical commodities, such as spices and medicinal plants. Bolstered by a range of collectors from all social rankings— from physicians, naturalists, privateers, to military men—existing herbaria in Paris and London became essential biological storehouses and powerful allies in the colonial enterprise. Collecting was a high-risk endeavor filled with environmental discomfort and specimen loss and destruction, yet for many collectors the financial and/or scientific rewards were worth it. By the fifth chapter, the reader understands the historical backdrop for how these collections came to be seen as scientific objects for empire building and embedded with colonial ideologies.

Increasing collections meant increasing chaos. Chapters six to nine explore how order was achieved. As a testament to his role as the “great classifier” (p. 73) Carl Linnaeus gets his own chapter. Although many are familiar with Linnaeus's life as he set forth the modern botanical vocabulary, principles, and classification that is the foundation of modern biology, Flannery situates him as the bridge between older botanical systems and modern day botany. With order in place, the following chapters chart the race to collect all plant life as European nations began to build their empires by extracting and appropriating plant knowledge and plant specimens. The ultimate

botanical heavyweight is the collection of the Royal Botanic Gardens at Kew in the United Kingdom, which houses more than eight million specimens (and counting). Flannery offers exceptionally lucid and clear explanations of the economic and political motivations of her actors, but her narration truly shines when she looks beyond individual historical actors and shows their interaction with, and across, social class and geographical divides.

Chapters ten to sixteen focus on specific themes with herbaria, forming the final arc of this history, covering natural history, evolution, natural theology, the decline and revitalization of collections, conservation, DNA sequencing, and climate change. In the penultimate chapter, Flannery gives an in-depth history of the digitization of herbarium specimens. The questions raised are ones that have haunted botanical science since its origins: access, storage of data, and communication. Here we get a sense of how large collaborative projects, such as the Biodiversity Heritage Library originated and developed. The final chapter, titled “A Broader Vision: Herbaria and Culture,” is a call to (botanical) arms to open herbaria to those otherwise excluded—the non-scientists.

Flannery adds significantly to the existing historiography because her focus on herbaria as the loci under study shows the contingencies of their histories. By not limiting her narrative to scientific texts, Flannery draws a rich and complex picture of how herbaria became centers of botanical knowledge. This allows the reader to understand the wider dynamics baked into the discipline: competition and collaboration, pettiness and generosity, as well as sexism, racism, and classism. This impressively researched book, emerging from her wonderful blog “Herbarium World,” offers numerous insights that lead the reader straight to the “Notes and Bibliography” sections with the desire to know more. How does a “herbarium felony” (p. 136) actually occur?

Flannery’s organization is mostly chronological, which makes sense for a narrative-driven history; however, this sweeping arc had to brush many of the trickier aspects of the history of herbaria under the rug, for example, the role of plant collecting and the slave trade, or the appropriation of Indigenous knowledge into botanical science. In saying this, however, Flannery does not completely shy away from these stickier topics and her nod to them is a call for other scholars to pick up these themes and study them.

Flannery’s chapters are filled with bite-sized vignettes with subdued scientific jargon offering concise, informative, and provocative histories. These vignettes, along with the bibliographical references, would be of interest to a wide-ranging audience. Science and humanities educators would find them useful for teaching a variety of courses: history of science, museum studies, STS, science and gender, colonial and postcolonial studies, along with standard courses of botanical instruction. I urge contemporary scholars to read Flannery’s book and mine the pedagogical potential of this macrohistory: each vignette could be a launching point for student assignments. Archivists would be interested in Flannery’s overview of the large-scale digitization efforts to create a user-friendly and standardized global inventory of plants (counting 400 million to date). Without a doubt, this engrossing book will carry you into a botanical adventure that will make you forget that you had to go teach, pick up your laundry, or call your dentist.

Although Flannery argues that she has “only skimmed the surface of herbaria’s rich past, present, and future” (p. 248) her vibrant book actually does a lot of the heavy lifting in sorting out the chronology of the history of herbaria. This survey approach means that this book will be the first for the botanically curious who wish to know *everything* about herbaria. This impressive journey enables the reader to understand the ever-shifting political, scientific, artistic, and economic value systems imposed on the natural world. Flannery certainly invites us to snap out of our own botanical slumber, and start noticing the plant world(s) around us.

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