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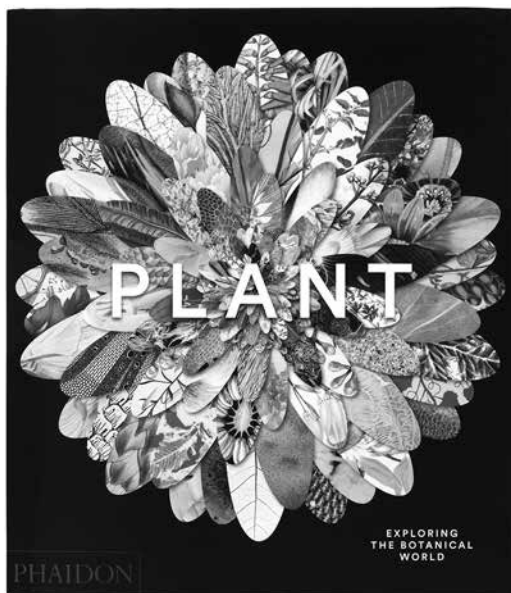
Book Reviews and Announcements

Clarke, Victoria and Rosie Pickles, eds. *Plant: Exploring the Botanical World*. Introduction by James Compton. New York: Phaidon, 2016. 352 p., ill. (mostly col.). \$59.95 (US). ISBN 978-0-7148-7148-6 (hardback).

This stunning visual survey of 300 plant images, which were made over 3,500 years for various purposes using a wide range of techniques, is a celebration of the beauty and diversity of plants and of botany and botanical art. The organization is neither chronological nor thematic, but the images are presented in pairings that highlight contrasts and similarities. The oldest shows part of a Minoan mural from ca.1500 BCE while the newest are 21st-century artworks and micrograph scans. Each plant picture is accompanied by an informative caption giving some context for the creation of the image. Also included are a timeline of botanical art, notes on understanding plant taxonomy, a glossary, selected biographies, a bibliography and an index.

I was pleased to be part of the international advisory panel that contributed to the book. The other members were Rosie Atkins, Gillian Barlow, Brent Elliott, Celia Fisher, Patricia Jonas, Rob Kessler, Hans Walter Lack, Gren Lucas, Henry Noltie, Mikinori Ogisu, Pia Östlund, Lynn Parker, Martyn Rix, Alice Tangerini and Anita Walsmit Sachs.

—Charlotte Tancin, Librarian



Duyker, Edward. *Dumont d'Urville: Explorer and Polymath*. Honolulu: University of Hawai'i Press, 2015. 671 p., ill., maps, port. (mostly col.). \$69.00 (US). ISBN 978-0-8248-5139-2 (hardback).

Jules Dumont d'Urville (1790–1842), French naval explorer and polymath, is the subject of Australian Edward Duyker's latest biography. Duyker focuses on non-Anglo explorers of the southern hemisphere, particularly Australia. While d'Urville's three voyages included time on the Australian mainland, they also included Tasmania, New Zealand, Micronesia, Melanesia, the Strait of Magellan and Antarctica. He was often called the French Captain Cook because his expeditions' collections and observations advanced knowledge of the people, geography, flora and fauna of these regions, which were, even during the 19th century,

still mostly unknown. Duyker seeks to emphasize d'Urville's contributions to modern science and portrays him less as an arrogant racist prone to depression and more as a man with ambition, intelligence and compassion. D'Urville's often unkempt and gruff exterior belied a man of extraordinary ability who contributed in many ways to our modern understanding of science.

Curious, intelligent and increasingly adverse to violence, d'Urville quickly became disillusioned with life in the French military navy and sought to be part of the "navy of exploration" (p. 45). He got his first taste on a scientific mission to Greece, where he played a pivotal role in the French acquisition of the famed Roman statue, the Venus de Milo. He and fellow naval officer, Louis Isidore Duperrey (1786–1865), arranged a voyage of exploration in the Pacific, which, while successful,

ended the friendship between the two. D'Urville quickly sought to command his own voyage to the same area. Duyker reveals that on this voyage d'Urville had secret orders to find a place to establish a French penal colony and pre-emptively to curb British colonization in Australia. The scientific results of his second expedition met with mixed reviews. A third time wanderlust called him to the seas, and he commanded another Pacific voyage that included the Strait of Magellan and Antarctica. The results of this expedition were more enthusiastically accepted. Unfortunately, d'Urville was killed in a locomotive accident with his wife and only surviving child after seeing only one volume of the results published.

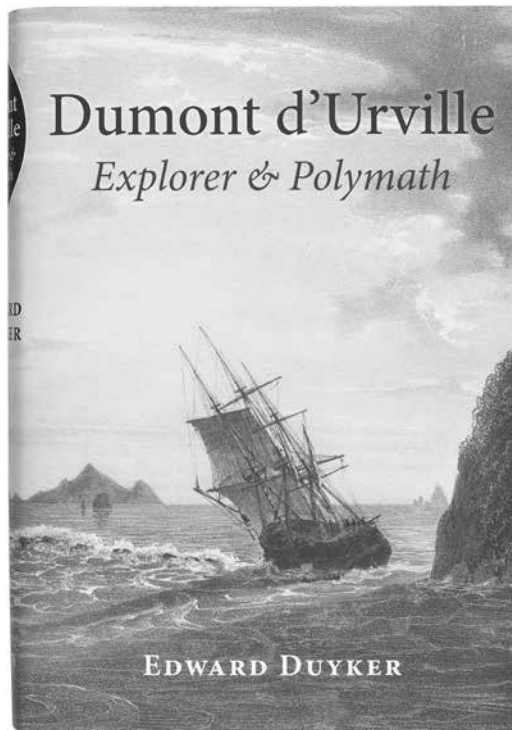
D'Urville's travel writing found its way into the popular and scientific psyche of the 19th century. Jules Verne (1828–1905), Victor Hugo (1802–1885) and Alexandre Dumas (1802–1870), among others, referenced d'Urville in their popular works. Charles Darwin (1809–1882) evidently read d'Urville, referencing him in several works though not in *On the Origin of Species* (1859).

Duyker compiled information from a thorough list of resources from around the globe, some of which had never been consulted before by d'Urville's biographers, including a set of personal journals held in d'Urville's hometown of Condé-sur-Noireau and the inventories of his properties taken after his death. According to Duyker, there were things to reveal and set straight about d'Urville's life that even recent biographers had missed, partly because of their reliance on a slightly faulty 1931 biography by Louis-Auguste-Camille Vergniol (1863–1932) and partly due to a failure to gather all the sources. This is what sets Duyker's work apart, even from the recent first full-length English biography by John Dunmore published in 2007. For instance Duyker uncovered information on the d'Urville family's struggles during the Revolution. His mother, not his father as is often stated, spent extended periods of time in prison and under house arrest for suspicion that she was a Royalist sympathizer.

One of Duyker's main goals is to emphasize d'Urville's lasting importance on modern science. Duyker relays the details of the scientific observations and records that d'Urville and his crews made. For example, he notes of which places they were able to confirm the coordinates, where they took deep sea temperatures and any significant observations they made, such as when d'Urville would note similarities between floras of different islands. Of particular interest to our readers, Duyker lists the notable natural history specimens the crew collected, whether any were new to science and sometimes in which publication they were first described. D'Urville was a polymath, but it seems that botany was the branch of natural history that invoked the most passion in him. While old age and his duties as captain eventually slowed him down, d'Urville made efforts to collect botanical specimens himself and to make journeys inland to botanize.

D'Urville's skills included not only the hard sciences but also the social sciences. He was an adept linguist and ethnographer. He was well versed in many languages, including Hebrew, and studied the languages of the people of the Pacific. Through these studies he was able to reveal the cultural and linguistic relationships among the peoples of the many islands of the Pacific, coining the terms *Micronesia* and *Melanesia*. He more often than not recorded the local names of places on his maps, even replacing the names his European predecessors had coined in favor of the local names.

D'Urville's love of languages and ethnography helps to drive home another of Duyker's points, that d'Urville was a compassionate person interested in the human race, regardless of religion, speech or appearance. Duyker does not hide the times that d'Urville's commentary on some Pacific peoples sounds rather racist and bigoted, but he argues that d'Urville's final judgment is based not on skin color or appearance but rather "intellectual cultivation, personal merit, compassion and honesty" (p. 16). He repeats that d'Urville was against using corporal punishment on his crew and that he believed incarcerated persons should not be stigmatized once they



had served their sentences. He also seeks to confirm that d'Urville was politically a radicalist and proves his support of the French Revolution of 1830.

Indeed these points help the modern reader to be more sympathetic to d'Urville despite some of his faults. It is also endearing to know that d'Urville's clothing of choice on board the ship was all about comfort and practicality—trousers with holes, an open tweed jacket and a floppy straw hat, which did not always inspire his crew to have confidence in his abilities. However, it is with mixed feelings that one reads about d'Urville's domestic life when he departed on various voyages and assignments, leaving behind his loving wife, Adélie, and children, sometimes for years at a time. On two of his voyages a child of theirs died, leaving Adélie to mourn and cope alone. A third child died while d'Urville was on land. Needless to say the effects of this left Adélie prone to anxiety and depression, and highlights the many costs these voyages had on the personal lives of the crew and their families. Duyker never lays judgment on d'Urville for his choices.

Duyker adds an appendix in which he discusses the titles in d'Urville's library at the time of his death.

Previously the only source for this information was the catalogue for an auction of d'Urville's library, but Duyker uncovered inventories of d'Urville's residences after his death, revealing a number of titles that did not make it to the auction. Together the catalogue and inventories give a more comprehensive insight into d'Urville's wide-ranging interests and scholarship.

As with any biography of this scope, it can be difficult for the casual reader to keep track of all of the people involved and what their roles were exactly, and the details of the voyages can be somewhat overwhelming. One cannot help but be interested in reading about the new lands and people that d'Urville encountered and see how even at that point the European influence increasingly was being felt globally, a point not lost on d'Urville himself. Duyker's biography is a must for anyone interested in the history of natural history, the history of exploration or naval history and Pacific history, particularly during the time of European colonization. All will come away with an appreciation for Jules Dumont d'Urville and a renewed appreciation for those who explore.

—Jeannette McDevitt, Assistant Librarian

Egerton, Frank N. *A Centennial History of the Ecological Society of America*. Boca Raton: CRC Press, 2015. xviii, 271 p., ill., port. (some col.). \$87.95 (US). ISBN 13-978-1-4987-0069-6 (hardback).

Ecologist and ecological historian Frank Egerton wrote this book on the occasion of the Ecological Society of America's (ESA) centennial in 2015. Through his telling of the history of the society, he recounts many developments in the history of North American ecology along the way. Much of this history is framed through the publications of various ESA members: "Like all sciences, ecology began with simple questions that led to fairly simple answers. As ecological sciences progressed, complexity emerged into both questions and answers. The ESA has documented that process in its publications since 1917" (p. xvii). Egerton describes this book as a conversation with earlier colleagues in which he highlights some of the big names in the field and also discusses others to show a broad picture of the work of the ESA in its 100-plus years.

The story is presented in six 15-year chapters, with a seventh for the remaining eleven or so years. To read them is to be impressed by the enormous amount of thought, discussion, research, collaboration, publication and societal impact that have happened through bringing various kinds of ecologists together into a society and encouraging them to use all of the benefits that being members of a professional society can offer.

In chapter one, 1914–1929, he discusses ESA origins. The earliest ecological institutions were aquatic research stations in the 1870s in Europe and North America. Four ecological sciences emerged in the 1890s: plant ecology, animal ecology, limnology and marine ecology. Several research stations were founded in 1899 and the early 20th century, and then ecological schools began to be created in universities in the Midwest. There was already a lot of work being done in Europe that stimulated thought, discussion and research in the United States and Canada, and talks developed for early symposia included emerging topics such as "biotic community" and "biome." North American ecologists were writing about the correlation of tree rings with climate, the life-zone theory, and desert plant communities. The idea for a society came from zoologist Robert Wolcott (1868–1934), who envisioned something in the Midwest based on fieldwork rather than reading papers at society meetings. Others widened the scope of the idea to one that included the United States and Canada, and the ESA was formally organized in 1915. A *Bulletin* and a journal, *Ecology*, were initiated. Ecological courses were becoming more mainstream, and quantitative studies, plant geography and plant competition were all attracting more interest.

In chapter two, 1930–1944, Egerton highlights challenges encountered through the Depression and World War II, noting that ecologists in North America had an easier time than did those in Britain, Europe

and the Soviet Union. He writes of the creation of the United States Biological Survey, the Migratory Bird Treaty and the Limnological Society of America. Topics being worked on at the time included mathematical animal demography, wildlife management, the Dust Bowl problem and land usage, windmills and irrigation pumps for farms, and the ecosystem concept.

Chapter three, 1945–1959, is about postwar expansion. Both the United States and Canada prospered after the war, and the G.I. Bill helped many American veterans go to college. Having more students in ecology programs led to the development of more ecological research institutions. ESA membership increased and continues to do so. Government funding for research was renewed in 1951. Ecologists collaborated with geneticists and taxonomists to advance the understanding of evolution. A referendum decided that ESA should not be directly involved in saving natural areas for research, so the Ecologists' Union was founded, later becoming the Nature Conservancy; in Canada, similar concerns led to founding of Nature Conservancy of Canada. Several key texts were published in this period, and quantitative studies began to replace descriptive studies.

Chapter four, 1960–1974, highlights the development of large programs, such as the International Biological Program, a momentous worldwide development for ecologists, begun in the United States and Canada in 1967, three years later than in Europe, and ending in 1974, although some of its projects continued. ESA's literature continued to expand, and there was more emphasis on "a structured, predictive science that combined powerful quantitative theories with the recognition of widespread patterns in nature" (p. 106).

In chapter five, 1975–1989, more large programs are documented. The United States Congress funneled more than \$50 million to the International Biological Program via the National Science Foundation (NSF), and at the official end of the federal involvement in this program the NSF asked to have three of the five biome programs in the

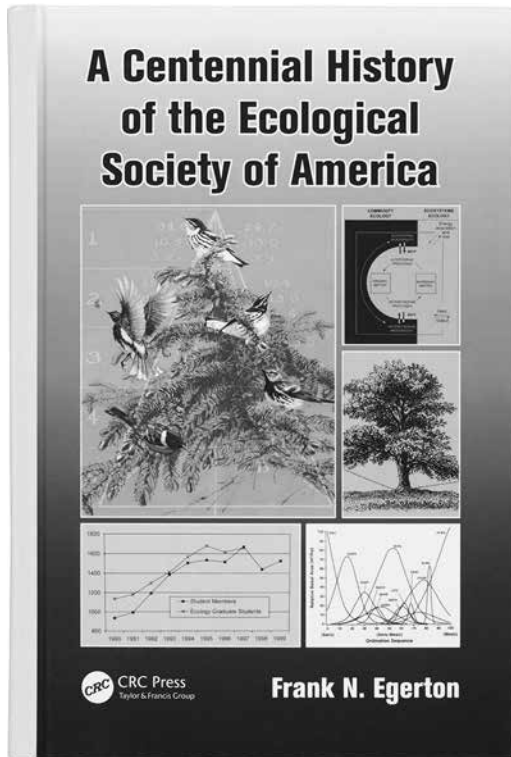
United States—Eastern Deciduous Forest, Grassland, and Tundra—evaluated and compared. Another development in this period was ecosystem modeling, emphasizing two kinds of models: simulation models looking at energy, biomass and bioelements, and the effects of abiotic factors on populations; and analytic models studying populations and communities. Scientists were also discussing the dilemma of whether to contribute to work in South Africa, given the oppressive system of Apartheid.

In chapter six, 1990–2004, Egerton notes that ongoing importance of teaching ecology, and shows that in this period ESA members created doctoral programs in ecology and an ESA professional certification program, as well as the Strategies for Education in Ecology, Development, and Sustainability (SEEDS) program to give college students, especially minority students, an introduction to the ESA. The ESA began three new journals: *Ecological Applications*, *Conservation Ecology* and *Frontiers in Ecology*. As part of a larger national discussion

of prioritizing the goals of science, the ESA identified three goals: global change, biological diversity and habitat diversity, and sustainable ecological systems. There was also an effort to further articulate the theoretical underpinnings of ecology.

Finally, in chapter seven, 2005–2015, discussion of a sustainable biosphere gains momentum. Egerton comments that the biosphere as a theoretical concept is viewed as a threat only by air polluters. ESA has documented global warming and its consequences along with the political struggle that came with that, demonstrating the critical importance of applied ecology. In this period ecologists from Latin and South America were encouraged to join the ESA, as ecologists in those countries belonged to larger scientific societies without an ecological focus. In the early 1980s some ecologists became involved in an environmental justice

movement, which began by challenging the location of waste dumps in minority communities. Other focuses of ecologists in this period included unintended results of efforts to increase productivity to meet demand in



businesses; tropical deforestation and climate change; anthropogenic biomes; invasive species; ecosystem services and related trade-offs; phenology in relation to global warming; indigenous peoples caught between environment and economics; and macrosystems ecology.

Although I have not mentioned specific ecologists in this review (other than the author), ecologists and their work are the stars of this story, and many of them are documented here. Interspersed throughout the text are 37 "ecoSketches," portraits and brief biographies of prominent ESA members. It is good to have a deeper view of these individuals, but I would have suggested putting those biographies in a separate appendix and referencing them in the text. The way that they are placed and formatted within the text is somewhat distracting and interrupts the flow of the larger narrative. However, that is a small quibble and does not undermine the

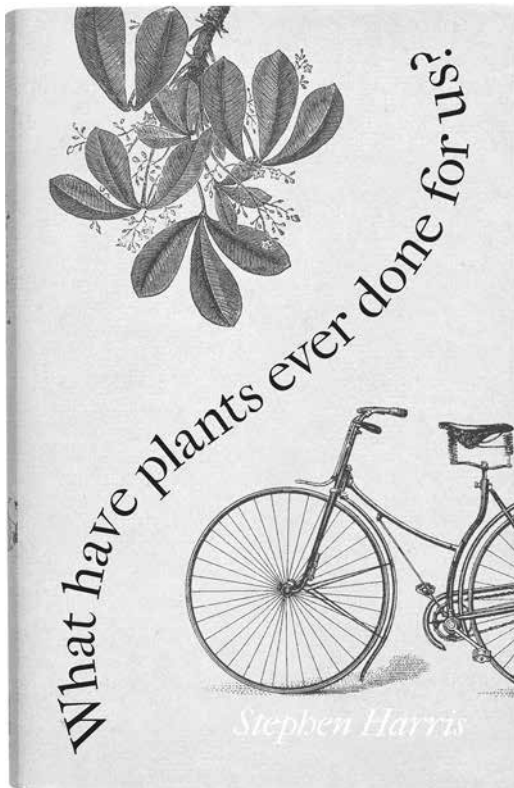
significance and scope of this history. The book also includes two appendices listing ESA officers and award recipients and a 41-page bibliography.

This sort of disciplinary history is important to help us to keep track of how events unfolded and how individual ecologists, group projects and committees were involved in the development of ecology in this part of the world. While Egerton did not set out to write a full history of ecology in North America, and while this book does not exactly present that, he has given us many highlights and interconnections from that overall history and shown what a large and important role the ESA has played. This is an important book for libraries and for those interested in the natural sciences and the environment, and Egerton has done a good service to the ESA and to the field of ecology by writing it.

—Charlotte Tancin, Librarian

Harris, Stephen. *What Have Plants Ever Done for Us? Western Civilization in Fifty Plants.* Oxford: Bodleian Library, 2015. [ii], 264 p., ill. \$25.00 (US). ISBN 978-1-85124-447-8 (hardback).

We have seen a number of books published in recent years on the general theme of considering a selected list of plants and discussing how important they are and have been. Many of these publications have been quite good at elucidating plant histories that are not generally known or have been forgotten. *What Have Plants Ever Done for Us?* is particularly interesting in the way that Stephen Harris has framed his question and his answers. Rather than focusing strictly on how good these plants have been for humanity, he presents glimpses of both benefits and harms, presenting a more balanced and nuanced view of what roles plants and our use of them have played in our history. His list of 50 plants is not presented alphabetically or by type of use, but chronologically by when the plants first became influential for western civilization.



Although these days there are many people who do not regard plants as being particularly important or interesting, in fact plants affect nearly every aspect of our lives, and we literally could not live without them. Harris points to domestication of plants and animals as not only a key to the development of civilization but also *the* key. Globally, humans exploit approximately 50,000 plant species, but which plants are domesticated and in use in which locations differ according to terrain, climate and opportunity. Much about the social, cultural and political changes in non-nomadic civilizations can be learned from the archaeological record, and discoveries about crop origins are particularly important now as the world population continues to grow. Understanding how crops evolved can help us to

better improve them.

Harris uses broad strokes to comment on the histories of civilizations and the ways they have used plants

beyond basic survival, noting that “All civilizations need negotiable resources to acquire the things they want, placate their enemies or purchase their allies; they also need resources to satisfy their rulers, pacify their deities and subjugate their populations” (p. 118).

He also comments on plant distribution, noting that few species are naturally found everywhere. Rather, with exploration came introductions as Europe took in staples from across the globe, changing western diets and finding new uses for the new plants. Demand fueled further exploration, necessitating the claiming, protecting and exploiting of new territory and the moving of commodities via secure and efficient transportation. Slavery also figures in our story and is mentioned in a number of the plant chapters. Harris notes that our human history is one of exploitation, quoting the American diplomat George Marsh (1801–1882): “Man is everywhere a disturbing agent. Wherever he plants his foot, the harmonies of nature are turned to discord” (p. 8).

With this perspective Harris discusses 50 plants in chapters averaging 4 to 6 pages each. Here are a few summary examples although they do not do justice to his full exposition.

The second plant on the list, after barley, is mandrake (*Mandragora officinarum* L.). Harris explains that as plants have their own complex chemical defenses to protect themselves from herbivores, pests and disease, humans have learned to use some of those same chemicals, too, as our best sources of drugs until the late 19th century. Theophrastus (ca. 371–287 BCE) and Pedanius Dioscorides (CE ca. 40–90) studied the plants of their world and their uses for both food and medicine, and for 1,500 years herbals in Europe were based on their work. It was particularly important for physicians and apothecaries to know and be able to recognize drug plants. Mandrake was the most infamous drug plant in western civilization for at least 4,000 years, being extremely dangerous due to its tropane alkaloids. However, toxicity can depend on dosage, so that sometimes the same chemical can cure or kill, depending on degree. A low dose of mandrake causes drowsiness, anesthesia and hallucinations, conditions in demand in situations necessitating the suppression of pain, such as surgeries. Administering an approximate dose required being knowledgeable about the alkaloid concentrations in various parts of the plant, the environment where the plant grew and its stage of development. Mandrake was used by ancient Sumerians and Egyptians and by Roman physicians for inducing sleep, anesthesia and abortions. The Carthaginian warrior Maharbal (fl. second century BCE) put down an African uprising by drugging wine and leaving it behind as he retreated from camp. He returned to find drugged rebels asleep and killed them all. Mandrake’s imputed aphrodisiac properties figured in the story

of Rachel, Lean and Jacob in the book of Genesis. At some point people realized that the alkaloids were fat-soluble and that their toxicity could be reduced by incorporating them in ointments and lotions. Mandrake’s hallucinogenic properties were used in ancient religious practices and were associated with witchcraft in medieval Europe. It is no longer used in mainstream medicine.

A surprising choice is the chapter on lycopods, subtitled “Releasing Fossilized Starlight.” The Lycophyta are some of the oldest plants on earth. In the Carboniferous period, 300 to 350 years ago, large areas of North America and Europe were covered with vast, forested wetlands that included relatives of horsetails and ferns along with giant spike mosses, clubmosses and quillworts. Some of these plants were as high as ten-story buildings with trunk diameters as wide as a car. The prehistoric forested swamps where they grew flooded, and the dead plants became peat, crushed over time by layers of sediment and eventually turned into coal, some of it near the surface, some of it deep below. Later Theophrastus would describe stones that were dug from the earth and could be burned to work metal. Coal was used in Roman Europe, and by the Chinese that Marco Polo visited, mostly taken from surface deposits. The Industrial Revolution in Britain changed all that and initiated what would become our addiction to fossil fuels. The new, fierce demand for coal set off political, social, environmental and economic changes that continue to unfold. Coal consumption involves social and environmental costs; the mine work is dangerous and the pollution unavoidable. Smog is a by-product with which we have been familiar in some places for more than a century, two recent and intense examples being Mexico City and Beijing. Interestingly, the lycopods that exist now have some diverse uses that include fireworks, fingerprinting powders, stabilizers for ice cream, and condom lubricants. Products from the prehistoric lycopods continue to plague our world as their remains are our most important source of energy for generating electricity. There are enough coal deposits to generate electricity for thousands of years but at enormous cost to the health of the planet through the release of carbon dioxide and other toxic gases.

Every single one of these plant histories is interesting, but here is just one more sampling: white mulberry (*Morus alba* L.). Silk was always a luxury commodity, associated with excess and sensuality. Craving for silk was one of the reasons that Europeans sought access by ship to east Asia, bypassing lengthy and arduous travel along the Silk Roads. China jealously guarded its 5,000-year-old secret of silk manufacture, involving the growth and maintenance of silkworms and the white mulberry trees from which they feed, the “throwing” of the long thread of silk from each caterpillar cocoon (killing the silkworm), and the skillful weaving of silk thread into

delicate, luxurious fabrics. In early China silk was the commodity of choice for trade and offerings, and for at least 2,500 years Europeans and North Africans imported silk without any idea of its natural source or how it was made. Wealthy leaders spent vast sums on a regular basis to import it. In the first century the historian Pliny the Elder (CE 23–79) estimated the Chinese silk trade to be taking the equivalent of 3.5 tons of gold from Rome each year in payment for silk. Eventually the incessant demand eroded China's ability to maintain its monopoly. Even so, people in other countries who began to raise silkworms often encountered problems with climate, disease or use of the wrong species of mulberry. Confusion about the

preferred food for optimum silk production persisted until the late 19th century. That was finally resolved, and silk is still a large-scale industry today.

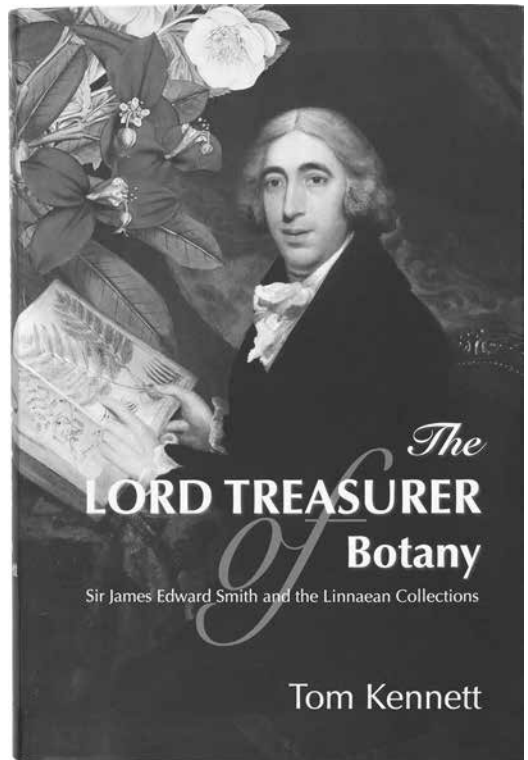
These three summaries give a sense of Harris' histories, and the work includes extensive notes, a bibliography and an index. The varied and balanced information and sweeping perspective contained in this book make it a good recommendation for libraries as well as for anyone who is curious about plants and how we coexist with them.

—Charlotte Tancin, Librarian

Kennett, Tom. *The Lord Treasurer of Botany: Sir James Edward Smith and the Linnaean Collections*. London: The Linnean Society of London, 2016. x, 388 p., [8] p. of pl., ill., port. (some col.). £25.00. ISBN 978-0-9935510-0-0 (paperback). Available from the Linnean Society (<https://www.linnean.org/shop/books/the-lord-treasurer-of-botany>).

This biography of James Edward Smith (1759–1828) is also an overview of botany in Britain in the late 18th and early 19th centuries and of the early history of the Linnean Society of London, which has its origins in Smith's acquisition of the natural history collections of Carolus Linnaeus (1707–1778). In the course of this telling Kennett also provides glimpses of networking among naturalists in Great Britain and Europe and shows the important roles played by correspondence and travel in connecting people with mutual interests.

The purchase of the Linnaean collections is at the heart of this story, but Kennett begins the tale in Norwich, a longtime center of nonconformity, where we meet Smith as a young boy, educated at home and encouraged to think for himself. Smith began to seriously study botany when he was 18, right around the time that the great Linnaeus was passing away. The young man found joy in everything associated with botany, and as he attended classes, visited gardens and participated in field trips and discussions with others of like mind, he grew more confident in his understanding and began to be recognized as a person of knowledge about plants and natural history. His father, seeing that his son was so taken up with botany, suggested a career in medicine. Smith enrolled at the University of Edinburgh, which did not discriminate on the basis of religion, as he was not a member of the Church of England and thus could not attend Oxford or Cambridge. Edinburgh was an excellent place to study medicine, and Smith soon settled into a routine of courses and discussions, including botany classes with Dr. John Hope (1725–1786), one of the first to teach the Linnaean system in Britain. Smith remained close with his parents, corresponding



regularly, and made a few close friendships at Edinburgh that would last into adulthood, one of these with John Henry Englehart, son of the King of Sweden's physician, and another with Robert Batty (1762–1849), who would be a lifelong friend.

Smith's knowledge of natural history gave him a social advantage, and in 1782 as he and several friends spent more and more time discussing natural history, they decided to create the Societas Naturae Studiosorum Edinburgena (generally referred to as the Natural History Society). They read papers and debated them,

and as word spread the membership soon grew to 26 ordinary and 4 honorary members, one of which was James Bolton (ca.1735–1799) of Halifax. Smith was named the first president, and in 1782 he won Dr. Hope's botanical medal for the best student Scottish herbarium. He completed two sessions of winter courses and then left Edinburgh for London.

In 1783 Smith and Batty were sharing lodgings in London and attending William Hunter's (1718–1783) anatomy school. Seeking to continue his interest in botany, Smith became friends with Joseph Banks (1743–1820), president of the Royal Society and the most famous British botanist of his day. Smith visited Banks frequently, and it was at a breakfast visit at Banks' home that he learned that the collections of Linnaeus were being offered for sale. Banks had previously made an offer that was refused by Carl Linnaeus the Younger (1741–1783), but shortly afterward the younger Linnaeus died, and the collections reverted to the father's widow and daughters. They sought to sell all of the elder and younger Linnaeus' natural history and medical collections, and a former pupil of Linnaeus the Elder, Johan Gustaf Acrel (1741–1801), was engaged to sell them as quickly as possible. Acrel sent letters to his London contacts, one of whom was Smith's early friend Engelhart, asking to offer the collection to Banks again. Smith was there when Banks received the letter, and Banks announced that he did not want the collections and handed the letter to Smith, urging him to make the purchase. Smith at 24 was still financially dependent on his father, and so he wrote to his father to ask if he would give Smith the money to make this purchase as an investment in his career. There were now some other individuals abroad also making their interest known, and so time was of the essence. Smith's father finally consented, and the transaction was accomplished. In the six months' wait until the collections arrived in London, Smith continued to attend classes and was elected a member of the Society for the Promotion of Natural History, where he met two new friends, Samuel Goodenough (1743–1827) and Thomas Marsham (1748–1819), who would soon play a major role in the formation of the Linnean Society.

The collections finally arrived in 26 boxes. Suddenly everyone wanted to meet Smith and view the collections of the great Linnaeus. There was a feeling of national pride involved in Smith's having brought these collections to Britain. He was advised to put all of the collections in order and make a catalogue before doing anything else with the items. For seven months he worked with the help of Banks and Banks' librarian Jonas Dryander (1748–1810) to sort and arrange the collections, primarily focusing on the herbarium and checking off specimens on a copy of the 14th edition of Linnaeus' *Systema Vegetabilium* (1784). Smith now became a new focal point for the botanical

community. The collections included manuscripts, and Smith's first publication was a translation of Linnaeus' preface to *Museum Regis Adolphi Friderici* (1754).

Rather than returning to Edinburgh Smith went to Leiden to get a medical degree, also making a grand tour as part of the 17-month trip. In the course of his travels he met a number of important naturalists, bearing a letter of introduction from Banks that mentioned Smith's ownership of the Linnaean collections, which opened doors nearly everywhere for him. Kennett describes the trip in detail, and it is an interesting account. On Smith's return he relocated himself and the collections into a new house. This book includes a map of that area of London showing all of the different locations where Smith and the collections (and soon the Linnean Society, too) resided. In early 1786 he met with his friends Goodenough and Marsham to discuss founding a new natural history society, to be named in honor of Linnaeus, with the encouragement of Banks. In early 1788 they met to draft the rules for the new society and began submitting their proposals to leading naturalists and interested amateurs, to enthusiastic response. The list of interested persons included contacts from Edinburgh and London, as well as a list of over 30 corresponding members, including naturalists Smith met in Europe. On 26 February 1788 the society met for the first time at a coffee house. Soon Smith offered two rooms of his home as a permanent home for the society, one for meetings and the other for collections. He was elected the society's first president and would be reelected annually until 1828.

These developments are recounted in the first third of the biography. In the remaining seven chapters Kennett provides in-depth discussion of Smith's botanical career, his collaborations and publications, his honors, his friendships and a few enemies (William Curtis, 1746–1799; Jean Baptiste de Monet Lamarck, 1744–1829; and Richard Salisbury, 1761–1829). Following the foundation of the Linnean Society, Smith began to spend more time on writing for publication. He had not yet admitted to himself or his father that he was not going to practice medicine. He had steeped himself in the love of botany intensively since he was 18, and now he had a situation where he could really apply himself to shaping a career doing what he loved. He continued to learn from the Linnaean collections and from his contemporaries and steadily became more respected as a botanical authority. While the collections provided the opportunity for him to develop his career, it was his own character, inclination and ability that enabled him to make use of that opportunity, to the benefit of British science. Although I have given a précis here of the beginning of the story, Kennett's book is worth reading for the whole story and for his excellent telling of it, based on extensive research in the libraries and archives of at least 15 institutions.

In addition to the illustrated biography, the book begins with a timeline and outline of the cast of characters and concludes with extensive notes, a nine-page bibliography and an index. Smith's biography, with its elucidation of persons, places and publications that were part of his life, is engrossing from beginning to end. The tone of Kennett's presentation is warm and friendly,

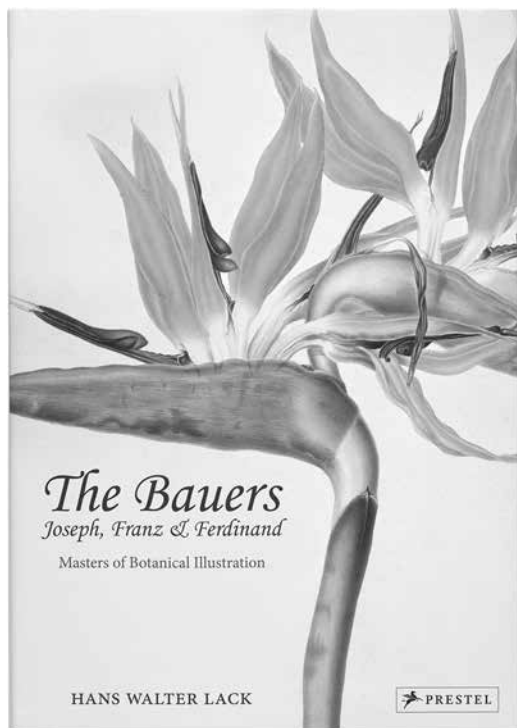
much as Smith seems to have been, rather than dry and detached. *The Lord Treasurer of Botany* is a good read and an important contribution to the history of botany and natural history.

—Charlotte Tancin, Librarian

Lack, Hans Walter. *The Bauers: Joseph, Franz & Ferdinand, Masters of Botanical Illustration. An Illustrated Biography.* Munich: Prestel, 2015. 496 p., 234 ill. (mostly col.). \$85.00 (US). ISBN 978-0-379-135489-7 (hardback).

This book was published in conjunction with the exhibition on the Bauers commencing at the Natural History Museum, London in November 2015. In 1974 at the museum William T. Stearn (1911–2001) showed the author an album of watercolors by Franz and Ferdinand Bauer. Moved by the extraordinary imagery captured in pencil and watercolor and encouraged by Stearn, over the last 40 years Lack has been on a journey to synthesize information he has gleaned from his personal research (published in various forms) with biographical information on the individual Bauers written by others. During his research Lack also discovered information about one of the older brothers, Joseph, of which little was previously known. Throughout this volume, quotes from peers and associates of the Bauer brothers often include the word *indefatigable* to describe the artists' devotion to their illustrative work. Lack can also be described as indefatigable in his search through archives and libraries in numerous European institutions to make connections between the history of the Bauer's drawings, finished watercolors and specimens that have been scattered among several collections since the artists' deaths.

In 20 chapters the overlapping stories of the three brothers are imparted chronologically with 200 informative illustrations of drawings and watercolors, which document the respective careers and talents of Joseph (1756–1831), Franz (1758–1840) and Ferdinand (1760–1826). Their experiences and artistic processes are framed within the political events and scientific inquiries of the time and their relationships with prominent figures in botany. Their history unfolds with the brothers' mentorship with the influential prior Norbert Boccius (1729–1806), then at the convent of the Brothers of Mercy in Feldsberg. Under his tutelage the three learned to accurately capture in watercolor Boccius' herbarium collection and contribute hundreds of paintings toward his florilegium *Liber Regni Vegetabilis* or *Codex Liechtenstein*. This valuable experience gave them a strong foundation in the observational and technical skills needed, as well as the dedication and perseverance



required to excel in their future endeavors. The next chapter follows them to Vienna, where the three Bauers studied for an indeterminate, but likely short, time at the Imperial Royal Court Academy of Painters. From there Joseph was sponsored by the court of Franz Joseph I of Liechtenstein to travel to Rome, the center of the art world, during the period of 1781 to 1788. There he studied and worked in the neo-classical style of the time painting watercolors of figurative and architectural subjects. Ferdinand and Franz were commissioned by Nikolaus Joseph Edler von Jacquin (1727–1817) to produce some of the paintings to be engraved for the latter's *Selectrum Stirpium Americanarum Historia* (Vienna, 1763). Around 1786 Ferdinand accepted the position of *drawing amanuensis* for John Sibthorp's (1758–1796) travels to the Levant. During this trip Ferdinand's use of a numbered color chart, devised during the brothers' time working for Boccius, contributed to the speed

that he could accurately record in pencil botanical and zoological specimens in the field and the accuracy of his hues in the watercolors completed in Oxford (1787–1794) for Sibthorp's posthumously published *Flora Graeca* (London, 1806–1837). As an interesting aside, Lack and David Mabberley's 1999 discovery of a Bauer numbered color chart in the Thaddäus Haenke archive, Real Jardín, Madrid, has led to current research at the Bodleian Libraries' Conservation Research Department to discern the code of Ferdinand's pigments by comparing the numbers on the pencil drawings to the finished watercolors for *Flora Graeca* using two types of spectroscopy. Lack also outlines Sibthorp's notoriously inconsistent collection, field notes and diary records and has painstakingly pieced together parts of the itinerary through Sibthorp's letters, specimens and plant lists and Ferdinand's notations on drawings found in various institutional collections. The story picks up with Franz accompanying Jacquin's son, Joseph Franz Edler von Jacquin (1766–1839), on a grand tour of Europe to visit botanical gardens and make connections in the scientific world beginning in 1788. Soon after arriving in London in 1790, Franz was approached by Joseph Banks (1743–1820) with an offer of an annuity to stay and work for him in England. For the next three decades Franz lived in a small house at the Royal Gardens at Kew where he documented the plants in cultivation at the garden. He was also free to accept work from other commissioners and pursue subjects of personal interest, leading to illustrations of terrestrial and epiphytic orchids and microscopic views of plant diseases, flower morphology and pollen comparisons, which is highlighted in later chapters. This work led to his becoming a fellow of the Royal Society in 1821. The following chapter involves Ferdinand's next adventure to illustrate the specimens collected by the naturalist Robert Brown (1773–1858) during Lt. Matthew Flinder's expedition on the *Investigator* begun in 1801 to circumnavigate the continent of New Holland. We learn that Ferdinand also collected and prepared his own specimens during this expedition. The original watercolors Ferdinand prepared upon his return to London became the property of the Admiralty, which had subsidized the expedition, and were subsequently stored and went unstudied for another 30 years. Since Ferdinand owned the numbered pencil drawings, he could translate their code into finished watercolors. Of these, 203 were to be engraved on copperplates for his own large-format *Illustrations Florae Novae Hollandiae*, begun around 1811 and intended as a companion to Robert Brown's *Prodromus Florae Novae Hollandiae* (London, 1810). Ferdinand's perfectionism,

small number of subscribers and lack of sponsorship slowed production and were financially unfeasible. This resulted in his decision to return to Vienna in 1814, where he finished the third installment of five plates and prematurely ended the project. He was back in the city with his brother Joseph, who had for at least the last eight years been director of the Gallery of the Reigning Prince of Liechtenstein and was responsible for the curation of the collection and design, coordination and installation of objects at various palaces.

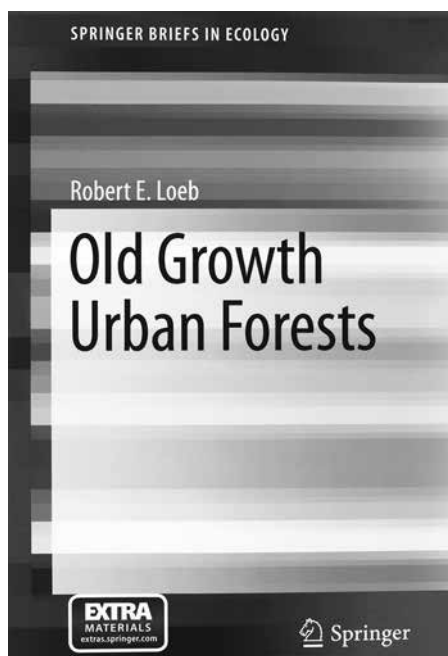
A consistent theme throughout this volume is that Ferdinand and Franz were not self-promoters but were dedicated to artistry and accuracy, and sadly many of their works went unpublished. Ferdinand became financially sound through commissions he continued to receive while living in Vienna, which included one through the Horticultural Society to paint passion flowers of the world. This was his last major work resulting in a series of 81 spectacular and unpublished paintings, including 41 of flower dissections. Until the year before his death at 81, Franz continued his work at Kew and his commissions for Everard Home (1756–1832) for illustrations of comparative anatomy and for William Jackson Hooker (1785–1865) for species of ferns. Unlike Ferdinand, who had predeceased his brothers and had assets to be divided equally, Franz died in debt, with the additional responsibility for Elizabeth Baker, who had cared for him in the last 25 years of his life and whom he had recently adopted. Under the original agreement with Joseph Banks, all of the paintings created from specimens cultivated in the gardens at Kew were not Franz's property. The chapter dedicated to the disposal of their estates explains the separation and transmission of the Bauers' artwork created during their lives and after their deaths. Lack ties together the many threads of the Bauers' oeuvre that are housed in numerous collections into a cohesive whole. The text is followed by a thorough list of references, appendixes, catalogue raisonné and indexes. Sometimes the depth of detail in the text might have been better placed in footnotes so as not to detract from the flow of the brothers' experiences, but aside from that Lack has created a compellingly interwoven and valuable resource on the extraordinary life and masterful work of the Bauers, individually and as a family, whose lives and artworks continue to inspire natural history illustrators and researchers. This volume can be added to the list of Lack's indefatigable commitment (six major publications in the last 16 years) to the literature of influential figures in the history of scientific inquiry and botanical illustration.

—Lugene Bruno, Curator of Art

Loeb, Robert E. *Old Growth Urban Forests*. (Springer Series in Ecology.) New York: Springer, 2011. xi, 78 p., ill., maps, charts (some col.). €51.95. ISBN 978-1-4614-0582-5 (paperback).

Although this book was published in 2011, we're announcing it here at the request of the author for those who have not seen it. Robert Loeb has been engaged in a different kind of botanical history, that of documenting and teaching how to document old growth trees that are not only in old growth forests but also in towns and cities. His primary audience is urban foresters and ecologists as well as park managers. As he notes in the introduction, "the traditional scientific education afforded foresters and ecologists rejects classification of any urban forest as old growth because the forest did not achieve the successional climax state as a result of human disturbances." Loeb's research is both theoretical and applied and provides a model for management and restoration of old growth urban forests, hoping to advance scientific thought and practice and to allow old growth urban forests to continue to be part of our communities in the future. A bibliography and index are included.

—Charlotte Tancin, Librarian



Merian, Maria Sibylla and Kate Heard. *Maria Merian's Butterflies*. London: Royal Collection Trust, 2016. 192 p., 150 col. ill. \$24.95 (US). ISBN 978-1-909741-31-7 (hardback).

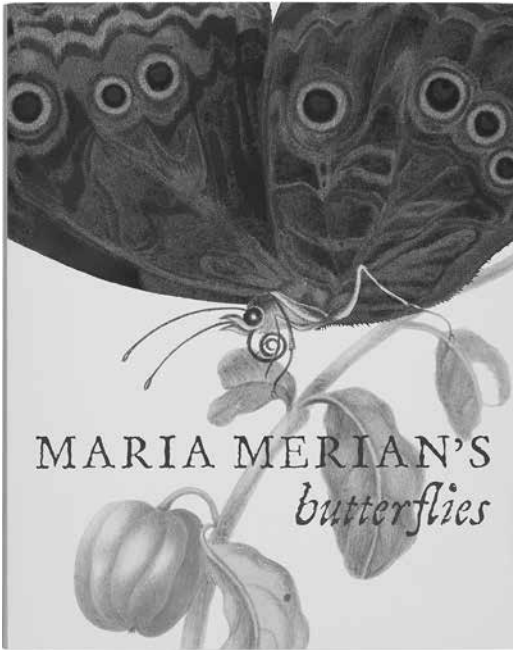
In its perfect form an exhibition catalogue functions both as an enticing and supportive supplement to an experience and as an inspiring and educational resource on its own. In the former case a catalogue encourages one to see firsthand the works being discussed, to take one's time with them and to engage with them in new ways. In the latter case a catalogue is simply a publication in its own right, providing information and insight on a new subject and moving the reader. As a book commissioned by the Royal Collection to accompany the exhibition *Maria Merian's Butterflies* at The Queen's Gallery, Buckingham Palace, this work by Kate Heard, Senior Curator of Prints and Drawings at the Royal Collection Trust, succeeds in both of these functions.

The charm of Heard's work in *Maria Merian's Butterflies* is its reliance on Merian's fascinating story and artistic output as the core of the publication. Heard uses Merian's own words and artworks to show her lifelong interest in insects as a unifying thread in a story that changed course many times. Ultimately, Merian's interest culminated in the publication and series of artworks upon which this book and its related exhibition are based. Heard's work, however, tells that story and illustrates it so vividly, with flying moths or crawling caterpillars

punctuating the text, that the reader never feels at a loss for not being in the presence of the actual works. Merian provides Heard with a fascinating character and an incredible story. A woman who is today celebrated for her pioneering work in both early entomology and in the practice of depicting the symbiotic relationship between plants and insects, Merian pushed against the boundaries of her time.

Heard begins by laying the groundwork for both Merian's artistic and scientific interests and education. Born in Frankfurt to a prominent printmaker and owner of a successful publishing house, Maria Sibylla Merian's (1647–1717) early childhood was spent among artists and draftsmen. When her father died, her mother married an artist and art dealer, and Merian's education in the arts continued. She was trained in drawing, watercolor painting and copper-plate engraving, skills that would serve her well in her future career. She was also encouraged in her lifelong curiosity and interest in insects, particularly those that demonstrated the phenomenon of metamorphosis. She would collect different caterpillars, always careful to supply them with their preferred plant food sources, and watch closely as they grew and changed before her eyes.

Merian's early adulthood and personal life are briefly described, her marriage and the birth of two daughters referenced almost in passing, and Heard continues her narrative with a focus on the ways in which Merian



bucked the norm. More than once Heard points out instances where Merian refused to let her creative or intellectual pursuits fall by the wayside. Describing a period in which Merian had left her husband to join, with her mother and daughters, a Labadist religious community, Heard points out that “although the Labadists encouraged self-denial, this was not a period of intellectual sterility for Merian” (p. 14). The determination and ambition demonstrated by Merian in her quest for knowledge and creative fulfillment, and the ways that that pursuit was accepted and encouraged, are of note. Heard notes that Carolus Linnaeus (1707–1778) cited Merian’s work in his own writing without specifying that he cited her in what may be his two most important publications: *Species Plantarum* (1753) and the 10th edition of *Systema Naturae* (1758). Only later, and succinctly, does Heard describe some of Merian’s detractors, namely John Gabriel Stedman (1744–1797), who found cause to alter some of her plates, which he found to be inaccurate. A *British Critic* reviewer rebuts this slight in Merian’s defense, Heard quickly points out. We are meant to understand throughout Heard’s writing that Merian was supported and her work seen to be of great value, both in its time and today. Further, we are to understand just how careful and meticulous Merian was in her collecting, research and illustrating of the insects she so admired.

As a young woman, after marriage and children, Merian continued this work. Having gotten the taste for publishing early on with *Neues Blumenbuch*, a floral pattern book for needlework, Merian nourished her

scientific curiosity by studying caterpillars, moths and butterflies, often breeding her own, and publishing two volumes on the topic of insect metamorphosis. In these volumes Merian’s engravings illustrating the life cycle of the insect and the host plants upon which it fed accompanied her research. When, in 1691, the Labadist community broke up, Merian and her daughters moved to Amsterdam where she would make even more important contacts with scientists and artists alike, who would provide patronage, artistic and scientific inspiration and travel connections. It was in the collections of some of these Labadist and Amsterdam contacts that she first saw specimens of the large and colorful insects of Suriname. After many years of painting from preserved specimens, Merian decided it was finally time to see her beloved insects in the wild, and she and her daughter Dorothea made the voyage to Suriname in 1699.

While Merian and her daughter spent two years in Suriname collecting a variety of insects, noting their preferred host plants and growing them as well, she maintained detailed notes. Merian observed their movements, eating habits and physical attributes. She also spoke with natives and other inhabitants of the area, gathering information to supplement what she had not observed. She expanded her interests to include reptiles and amphibians, subjects for a future publication. After illness forced her to return in 1701, Merian spent the next several years painting and engraving her observations and soliciting patrons for a published volume. The culmination of this work, *Metamorphosis Insectorum Surinamensium*, was published in 1705. The volume on display in the Queen’s Gallery, and from which plates are reproduced in Heard’s book, was acquired during the reign of William IV for the Royal Library. It is a counterproof edition, comprised of elements printed onto vellum off freshly printed pages rather than from the plate itself and then carefully hand painted by Merian (and likely her daughters). This process provides the artist with the ability to slightly alter the composition, creating unique pieces, and to use more luxurious materials, like vellum. Because of the expense of the materials and the lengthy process, very few volumes were created in this method. Loose plates also on display and reproduced by Heard were created in this method and collected by Charles III.

Heard moves between the narrative of Merian’s story and the historical context of Dutch life at the turn of the century, detailing dates and geographically important notes alongside the important people and relationships that made Merian’s life and work possible. The compellingly written text only occupies 27 pages of the 192 in total, leaving the artworks themselves to truly absorb the reader. The illustrations are divided into two sections, a smaller grouping of European works done before the trip to Suriname, and a larger grouping of works from the voyage. Each of these

sections is composed of beautifully reproduced full-page illustrations, often paired with full-page or full-spread detail reproductions. Some details include quotes from Merian describing the specific insect's characteristics or elements of her experience either in collecting or studying the insect or plant. These quotes add a personal element to the illustrations, giving the reader a small break in this large section. Following the large section

of images, the book ends with an index of the works reproduced and a bibliography. Heard has created an excellent review of Merian's lifework. One only wishes that the artworks, and the book itself, were twice the size to truly reproduce the experience of Merian's own publication.

—Carrie Roy, Assistant Curator of Art

Nynäs, Carina and Lars Bergquist. *A Linnaean Kaleidoscope: Linnaeus and His 186 Dissertations*. Stockholm: The Hagströmer Medico-Historical Library [and] Fri Tanke, 2016. 2 vol.: xlix, 615 p., ill., port. kr840.00. ISBN 978-91-87513-38-1 (hardback).

In the absence of English translations, even centuries after their publication, of all 186 dissertations defended by students of Carolus Linnaeus (1707–1778), this two-volume work is a welcome addition to the historical literature of botany, medicine, zoology, geology and a handful of other disciplines and is the first expanded introduction to all of the dissertations in English. It provides the next best thing to actual translations of the Latin texts: for each dissertation several pages of summary and discussion are given, illustrated with reproductions of the title pages and any plates that were included in the dissertations. Although about half the dissertations were previously translated into Swedish, and some had been translated into English and other languages, many have not, and so now at least we have access to long, contextual descriptions of their contents in English. Before this the main English-language window into the Linnaean dissertations was Richard Pulteney's (1730–1801) *A General View of the Writings of Linnaeus* (London, 1781, and a second edition in 1805). Nynäs and Bergquist say that their intended audience is those interested in the history of science, popular history and the world of ideas in the 18th century and Linnaeus himself. Lists of the dissertations and their respondents, a 14-page bibliography and 6 indexes are included.

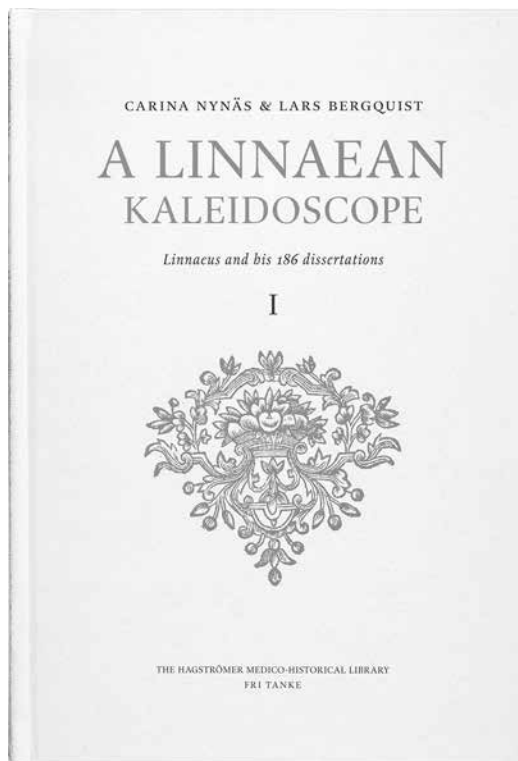
—Charlotte Tancin, Librarian

Willes, Margaret. *A Shakespearean Botanical*. Oxford: Bodleian Library, 2015. 200 p., col. ill. \$22.50 (US), £12.99. ISBN 978-1-85124-437-9 (hardback).

Shakespeare's plants and flowers have been a topic in print since at least 1878 when Henry Ellacombe published his *The Plant-Lore & Garden-Craft of Shakespeare*. Hunt Institute has several titles ranging from 1878 to 1974, and a search of WorldCat produced at least six more since the 1980s. It really is a timeless recipe for success, parsing out the many plants that the Bard references in his plays and giving the modern audience a taste of what Shakespeare's contemporary audience would have understood about

these plants. After all we are 400 years removed from the world of Shakespeare, the language of plants and the many ways they were used.

Margaret Willes, whose day job is in publishing but who has lately taken up the pen herself, is the latest to explore the botanical lines in Shakespeare's plays plus his two long poems, "The Rape of Lucrece" and "Venus and Adonis." *A Shakespearean Botanical* is a small octavo-sized book, pleasantly bound with a green spine and green endsheets (for those who enjoy an all-around pleasurable experience), and published by the venerable Bodleian Library at Oxford University.

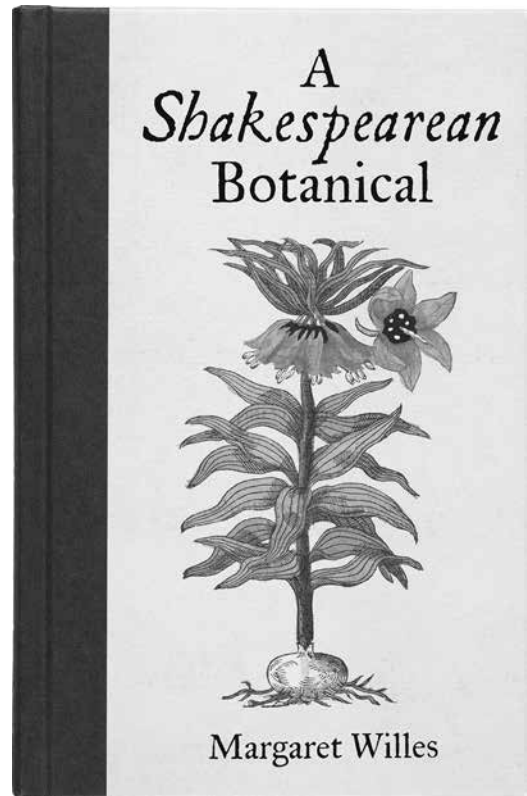


A better title might be *A Shakespeare and Gerardian Botanical*. Each of the 45 plant entries is illustrated with the image of a woodcut from John Gerard's *The Herball, or Generall Historie of Plantes*, printed by John Norton in London in 1597. Willes uses a unique hand-colored copy of the herbarium that was a gift from Norton to Thomas Bodley, founder of the Bodleian.

Shakespeare and Gerard (1545–1612), a botanist and barber-surgeon, were contemporaries. It is highly likely that Shakespeare used Gerard as a source for plant information and is possible that the two even knew each other. Gerard's material came from a partially translated manuscript of Rembert Dodoen's (1517–1585) *Stirpium Historiae Pemptades Sex*. Gerard finished the translation, rearranged the plants and added information on plant localities, virtues and related folklore. The woodcuts were bought from a printer in Germany, and there were issues in matching them to the text. Gerard must have been proud of his work, though, for even when Norton had Matthias de L'Obel (1538–1616), famed botanist himself, attempt to edit the error-ridden text, Gerard put a halt to it part way through and sent it to publication. Gerard's herbarium was a major source of plant information in England for decades, and Willes writes that Gerard's fanciful descriptions would have suited Shakespeare.

In *A Shakespearean Botanical* the plants are arranged alphabetically by common English names, and each is given about a page and a half of text. Willes opens with a few lines from one of Shakespeare's plays or poems that reference the plant. She quickly discusses the plot surrounding the line, which can still leave the reader, if unfamiliar with the play, unsure of how exactly the plant and plot go together, and then goes on to discuss what the social context would be for the Shakespearean audience.

This discussion includes a summary of Gerard's suggestions for the plant's preparation and uses in most cases. She references a couple of other English Tudor herbals, namely those of William Turner (?1508–1568) and Henry Lyte (?1529–1607), whose works Shakespeare likely would have used in addition to Gerard. Often she includes a period recipe for preparation, which will make your mouth water, and information on the plant's historical significance. These descriptions are by no means deep critical analyses of the plays or plant symbolism, but Willes does, if relevant, allude to the deeper context. For instance, the pansy, which Oberon uses to make Titania fall in love with the next being she sees, was, in real life, also used as a cure for syphilis. How many people in Shakespeare's audience would have known this remedy is hard to say. Sometimes there is really nothing special as to why Shakespeare mentions the plant, such as parsley, which he mentions only in context of stuffing a rabbit. He could have used any herb. In cases like this, Willes draws the reader in with the Elizabethan medicinal and culinary uses. It is amusing to read about Renaissance England's ideas about



certain fruits and vegetables: what could never be eaten raw (pears and many fruits), what was thought to be an aphrodisiac (potatoes) or what could help childbirth progress (sitting over a steaming decoction of white wine vinegar and acorns).

As mentioned before, Willes is not the first to write about the plants and flowers in Shakespeare, so perhaps the written material is not all that new. In fact you might be able to find more detailed information in another of the Shakespeare's plants texts, like Ellacombe, whom Willes acknowledges as a source. Gerald Ponting interspersed the photographs in his 2008 work, *Shakespeare's Fantastic Garlands*, with Gerard's woodcuts, but his privately published book does not seem to have circulated widely, especially in the United States. Having the Bodleian behind her publication is a benefit to Willes. Perhaps the biggest draw of *A Shakespearean Botanical* is that all of the information presented is contemporary and English. The text and the images are all based on English Tudor sources and offer a more immersive experience than one illustrated with modern paintings or photographs. For any Shakespeare enthusiast, gardener, Anglophile or amateur historian, this beautiful book is sure to delight.

—Jeannette McDevitt, Assistant Librarian