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Nature in draft: Images and overseas natural history in the work of Charles Plumier (1646-1704)

José Beltrán

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Nature in Draft

Images and Overseas Natural History
in the Work of Charles Plumier (1646-1704)

José Beltrán

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of History and Civilization
of the European University Institute

Florence, 2 May 2017

European University Institute
Department of History and Civilization

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Examining Board

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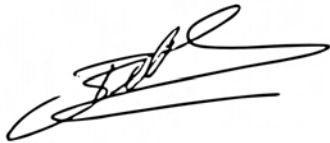
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Abstract

Upon his death in 1704, the Minim friar, botanist to Louis XIV, and intrepid traveler Charles Plumier (1646-1704) left in his Parisian convent a mass of drawings on the flora and fauna of the West Indies. The industrious Plumier was a naturalist with inky fingers: his firsthand observations on the Caribbean islands translated into thousands of paper materials extremely heterogeneous in form and content. They encompass exquisite ink-and-watercolor pictures and rapidly executed sketches, rough notes and elaborate written descriptions, detailed measurements and interminable lists. For all their diversity, Plumier's papers bear the common desire to depict, describe, and inventory flowery and non-flowery plants, seeds and leaves, fishes and shells, reptiles and birds—in one word, to capture a faraway nature on paper.

“Nature in Draft” mines this exciting and virtually untapped 8,000-page archive, and traces its history from the field, through the often tortuous paths that brought part of it into print, down to its eighteenth- and nineteenth-century afterlives. By paying particular attention to the materiality of Plumier's corpus and the practices by which it was crafted and subsequently put to use, my aim is to relocate the much-debated notion of “scientific image” within a broader perspective on the working methods and intellectual technologies that underpinned the production and transmission of natural knowledge in France around 1700. Each of the six chapters foregrounds a different aspect of Plumier's papers. The first two chapters consider the intellectual and political dimensions of the corpus; the third and fourth move towards an in-depth analysis of the archive as a tool for the recording, storing, and management of natural historical information; the last part of the dissertation deals with the transmission and reception of the collection, both in print and through the appropriations and relocations of which it was the object long after the death of the author.

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bottomless generosity and exemplary dedication to the historian's craft have always been an inspiration to me.

Several scholars read different parts of this dissertation. Simon Schaffer kindly hosted me at HPS and commented on my work with his legendary wit. During my time at Cambridge, I chased him to whatever presentation or class he gave, and they were breathtaking every single time. I spent hours contemplating Plumier's books and copperplates with Roger Gaskell: his generous and wise advice on material bibliography and book history (from which I have also benefited via mail after leaving England) permeates a good deal of chapter 5. Regina Grafe read chapter 2 and encouraged me to pose big questions, and to give small, solid answers. Jacques Revel read and commented on my early project with his usual perspicacity. Well into my third year, Nick Jardine read one chapter and remarked to me that, it not being likely that garments were kept inside Plumier, I should probably refer to him as a "draftsman" rather than a "drawer." Sebastian Kroupa read chapter 2: he has also been a comrade extraordinaire in Cambridge and well beyond. Joserra Marcaida read different parts: his friendship and acumen have always meant a good deal to me, and his family always made me feel at home. I miss very much the long evening conversations with Joserra, next to what seemed streetlight and happened to be art.

I have also benefited from discussions with scholars who were generous with their time: Jean-Marc Besse, Marie-Noëlle Bourguet, Lorraine Daston, Jean-Marc Drouin, Anita Guerrini, Rafael Mandressi, Alice Lemaire (who kindly shared with me her unpublished dissertation), and François Regourd in Paris; Luca Molà, Ann Thompson, and Bartolomé Yun in Florence; Isabelle Charmantier, Charlie Jarvis (who kindly sent me images of, and long commentaries on, Plumier's dried plants in the herbarium of the London Natural History Museum), and Joanna Woodall in London; Anne Marie Roos in Lincoln; Margaret Carlyle, Raphaëlle Garrod, Sachiko Kusukawa, E. C. Spary, and Chris Preston in Cambridge; Pietro Corsi in Oxford; and Pamela H. Smith in New York. Ann Blair, Fernando Bouza, Charlotte Guichard, Neil Safier, and Peter Stallybrass (scholars whose research has deeply influenced my own views across these pages) found time in their short visits to Florence to endure my endless questions and kindly share their expertise. In particular, I am tremendously grateful to Ann Blair for having accepted to act as the external examiner for this dissertation.

This work is also greatly indebted to the assistance of many librarians and archivists, especially those at the EUI Library, the Bibliothèque centrale du Muséum nationale

d'histoire naturelle in Paris, the Whipple Library in Cambridge, the Biblioteca Histórica “Marqués de Valdecillas” in Madrid, and the Biblioteca del Museo Galileo in Florence.

I presented different parts of this research at conferences and seminars in Florence, Manchester, Oxford, Paris, St Andrews, London, Cambridge, Strasbourg, and Berlin. I would like to thank the participants for their feedback, as well as the organizers for their invitation, especially those who kindly covered the expenses of my trips.

The final word of thanks goes to family and friends. My parents, José and Tere, have never been completely clear about what a doctorate or a scholar is, and they became increasingly surprised to discover that one could somehow make a living out of reading and writing history. But their enduring confidence in my passions and choices is the best gift I could have ever received from them. I thank and apologize to my partner and colleague, Caroline Mezger, who had to spend too many dinners hearing about indexes and ferns, a surely weird and funny topic in the eyes of an expert in Nazi youth organizations and ethnic Germans. She is my best, most patient reader: she came up with the title for this dissertation and her prose skills improved every line in it. More importantly, her love and caring support made every moment of its writing happier. If I had to dedicate this dissertation to somebody, it would be to her and to the rest of my friends. Alexis, Brice, Élise, and François were remarkable flatmates and fellow gardeners; Cloé, Dónal, Laura, Luca, María Gómez, Michiel, and Saara made of Florence an unforgettable and exceptionally joyful place to live; and to Jonas, Malte, Martín, and Roel, I owe very happy and memorable moments. I hope María Lloret, Miquel, and Sergio know just how important they are to me: I cherish their friendship deeply and have missed them dearly since our paths had to diverge.

A Note on Conventions

For the sake of convenience, all quotations in the body text are given in English. Translations from other languages, mostly French and to a lesser degree Latin and Italian, are all my own except if otherwise noted in the footnotes. For primary sources, whether manuscript or printed, I provide the original text in the footnotes. When quoting a text exclusively in the footnotes, I keep it in the original language.

I have modernized very lightly the spelling of book titles and quotations, mainly limiting myself to simplifying early modern typographical uses (e.g., the interchangeable use of “v” and “u,” or “i” and “j”). I have punctually capitalized the first word of quotations when necessary. The spellings conventional in English for personal names have been usually preferred (e.g., Johannes Burman over Joannes Burmannus). I kept the use of “*sic*” to a minimum. I translated some of the institutional names and titles into English (Paris Academy of Sciences, Secretary of State of the Navy, and so forth), but kept others in French when I thought this was clearer (e.g., Jardin du roi, Bibliothèque du Roi, Imprimerie royale).

There are some issues of terminology when discussing intaglio printmaking: “engraving” is a technique consisting of carving a metal plate (usually copper) with a burin; “etching” refers to the technique in which the grooves in the metal plate have been made by means of an acid. Both techniques were often combined in the making of an intaglio plate, and the differences between both are not always easily graspable at first sight. I will refer to “intaglio print” in cases in which I do not know whether it is an engraving, an etching, or both. The differences between etching and engraving are explained in detail in chapter 5.

A key to the abbreviations used in the footnotes to denote archives or libraries is given in the back matter.

Introduction

A Naturalist with Inky Fingers¹

In August 1697, the squadron commanded by the French privateer Jean-Bernard Desjean, baron de Pointis (1645-1707), docked in the port of Brest. The ships were returning from the Caribbean basin, where they had been responsible for the raid on the Spanish colonial port of Cartagena de Indias—the last major military event of the Nine Years' War, right before the signing of the Peace of Ryswick, and one of the few significant ones on the Caribbean scene.² The combined buccaneer and naval expedition was bringing to Louis XIV the substantial haul of the pillaged city, one of the jewels in the crown of the Spanish American empire. Among those reaching France with De Pointis's fleet was a French friar named Charles Plumier (1646-1704), who was carrying with him a different sort of booty: a bunch of papers, or “several *Books in Folio*, of Designs and Paintings of *Plants, Birds, Fishes, and Insects* of the *West-Indies*; all done by himself very accurately” (fig. I.1). The episode was related by the English naturalist Martin Lister (1639-1712), who visited the collection and its author in a Parisian convent soon after their arrival to the continent.³ Lister does not tell us, however, how many of those drawings actually came with Plumier from the West Indies and how many were entirely or partially made far from the flora and fauna they represented—say, in the convent itself. The Englishman also forgets to point out that the multitudinous sheets, folders, and volumes heaped in the friar's cell were not all filled with the exquisite representations to which his attention was mostly directed. Those papers were extremely heterogeneous in form and content. They brought together—sometimes within the space of the same page—ink-and-watercolor drawings with sketchy outlines, carefully composed observations with rough notes, detailed measurements with interminable lists. Whatever their variations in form, they all aimed at depicting, describing, measuring, and

¹ I use here the suggestive expression coined by Anthony Grafton for Renaissance correctors: Anthony Grafton, *Humanists with Inky Fingers: The Culture of Correction in Renaissance Europe* (Florence: Leo S. Olschki, 2011), 27-48.

² On the French sack of Cartagena, see William Thomas Morgan, “The Expedition of Baron de Pointis against Cartagena,” *The American Historical Review* 37, no. 2 (1932), 237-54; Kris Lane, *Pillaging the Empire: Global Piracy on the High Seas, 1500-1750*, 2nd ed. (New York: Routledge, 2016 [1998]), 181-2, and James Pritchard, *In Search of Empire: The French in the Americas, 1670-1730* (Cambridge: Cambridge University Press, 2004), chap. 7, esp. 326-30.

³ Martin Lister, *A Journey to Paris in the Year 1698* (London: printed for Jacob Tonson, 1699), 72.



Fig. I.1. Portrait of Charles Plumier. We do not know when or by whom this portrait was made, but it was copied several times thereafter. Plumier is dressed in the austere, hooded habit of the order, made of coarse, undyed wool fabric. Minims were not allowed to use clothes other than this or take the hoods off, day or night. The austerity of the Minims' life is particularly known for their "fourth vow" of quadragesimal life, by which they removed any animal products (including eggs and dairy, but excluding fish) from their diets. (Bibliothèque de l'Académie nationale de médecine, Paris.)

inventorying flowery and non-flowery plants, seeds and leaves, fishes and shells, reptiles and birds—in one word, at capturing the whole nature of the West Indies onto paper. Plumier's remarkable feat was a whole distant nature in draft.

This vast corpus of iconographic and textual descriptions of a nature far afield is the object of this doctoral dissertation. A manifold amount of papers ranging from simple sketches and scribbles to carefully colored drawings and detailed written descriptions, it constituted the site in which a natural knowledge of the Americas was produced for (and perhaps partially in) Europe. Some time ago, Roger Chartier wrote about "object studies," an approach to the history of the book tracing the contexts of the multiple makings and remakings of a single book—from their usually tortuous printing to their plural readings—and studying the physical features of its different editions, issues, and copies, as well as the mutable meanings linked to each of them. A well-known case of such an approach is Ann Blair's study of Jean Bodin's *Universae naturae theatrum* (1596), in which she explores the worlds of European Renaissance natural philosophy by tracing the fates of this sole volume. In many ways, this dissertation aspires to be an "object study" of this sort: I will follow the fortunes and destiny of Plumier's corpus of images

(and texts) at different stages of their history, from their conditions of possibility to their fluctuant reception. Through this mutable physical artifact, made out of paper, ink, and pigments, my aim is to examine the methods and practices that surrounded the production of visual representations within the then still ill-defined field of the study of nature about 1700. “Nature in draft” is, therefore, about the making of images and related inscriptions as a workaday practice of the naturalist in the decades around the turn of the eighteenth century.⁴

Cases such as this have often been approached from genealogical perspectives on early modern natural historical illustrations. From the standpoint of our modern art-and-science divide, images of the natural world have also been privileged objects of analysis in the exploration of the interactions and filtrations between the realm of artistic creation and that of scientific research.⁵ More recently, the notion of “visual culture” has permitted to marry the gesture of graphic representation with the act of scholarly observation, therefore isolating (when not directly opposing) images and image-making from written culture and other forms of inscription. In contrast to these approaches, this dissertation contends that what has unproblematically come to be known as “visual culture”—an expression I explicitly avoid in what follows—imposes an artificial compartmentalization upon its objects of scrutiny. It brings together phenomena that were not necessarily related at any time, while separating others that might have been. Image-making was not inevitably concomitant to observation; the recording of visual experience did not necessarily result in graphic forms; first-hand ocular inspection and the reading of books were not always two unquestionably opposed learned activities, and the boundary between written and iconographic cultures becomes, at times, historically untraceable.

⁴ Roger Chartier, “Print Culture,” in *The Culture of Print: Power and Uses of Print in Early Modern Europe*, ed. Chartier, trans. Lydia B. Cochrane (Princeton: Princeton University Press, 2014 [1987]), 3; Ann Blair, *The Theatre of Nature: Jean Bodin and Renaissance Science* (Princeton: Princeton University Press, 1997). I found also inspiring two other “object studies” for the early modern period that do not deal with natural knowledge, namely Peter Burke’s *The Fortunes of the Courtier: The European Reception of Castiglione’s Cortegiano* (Cambridge: Polity Press, 1995), and, for an “object study” of a “non-book” work, Chartier’s masterful history of Cardenio’s story through novels and theater plays: *Cardenio entre Cervantès et Shakespeare: Histoire d’une pièce perdue* (Paris: Gallimard-NRF, 2011).

⁵ It is worth remembering here that in early eighteenth-century French dictionaries, the word *art* was defined as “tout ce qui se fait par l’adresse & par l’industrie de l’homme,” and consequently opposed to *nature*. *Science*, on the other hand, was a near synonym of knowledge (“connaissance des choses, acquise par la lecture, ou par la meditation”) and sometimes of *art* itself (“se dit plus specifiquement d’un art particulier, de l’application qu’on a eue à approfondir la connoissance d’une matière, de la reduire en règle & en méthode”). I am quoting here from Antoine Furetière, *Dictionnaire universel, contenant generalement tous les mots françois tant vieux que modernes, & les termes des sciences et des arts*, 2nd ed. (The Hague and Rotterdam: chez Arnoud et Reinier Leers, 1701 [1690]), vol. 1, sig. Bb2^r, and vol. 3, sig. Oooo2^r.

To put it another way, “Nature in Draft” does not approach visual representations in terms of a competitive opposition with written culture, and it does certainly not analyze Plumier’s (largely, but not exclusively) iconographic archive to eventually reach the conclusion that images were important and that the time has come to pay them attention. Current scholars are already paying them a good deal of attention. My ultimate aim is to understand the manifold and often changing roles that these very diverse forms of visual representation played within concrete, local contexts—be they social, cultural, or epistemic—that gave them various, and sometimes conflicting meanings. In doing so, however, this dissertation pursues a rather different approach from those who focus on highlighting the centrality of images and other phenomena we now range under the label of “visual” in various historical situations, and who do so by means of a double historiographical gesture that consists in homogenizing them and, by the same token, isolating them from other “non-visual phenomena.”

The sketches, drawings, and copperplates by Plumier offer a compelling case for re-centering the question of the function and functioning of visual representations in the making of overseas natural knowledge. I argue that this collection of images needs to be understood not only in relation to their supposed aim of making a distant reality visible in Europe, but also within the context of the material practices on which the business of natural history was based around 1700—practices such as observing, depicting, and carving plates, but also reading, note-taking, and drawing written lists. Plumier’s collection of images provides us with an intriguing point of entry into the history of the practices of inscription involved in the work of naturalists during the period from the 1650s to the 1750s. What did naturalists do back then? They gathered, often obsessively, animal, vegetable, and stony specimens,⁶ mesmerized as they and their audiences were by the wondrous products of nature; or driven, as it happened, by ideas of how these collections could serve this or that political project;⁷ or because they were involved in (occasionally profitable) commercial exchanges across continents and oceans.⁸ Naturalists

⁶ Perhaps the best studied case is that of Ulisse Aldrovandi: see Giuseppe Olmi, *L’inventario del mondo. Catalogazione della natura e luoghi del sapere nella prima età moderna* (Bologna: Il Mulino, 1992) and Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley, CA: University of California Press, 1994). For France, see especially Krzysztof Pomian, *Collectionneurs, amateurs et curieux. Paris, Venise: XVI^e-XVIII^e siècle* (Paris: Gallimard, 1987) and Antoine Schnapper, *Le géant, la licorne, la tulipe. Collections françaises au XVIII^e siècle*, vol. 1, *Histoire et histoire naturelle* (Paris: Flammarion, 1988).

⁷ Pierre-Yves Lacour, *La République naturaliste. Collections d’histoire naturelle et Révolution française (1789-1804)* (Paris: Muséum national d’histoire naturelle, 2014).

⁸ As studied, to name but two well-known examples, by Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven, CT: Yale University Press, 2007) and, more

taught, observed with attention, and experimented from time to time.⁹ They once took delight in uncanny natural wonders, only to repudiate them ultimately as vulgar and destabilizing within an emerging worldview grounded on invariant laws rather than flexible customs.¹⁰ They engaged with the local spaces of their cities and their regions, while sharing the global aspirations of their times.¹¹ Naturalists made books, or so they believed, for numerous were the agents involved in the production of such often nightmarishly intricate objects, from printers and booksellers to engravers and binders—not to mention those who put forward the money.¹²

Naturalists did all that. But they also wrote and scribbled, drew and sketched, cut and pasted, collated and compared, read books and took notes, amassed manifold documents and arranged them, made lists and indexes. This analysis of Plumier's iconographic corpus will open a small window, I hope, to the broader culture of paper practices in which traveling naturalists plied their trade.¹³

recently, Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: The University of Chicago Press, 2014).

⁹ Karen Meier Reeds, *Botany in Medieval and Renaissance Universities* (New York: Garland, 1991); Claire Salomon-Bayet, *L'institution de la science et l'expérience du vivant. Méthode et expérience à l'Académie royale des sciences, 1666-1793*, 2nd ed. (Paris: Flammarion, 2008 [1978]); Lorraine Daston and Elizabeth Lunbeck, eds., *Histories of Scientific Observation* (Chicago: The University of Chicago Press, 2011), and Mary Terrall, *Catching Nature in the Act: Réaumur and the Practice of Natural History in the Eighteenth Century* (Chicago: The University of Chicago Press, 2013).

¹⁰ The classic, of course, is Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York: Zone Books, 1998).

¹¹ For the local scale, consider the city of Paris with Stéphane Van Damme, *Paris, capitale philosophique. De la Fronde à la Révolution* (Paris: Odile Jacob, 2005), and the German regions with Alix Cooper, *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007). For the global scale, or rather that of cross-cultural encounter, the bibliography is immense, but especially remarkable are Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900* (Houndmills: Palgrave Macmillan, 2007), and Neil Safier, *Measuring the New World: Enlightenment Science and South America* (Chicago: The University of Chicago Press, 2008).

¹² Jesús M^a Carrillo Castillo, *Naturaleza e imperio. La representación del mundo natural en la Historia general y natural de las Indias de Gonzalo Fernández de Oviedo* (Madrid: Fundación Carolina and Doce Calles, 2004).

¹³ For half a decade or so, historians of science have been increasingly fascinated by “paper technologies” in the work of early modern natural knowledge. The bibliography is quite abundant by now, but especially relevant are Ann Blair, *Too Much to Know: Managing Scholarly Information before the Modern Age* (New Haven, CT: Yale University Press, 2010); Volker Hess and J. Andrew Mendelsohn, “Case and Series: Medical Knowledge and Paper Technologies, 1600-1900,” *History of Science* 48 (2010), 287-314; Staffan Müller-Wille and Isabelle Charmantier, “Natural History and Information Overload: The Case of Linnaeus,” *Studies in History and Philosophy of Biological and Biomedical Sciences* 43 (2012), 4-15, and “Carl Linnaeus's Botanical Paper Slips (1767-1773),” *Intellectual History Review* 24, no. 2 (2014), 215-38; Omar W. Nasim, *Observing by Hand: Sketching the Nebulae in the Nineteenth Century* (Chicago: The University of Chicago Press, 2013); Richard Yeo, *Notebooks, English Virtuosi, and Early Modern Science* (Chicago: The University of Chicago Press, 2014); Isabelle Charmantier and Staffan Müller-Wille, eds., “Worlds of Paper,” special issue, *Early Science and Medicine* 19, no. 5 (2014), 379-503; Elizabeth Yale, ed., “The History of Archives and the History of Science,” special issue, *Isis* 107, no. 1 (2016), 74-120, and her *Sociable Knowledge: Natural History and the Nation in Early Modern Britain* (Philadelphia, PA: University of Pennsylvania Press, 2016). Although not focussed on the history of science, see also Ann Blair and Jennifer Milligan, eds., “Towards a Cultural History of Archives,” special issue, *Archival Science* 7, no. 4 (2007), 289-397.

Pious craftsmanship, empire, and natural history, ca. 1700

At his death in the Spanish port city of Cádiz in November 1704, just on the point of embarking for what would have been his fourth journey to the Americas—and in the wake of the alliance freshly forged between France and Spain as a result of a Bourbon ascending to the throne of Madrid—Plumier left a considerable number of papers in his cell of the convent of Minims near Place Royale (today Place des Vosges) in Paris. It must certainly have been an astonishingly large corpus already at the time: its extant parts add up to more than 9,100 papers, of which roughly three quarters are filled with handmade sketches, drawings, and colored figures, as well as a number of loose sheets of engravings and etchings.¹⁴ The corpus is nowadays mainly scattered across Parisian libraries, mostly at the library of the Muséum national d'histoire naturelle, but also at the archives of the Academy of Sciences and the different branches of the Bibliothèque nationale de France. The overwhelming bulk of these documents deal with the vegetable world, but a good number also treat shells and mollusks, lizards and insects, amphibians and birds; these plants and animals are depicted entirely, but often also in anatomized form, their skins and flowers open, their leaves and bones detached from the organisms. Several other paper materials also picture and describe natives from the Caribbean islands, or fortresses and cities of the overseas French dominions, or still landscapes and views of islands and seas. The large majority of these documents list, describe, and picture the flora and fauna of the French West Indies; some bundles, though, group written and graphic materials copying and re-elaborating information found in printed books; and several others deal with plants diligently cultivated at the *Jardin du roi*, the royal gardens in Paris (fig. I.2). These papers are sometimes in the form of loose pages, but most of them were bound in uniform volumes long after the death of their author. This uncanny (and mostly iconographic) archive of nature is the result of about fifteen years of work (between 1687, when Plumier shipped for the first time towards the other shore of the Atlantic, and 1704, the year of his death) carried out between Europe (Paris, Rome, and Marseille) and the Caribbean basin.

¹⁴ My account is based on the corpus as I have been able to reconstruct it through libraries and archives, namely BCMNHN MS 1-37, 1335, 3355, Ars. MS 2502, 2875, 2078, 2104, BNF Est. Ad-3-Pet. Fol., JB-68-4, and, outside Paris, BMM MS 913. I have not taken into account BNF Mss. Latin 1847 (which is not clearly by the hand of Plumier). Especially in chap. 6, I also use copies made of Plumier's drawings after his death, such as BIF MS 979-82. For a more comprehensive list of the manuscript materials used, see the bibliography.

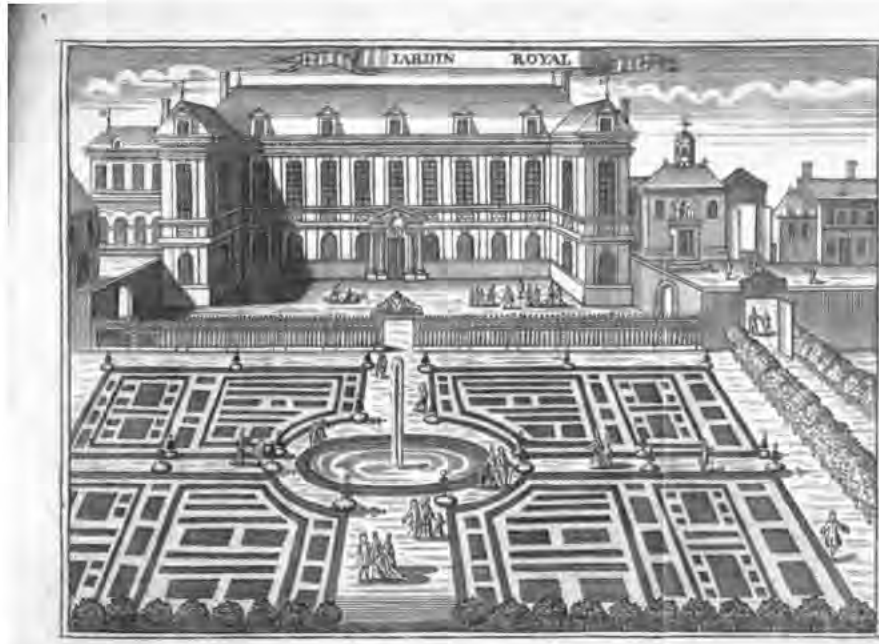


Fig. I.2. The Jardin du roi in Paris. Plumier never held an official appointment at any scientific institutions, yet scholarly sociability in late seventeenth-century Paris was largely dependent on organizations under royal patronage such as the Jardin du roi, a thirty minutes' walk away from the Minim convent at Place Royale, and the Bibliothèque du roi, where a circle of botanists around the Academy of Sciences (including Plumier) held regular meetings. Moreover, public “demonstrations” or lessons on anatomy and botany took place at the Jardin du roi—the latter by Plumier’s friend Joseph Pitton de Tournefort. (Bibliothèque interuniversitaire de Santé, Paris.)

A considerable number of Plumier’s drawings found their way into print, although all of these were pictures of plants: in 1693, the *Description des plantes de l’Amérique, avec leurs figures* (Description of American plants, with their figures) appeared, and, more than ten years later, the *Traité des fougères de l’Amérique* (Treatise of American ferns). Both were printed by the *Imprimerie royale*, the royal press housed at the Louvre palace; both were voluminous folio books and included 108 and 172 full-page copperplates, respectively, each depicting a different specimen of West Indian flora. Father Plumier authored two other books, both lavishly illustrated as well: one was a thin quarto volume on new genera of American plants; the other, a bulky manual on the art of turnery.

Craftsmanship and the sea were in Plumier’s blood. He was born in the bustling, populous city of Marseille—France’s leading port and a paramount hub of the Mediterranean’s networks of exchange—to a family of artisans and small workers: his father, Plumier once said, practiced the art of turnery, on which the friar would write the manual mentioned—a book that would be destined for a far larger editorial success than

any of his hefty botany volumes. He entered into a Catholic monastic order of mendicant friars early in his teens, probably in Marseille: the austere order of Minims (from the Italian *minimo*, “the smallest”) counted several convents in the Provençal region, including one in Marseille’s old town, one in the neighboring city of Aix, and another in Bormes—where Plumier would spend some years during his late thirties, right before getting involved in his first transoceanic journey of natural exploration.¹⁵

Plumier’s life as a scholar would henceforth be closely tied to his identity as a Minim. Like the large majority of the friars in the order who indulged in intellectual undertakings, Plumier took his first steps in the world of scholarship through mathematics. At some point during his twenties, he left Marseille for the Minim community in Toulouse, where one of the most distinguished scholars of the order, Emmanuel Maignan (1602-1676), taught mathematics and optics. Maignan had come to be a prominent Catholic scientific figure of his time. His ambitious lifework, standing at the intersection of mathematics, physics, and theology, aimed at offering an alternative to scholastic Aristotelianism by reconciling two deceptively contrasting worlds: theological knowledge and the culture of experimentalism, spreading at the time among students of natural philosophy. The author of creations that were as delightful as useful, such as anamorphoses and stunningly sophisticated sundials, Maignan incarnates a particular

¹⁵ There are several articles devoted to the life and work of Plumier: Ignaz Urban, *Plumiers Leben und Schriften nebst einem Schlüssel zu seinen Blütenpflanzen* (Dahlem bei Berlin: Verlag des Repertoriums, 1920); François Bourlière, “The *Ornithographia Americana* of Father Plumier, 1689-1696,” *Wilson Bulletin* 61, no. 2 (1949), 103-5; P. J. S. Whitmore, “Charles Plumier: Craftsman and Botanist,” *The Modern Language Review* 54, no. 3 (1959), 400-1, and *The Order of Minims in Seventeenth-Century France* (The Hague: Martinus Nijhoff, 1967), 187-98; Odile Krakovitch, “La vie intellectuelle dans les trois couvents minimes de la place Royale, de Nigeon et de Vincennes,” *Bulletin de la Société d’histoire de Paris et d’Île-de-France* 109 (1982), 32-5; Francisco Pelayo, “La historia natural de las Antillas en el siglo XVII: La obra de Charles Plumier (1646-1704),” *Tebeto: Anuario del Archivo Histórico Insular de Fuerteventura* 5, no. 1 (1992), 179-200; François Regourd, “Sciences et colonisations sous l’Ancien Régime. Le cas de la Guyane et des Antilles françaises, XVII^e-XVIII^e siècles,” 4 vols. (PhD diss., Université Bordeaux III-Michel de Montaigne, 2000), 282-90; Theodore W. Pietsch, “Charles Plumier (1646-1704) and his Drawings of French and American Fishes,” *Archives of Natural History* 28, no. 1 (2001), 1-57; “Charles Plumier (1646-1704) and his Drawings of French and American Fishes: Concordance with Equivalent Illustrations Found in the Vellums of Aubriet and Published Works of Gautier d’Agoty, Bloch, Lacepède, Bloch and Schneider, and Cuvier and Valenciennes,” *Archives of Natural History* 28, no. 2 (2001), 261-8, and “Plumier’s Passion,” *Natural History* 119, no. 7 (2011); Laurent-Henri Vignaud, “Le père Charles Plumier, un Minime botaniste à la Trinité-des-Monts,” in *La Trinité-des-Monts redécouverte. Arts, foi et culture*, ed. Yves Bruley (Rome: De Luca, 2002, 142-7), and “Des mathématiques à la botanique. La conversion scientifique du père Charles Plumier durant son séjour à Rome (1676-1681),” *Mélanges de l’École française de Rome, Italie et Méditerranée* 117 (2005), 131-57; Roy Mottram, “Charles Plumier, the King’s Botanist: His Life and Work,” *Bradleya* 20 (2002), 79-120; Georges Cremers and Cécile Aupic, “Spécimens de Charles Plumier déposés à Paris dans les collections de ptéridophytes américains de Tournefort, Vaillant, Danty d’Isnard et Jussieu,” *Adansonia*, 29, no. 2 (2007), 159-93; Michel Thireau *et al.*, “L’oeuvre ichtyologique de Charles Plumier aux Antilles (1689-1695),” in *Explorations et voyages scientifiques de l’Antiquité à nos jours*, ed. Christiane Demeulenaere-Douyère (Paris: Éditions du CTHS, 2008), 47-56.

blend of craftsmanship and natural inquiry that was at the core of the Minims' intellectual engagement. We cannot know it for certain, but it was likely under Maignan's guidance in Toulouse that Plumier trained in arts as practical as drawing and lens-making.

That Plumier's initiation into the worlds of scholarship took place within the realm of his religious order is not unimportant. As a matter of fact, Plumier's belonging to the Minims became particularly consequential for his career as a savant under the protection of the king of France. The order of Minims produced a number of renowned French scholars in the seventeenth century, especially mathematicians and natural philosophers. Marin Mersenne (1588-1648) undoubtedly was (and still is) the most celebrated figure, but constituted by no means an exception: other than Maignan, his almost contemporary François Nicéron (1613-1646), too, worked on the most curious effects of optical manipulation and published an influential treatise on perspective; and, in the mid-eighteenth century, Thomas Le Seur (1703-1770) and François Jacquier (1711-1788) became well-known Newtonians and editors of the *Principia mathematica*. The list of Minims who devoted themselves to the pursuit of natural inquiries reveal a geography of knowledge within the order that crystallized around two principal loci before and during Plumier's time: a French convent in Rome, known as the *Trinità dei Monti* or *Trinité-des-Monts*, and the Parisian convent near Place Royale. The Minim convent at Place Royale is nowadays best known as Mersenne's headquarters and the center of his large intellectual network: here, luminaries like Pierre Gassendi (1592-1655), Gilles de Roberval (1602-1675), Blaise Pascal (1623-1662), and Thomas Hobbes (1688-1679) discussed about mathematics and natural philosophy in the early seventeenth century (fig. I.3). Half a century later, this and the Roman convent became consequential in Plumier's formation and scholarly life: he spent most of his formative years in the Roman monastery, where he moved from Toulouse after some time training with Maignan; after returning in 1689 from his first American journey, Plumier installed himself in the Parisian convent, where he resided for the rest of his life when not traveling, engulfed in its library's books and the bundles of drawings heaped in his cell. Unsurprisingly, the convents in Rome and Paris hosted the largest libraries within the order at that time.



Fig. I.3. (*left*) Detail, Turgot map of Paris, ca. 1735. The map shows the area around Place Royale (now Place des Vosges), barely one mile northeast of the Seine's islands. The church and convent of the Minims (marked "MINIMES" on the map) is on the bottom left of the image, and the Bastille on the top right (the north is at the bottom in this map). The Minims' privileged location in Paris was part of the reason why the convent became, under the leadership of Mersenne, a space of encounter for savants of all nationalities. This was not so much the case during Plumier's time, yet a good number of learned men passed by in the late seventeenth century to visit the friar, his collection of drawings, or the convent's well-equipped library. (Kyoto University Library.) (*opposite*) Church and convent of the Minims near Place Royale around the mid-seventeenth century. (Musée Carnavalet, Paris.)

Nevertheless, it is difficult to integrate the learned activities of individuals like Mersenne, Maignan, or Plumier into a clear institutional setting.¹⁶ Unlike the Jesuits, the Minims did not forge a corporate culture with an explicit accent on learning as a form of religious proselytism—the order's *Règle*, the “rule,” barely touched on intellectual life, although a particular emphasis was placed indeed on the role of libraries in the life of the convents.¹⁷ Unlike the Maurists, the French pioneers of critical erudition, the Minims did not seem to have developed sustained forms of collective scholarly work. Nonetheless, it should be stressed that the moral economy of monastic life promoted by the Minims and other regular orders was coincident in several respects with the virtues that fashioned

¹⁶ Whitmore, *Order of Minims*, 3-131; Odile Krakovitch, “Le couvent des Minimes de la Place-Royale,” *Paris et Île-de-France* 30 (1979), 98-104, and “La vie intellectuelle,” 24-7; Pascal Dubourg Glatigny and Antonella Romano, “La Trinité-des-Monts dans la ‘République romaine des sciences et des arts,’” *Mélanges de l’École française de Rome. Italie et Méditerranée* 117, no. 1 (2005), 7-43, esp. 16-25 for an analysis of the (little) normative place accorded to intellectual life in the order; Benoist Pierre et André Vauchez, eds., *Saint François de Paule et les Minimes en France de la fin du XV^e au XVIII^e siècle* (Paris: Presses Universitaires François-Rabelais, 2010); Valérie Malabirade, “Les Minimes et la province d’Aquitaine sous l’Ancien Régime: Un cadre provincial pour un engagement intellectuel?” 2 vols. (PhD diss., Université Michel de Montaigne Bordeaux 3, 2013), esp. 25-35, 44-61, 269-85.

¹⁷ Dubourg Glatigny and Romano, “La Trinité-des-Monts,” 21-4; Whitmore, *Order of Minims*, 120-31.



scientific life in the seventeenth century. The Minims were expected to cleave to a number of moral virtues: penitence, humility, ascetism, self-effacement. The ideal of heroic sanctity to which the Minims adhered was that of the hermitic type of saint embodied by their founder, St. Francis of Paola, and was at the basis of the rigorously austere rules of conduct structuring their lives and exalting the virtues of discretion, solitude, introspection, and contemplative life. (An early-seventeenth-century apologist of the order, the Minim Robert Regnault, who was also the translator into French of Acosta's *Natural and Moral History of the Indies*, remarked upon the need for the friar to appreciate with due regard "the flowers of solitude, gathered from the most beautiful lives of saints who have inhabited the deserts and cherished solitary life.")¹⁸

Here, however, we should be careful not to draw too clear an association between the moral virtues praised by the Minims and the variegated paths through which some of its members engaged in intellectual pursuits. And yet the Minims' and similar orders' principles of religious life posited some important questions that were consonant with the moral economies underpinning the worlds of scholarship in the late seventeenth century.¹⁹ This was particularly true in France, at least. It is worth remembering that Dom

¹⁸ Quoted in Whitmore, *Order of Minims*, 85. Perhaps one of the best examples of the austerity of life to which the Minims were expected to adhere was the fact that they had, other than the three traditional monastic vows, a fourth one of "quadregesimal life" or perpetual Lent: that is, abstinence from meat and other animal products such as milk and eggs—which raised the incensed reaction of Martin Lister as an example of the "blind prejudice" of monastic life when he encountered a sickly Plumier. The translation is José de Acosta, *Histoire naturelle et morale des Indes, tant Orientales qu'Occidentales . . . Composée en Castillan par Joseph Acosta, & traduite en François par Robert Regnault Cauxois* (Paris: chez Marc Orry, 1606).

¹⁹ The most enlightening comparison is perhaps the one with the Maurists. See the indispensable work of Daniel-Odon Hurel, especially "Les Mauristes, consommateurs et producteurs de livres aux XVII^e et XVIII^e siècles," in *Les religieux et leurs livres à l'époque moderne*, ed. Bernard Dompnier and Marie-Hélène

Jean Mabillon (1632-1707), the French Maurist and author of hugely influential works of textual criticism, published his *Traité des études monastiques* (Treatise of monastic studies) in 1691. This was a bulky volume on the central role that erudition ought to play in monastic life—as exemplified by the remarkable research undertaken by his religious community at Saint-Germain-des-Prés. The sort of scholarship described by Mabillon was a manual undertaking as much as an intellectual labor, one in which spirituality and religious observance leaned on even the most practical aspects of erudite study. He quoted, for instance, Cassiodorus’s praise of the manual exercise of copying books as one of the best exercises for the body, of the work of the “solitary” scholar’s hands while “sitting in his chair to copy books,” and of the materiality of this gesture as being a form of “preaching with the hand.”²⁰

In the crafting of a paper archive of the West Indian flora and fauna may well have lain a practical means for affirming moral values in consonance with those around which the Minims’ way of being in the world was structured.²¹ Rather than in the choice of specific objects of inquiry, the moralization of scientific practice should perhaps be sought in two elements that were at the core of Plumier’s iconographic corpus: a method of inquiry and the valorization of practices themselves. The first highlights a further parallel of the Minims’ scholarly enterprise with that of the Maurists: it is what Arnaldo Momigliano termed as the “quest for safe historical rules”: that is, the defense of the possibility of a sound knowledge against radical skeptical positions. The Minims, as P. J. S. Whitmore pointed out, “were not especially given to theological subtleties, neither could they claim any particular dogma or cult as their own.” They were generally also not inclined to polemicism and controversy.²² As I explore in chapter 1, the part that images

Froeschlé-Chopard (Clermont-Ferrand: Presses Universitaires Blaise Pascal, 2000), 177-94, and Hurel, ed., *Érudition et commerce épistolaire: Jean Mabillon et la tradition monastique* (Paris: Vrin, 2003).

²⁰ Jean Mabillon, *Traité des études monastiques* (Paris: chez Charles Robustel, 1691), 35-6.

²¹ As Pamela H. Smith pointed out for the world of artisans: “‘Doing’ was thus a way of being in the world which was not worth theorizing about and did not need much written attention,” in her “Why Write a Book? From Lived Experience to the Written Word in Early Modern Europe,” *Bulletin of the German Historical Institute* 47 (2010), 25-50. See also her previous *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: The University of Chicago Press, 2006).

²² Even if I disagree with him on several points, I feel inclined to accept the bulk of Whitmore’s conclusion that, in the order of Minims, “there is a move away from polemical towards scientific writing; away from controversy, towards instruction. In the minds of the more enlightened members of the Order prime importance was accorded to the conquest of superstition by the reconciliation of science with the tenets of the faith.” Whitmore, *Order of Minims*, 118. This aspect goes in line with the intellectual endeavors of Maignan: see Antonella Romano, “Mathematics and Philosophy at Trinità dei Monti: Emmanuel Maignan and His Legacy between Rome and France,” in *Conflicting Duties: Science, Medicine and Religion in Rome, 1550-1750*, ed. Maria Pia Donato and Jill Kraye, Warburg Institute Colloquia 15 (London: The Warburg Institute, 2009), 157–80,

played in the making of Plumier's natural history may have been linked to this attempt (pursued more famously by friars-antiquarians) of a sound descriptive historical knowledge (which included natural history) and a renewal of what counted as valid sources for building epistemic certainty. As Momigliano wittily suggested, it seems just natural that Catholic friars contributed to opposing, in the field of scholarship, forms of skepticism that hit hard on traditional religious beliefs.²³

If Plumier's iconographic corpus embodied a method of inquiry that was recognizably congruent with Catholic values, the craftsmanship by which it was produced was interwoven with moral virtues at the time. Here, it is worth remembering Plumier's esteem for turnery. In his intriguing manual on this artisanal art, *L'art de tourner* (1701), the friar characterized any manual occupation—and that of shaping materials with a lathe in particular—as an “*honnête* exercise” serving “to avoid the flaws that an excessive idleness in life entails.”²⁴ As pursued by Plumier, natural historical inquiry, too, was an enterprise particularly demanding for the body of the scholar, not only because of the privations that any traveling naturalist ought to be willing to embrace, but also due to the manual dimension of erudite labor. Gestures long-deemed more cerebral than practical—such as writing, reading, and drawing—were often seen as virtuous at the turn of the eighteenth century precisely because they engaged the mind as much as the body. (Writing in one's own hand, for instance, was often valued as a form of both mental and physical discipline in early modern times.) The virtues of penitence, humility, withdrawal into the self, and occupied devotion promoted by the Minims not only fit well with Plumier's laborious journeys across the Caribbean islands, but were actually coherent on several points with the moral values extolled by many of those who engaged in scholarship as a way of life. As Matthew L. Jones has beautifully demonstrated, a number of seventeenth-century natural philosophers and mathematicians sought knowledge not

²³ Arnaldo Momigliano, “Ancient History and the Antiquarian,” *Journal of the Warburg and Courtauld Institutes* 13, no. 3-4 (1950), 296: “Historical Pyrrhonism was hitting both at traditional historical teaching and at traditional religious beliefs. It was only natural that members of religious congregations (Bollandists, Maurists) should make some of the best contributions towards distinguishing between reasonable and unreasonable doubts in history.” Compare this with some of Mabillon's passages in the *Traité des études monastiques*, e.g. 291: “mais souvent on en abuse [de la critique], & on se donne des libertez, qui ne sont guere moins préjudiciables à l'esprit, que l'erreur ou l'ignorance.”

²⁴ Plumier, *L'art de tourner, ou de faire en perfection toutes sortes d'ouvrages au tour* (Lyon: chez Jean Certe, 1701), sig. [a4^v]: “entre les divertissement & les plaisirs raisonnables, [l'art de tourner est] celui qui est le plus considéré par ceux qui cherchent dans quelque exercice honnête le moyen d'éviter les défauts où jette une trop grand oisiveté de la vie.”

as an end in itself, but as a means to live a virtuous life.²⁵ Interestingly, they aspired to perfect the moral self through gestural procedures, even if these appeared then to some as too mechanical for the noblest minds. In other words, Jones argues that the cultivation of the self through knowledge was pursued at the level of practices: routine scholarly techniques thus became, in the hands of these savants, means for cultivating virtue and specific values.

The concentration on practice is a key component of the cultural setting in which Plumier trained as a scholar. The culture of scholarship within the order of Minims was characterized by a blend of craftsmanship, natural and mathematical inquiry, and the esteem for creations both instructive and delightful, so as to capture the interests of patrons and grandees. Creations such as Maignan's alluring anamorphosis (see chapter 2, fig. 2.2), Nicéron's tract on the most curious optical games of perspective, and Plumier's stunning and numerous drawings of a distant world all fall into this category. The Minims did certainly not elaborate explicit principles for structuring a corporate culture in which their intellectual engagement was thoroughly detailed at the normative and ideological levels. We can, however, approach the cases mentioned above from the standpoint of practices. They qualify for what Michel de Certeau termed as the "formality of practices": he meant that doctrines and ideologies do not need to change in their formulation so as to be appropriated differently.²⁶ The values at the basis of the Minims' monastic life were not new: the novelty may well have resided in the way they were now *put into practice* by individuals like Maignan, Nicéron, and Plumier.

Another component of Plumier's religious identity may be recognized as particularly significant for his intellectual activity: his belonging to the order of Minims as a Frenchman in particular proved consequential to his career as a learned practitioner, for this was a social identity with deep political implications in the closing decades of the seventeenth century. Since the foundation of the order in the late fifteenth century by St.

²⁵ Matthew L. Jones, *The Good Life of the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue* (Chicago: The University of Chicago Press, 2006), and the review essay of this work by Stéphane Van Damme in "Mathematical Meditations: Revisiting Moral Practice in the Sciences of the Classical Age," *Annales. Histoire, Sciences Sociales* 67 (2012), 133-49.

²⁶ Michel de Certeau, "La formalité des pratiques. Du système religieux à l'éthique des Lumières (XVII^e-XVIII^e)," in *L'écriture de l'histoire* (Paris: Gallimard, 1975), 152-212 (165: "Les pratiques permettent de saisir les modes d'une combinaison nouvelle: elles définissent en effet le champ où s'effectue le déplacement qui va refluer les idéologies. Leur *formalité* différente manifeste leur *réemploi* au titre d'un autre fonctionnement"; and 166: "Même intactes en elles-mêmes, les conduits s'inscrivent sur d'autres trajectoires sociales. Elles obéissent à des *critères*, elles se classent selon des *catégories*, elles visent des *objectifs* qui changent. Ces questions relèvent d'une *formalité des pratiques*." There is an English translation: *The Writing of History*, trans. Tom Conley (New York: Columbia University Press, 1988), 147-205.

Francis of Paola (1416-1507)—a Calabrian hermit who ended up in the court of Louis XI of France due to his reputed thaumaturgical competencies and the king's unwillingness to die—the Minims developed a close link with the French kings, who kept the order under their direct protection for most of the early modern period. The Minims spread rapidly in France after the Wars of Religion: it reached its height around Mersenne's time and, by the end of the seventeenth century, there were more than 150 convents in the kingdom—although the communities in them tended to be rather small, with the notable exception of the Place Royale. Over time, the Minims strengthened their fidelity to the crown of France: the order counted a number of overt apologists of the monarchy among its ranks, and the convents in Paris and Rome were both royal foundations. (Trinità dei Monti is actually a striking example of Louis XIV's territorial ambitions in the Papal city, as we will see in chapter 2.)

If Plumier's belonging to a religious order so close to the French monarchy played a key role in securing the necessary funding for his research, so, too, did his choice to render his natural historical research in the form of manuscript and printed images. Plumier's numerous drawings and boastfully illustrated books on West Indian animals and plants were both the direct result of royal patronage and actually, I argue, the main reason for this. True, a royal pension provided his sustenance from the 1690s; the monarchy bestowed on him the right to be called *botaniste du roi* (or was indifferent at him using it); the navy's (and privateers') ships munificently covered most of his trips to, from, and across the West Indies; and the Imprimerie royale printed both of his two-hundred-copperplate books. Yet, as I argue in chapter 2 in particular, little or none of this state support would have materialized had he not been an accomplished draftsman. His corpus of drawings and engravings were not subsidiary to his work under the aegis of the monarchy, but the very key of his usually successful but often painful negotiations to secure royal funding for his trips and publications.

Plumier's iconographic corpus embodies both the defining features and the unsolvable paradoxes that underpinned, first, the place of the Caribbean colonies in the monarchy's imperial imaginary and, second, the royal patronage of the sciences and the arts. To begin with, "empire" is an elusive term to describe France's early modern overseas possessions, especially during the last decades of the seventeenth century. Authors like Jean-Baptiste Labat (1663-1738) or Plumier himself, as well as naval officers like Michel Bégon (1638-1710), recurrently referred to the Caribbean islands as "our islands Antilles" or "*nos Isles*" tout court. Plumier's geography of exploration in the



Fig. I.4. A seventeenth-century map of the Caribbean islands by Joannes de Laet. Despite Plumier's continuous reference to the "West Indies" or simply "the Americas," his natural peregrinations were mostly limited to Martinique, on the eastern arc of the Windward Islands, and Saint-Domingue or the western part of the island of Hispaniola, at the center of the Caribbean basin. (John Carter Brown Library, Providence, RI.)

Caribbean—the one, at least, I could trace in his printed books and manuscript notes—is largely coincident with that of French official dominions, roughly circumscribed to Saint-Domingue (or the western half of the island of Hispaniola) and the nearby island of Tortuga in the western part of the Caribbean Sea, and to Martinique and (to a much lesser extent) Guadeloupe and Saint-Vincent, located in the arc of the Windward Islands. The unity of France's Caribbean dominions was far from clear: Saint-Domingue, for instance, not only was found by Plumier in a pitiful situation due to wars and poverty (as described by him in a couple of reports to the minister), but also developed practically in isolation from the French stronghold of Martinique (only a week of navigation was needed to reach it, but more than a month to come back from it) (fig. I.4).²⁷

²⁷ In this and the next paragraphs, I follow mainly Jean Meyer, Jean Tarade, and Annie Rey-Goldzeiguer, *Histoire de la France coloniale*, vol. 1: *La conquête: des origines à 1870* (Paris: Pocket, 1996), 101-30; Kenneth J. Banks, *Chasing Empire across the Sea: Communications and the State in the French Atlantic, 1713-1763* (Montreal and Kingston: McGill-Queen's University Press, 2003), 3-42; Pritchard, *In Search of Empire*, esp.

Plumier's presence on the islands, roughly between 1687 and 1697, coincides with a very specific moment in the history of the French West Indies: one between, on the one hand, the attempts of Louis XIV and Jean-Baptiste Colbert (1619-1683) to impose administrative, fiscal, and juridical order in the French Atlantic during the two decades running from the mid-1660s to the mid-1680s, and, on the other hand, the consolidation of the islands as sugar-and-slave societies and economies in the first decades of the eighteenth century. These reforms resulted in the consolidation of two figures to which Plumier's destiny in the tropics was tightly linked: the privateers or *flibustiers*, incentivized and controlled (as best as possible) by the navy (and on whom the friar largely relied on his journeys) and the Royal Navy itself. Colbert had made it his priority to expand the royal fleet and to improve ports or build them from scratch (like La Rochelle, under the command of Intendant Michel Bégon, Plumier's most consequential patron). The navy then became officially in control of all colonial (or simply non-European) matters, including traveling naturalists: most of Plumier's patrons were navy officers, from secretaries of state like Jean-Baptiste Colbert, Marquis de Seignelay (1651-1690) and the two Pontchartrains (Louis Phélypeaux [1643-1727] and his son, Jérôme Phélypeaux [1674-1747]) to intendants like Bégon or colonial governors of different kinds. Even if it is probably true that what subsequently came to be known as France's "first colonial empire" was a creation of Louis XIV's absolutist monarchy, this does not mean that there was any clear overall colonial policy before 1700—partly because of the government's limited capabilities due to an almost continuous state of war, and partly because what the monarchy was mainly looking for on the islands at that time were immediate military and economic benefits.²⁸

Plumier's time on the islands also coincides with a period of deep unrest, uncertainty, and dislocation in the Caribbean area: the reality was far from the serenity of a two-dimensional map with clear and stable borders. Plumier's years in the tropics coincide with the Nine Years' War (1688-1697) opposing Louis XIV to practically every other European power: the French, on the one hand, and the allied Dutch, English, and

31-43, 231-41, 303-20, 402-22; Philip P. Boucher, *France and the American Tropics to 1700: Tropics of Discontent?* (Baltimore, MD: The Johns Hopkins University Press, 2008), 1-39, 202-28.

²⁸ As beautifully articulated by Meyer, Tarade, and Rey-Goldzeiguer in their classic *Histoire de la France coloniale*, 51: "sur le velleités du siècle de la Renaissance, sur les fondements limités de la première moitié du XVII^e siècle, Colbert, et non sans hésitations ni retours ou renversements de politique, a édifié quelque chose qui peut, étalé sur une carte du monde, ressembler à un 'Empire' terrien et maritime, . . . mais qui, dans la réalité, s'apparente plus à des séries de chaînes d'îlots de peuplement humain perdus dans la nature sauvage ou l'immensité maritime."

Spanish naval and buccaneer forces, on the other, ravaged each other without cease. The conflict culminated with De Pointis's spectacular raid of Cartagena in 1697—it was in his fleet that Plumier would leave the Americas for the last time.

The European powers' competitive territorial ambitions in the Caribbean basin may have had its equivalent in the more placid waters of scholarship. The nature of the West Indies captured in Plumier's drawings and copperplates, above all an exclusive product for a metropolitan elite audience, needs to be seen in a close relationship with a sort of empire that was made of symbols and monuments as much as of colonies and ships. The imperial image of the monarchy, fed by the myths of Antiquity and cultivated in France at least since the Renaissance, became a key factor in both the politics and imaginary of Louis XIV's reign.²⁹ Plumier's career and books largely rested on the symbolic economy by which the glory of the king was obsessively cultivated.³⁰ But the royal patronage of scholarship was fraught with tensions and contradictions. Take those, for instance, explored in chapter 5 on the culture of print: while the best way for Plumier's images to extoll the glory of the monarchy was through print—and as a crown-supported traveling naturalist and draftsman he was supposed to produce illustrated books—the state was not always able to honor its own expectations due to the intermittent economic crisis.

The specificity of the relatively short and often elusive period running from the 1680s to the first decade of the eighteenth century is an *idée fixe* of “Nature in Draft,” especially with regard to the much-invoked partnership between science and empire.³¹

²⁹ Thomas James Dandeleit, *The Renaissance of Empire in Early Modern Europe* (Cambridge: Cambridge University Press, 2014), 228-45

³⁰ The indispensable reference here is Peter Burke, *The Fabrication of Louis XIV* (New Haven, CT: Yale University Press, 1992), a study all the more important for my purpose given the central place Burke accords to visual imagery.

³¹ The bibliography on natural history and empire in the early modern period is vast. Particularly remarkable are George Basalla, “The Spread of Western Science,” *Science* 156, no. 3775 (1967), 611-22; Roy MacLeod, ed., “Nature and Empire: Science and the Colonial Enterprise,” special issue, *Osiris* 15 (2000), esp. “Introduction,” 1-13; Juan Pimentel, “The Iberian Vision: Science and Empire in the Framework of a Universal Monarchy (1500-1800),” 17-30, and James E. McClellan III and François Regourd, “The Colonial Machine: French Science and Colonization in the Ancien Régime,” 31-50; Charlotte Castelnau-L'Estoile and François Regourd, eds., *Connaissances et pouvoirs. Les espaces impériaux, XVI^e-XVIII^e siècle. France, Espagne, Portugal* (Bordeaux: Presses Universitaires de Bordeaux, 2005); Londa Schiebinger and Claudia Swan, eds., *Colonial Botany: Science, Commerce and Politics in the Early Modern World* (Philadelphia, PA: University of Pennsylvania Press, 2005); Raj, *Relocating Modern Science*; Simon Schaffer, Lissa Roberts, Kapil Raj, and James Delbourgo, eds., *The Brokered World: Go-Betweens and Global Intelligence, 1770-1820* (Sagamore Beach, MA: Science History Publications, 2009); James E. McClellan III and François Regourd, *The Colonial Machine: French Science and Overseas Expansion in the Old Regime* (Turnhout: Brepols, 2010); and Morit von Brescius, “Empires of Opportunity: German Scholars between Asia and Europe in the 1850s” (PhD diss. European University Institute, 2015).

On the relationship between natural history and empire in the Atlantic world, see, among many others, Regourd, “Sciences et colonisation sous l'Ancien Régime”; James Delbourgo and Nicholas Dew, eds., *Science and Empire in the Atlantic World*. (New York: Routledge, 2008), esp. “Introduction: The Far Side of

Plumier's position between the world of learning and the service to the absolutist and increasingly colonial state is paradigmatic of the space that science and scholarship occupied during Louis XIV's reign. More importantly, it provides us with an extraordinary example of how historians have all too often projected their ideas on the role of colonial natural history within the mid- and late eighteenth-century imperial state back onto Plumier's time—or simply perpetuated a common tendency in the historiography of early modern and modern French science by which the state is given a specially strong explanatory role.³² This idea is developed throughout the dissertation, but chapter 2 explores it in particular detail: by studying the specificities of the French crown's support for Plumier's Caribbean and iconographic enterprise—as well as the reasons why other naturalists lacked or lost this support at one point or another—it argues that the flow of information on non-European natures towards European metropolises was fragile and its utility still uncertain in the eyes of the imperial powers by the late seventeenth century. This does not mean, however, that the paths of knowledge did not cross those of the absolutist state or of European imperial and military attempts of expansion overseas: they did, and often in intricate ways. But the specificity of the global scale in this respect needs to be relativized. As Dena Goodman has convincingly argued, the Republic of Letters—that “extremely free State” in Pierre Bayle's words, and a concept that became widely spread only by the end of the seventeenth century—more often than not thrived hand in glove with the absolutist monarchies' state-building, rather than in parallel to or isolation from it.³³ This was especially true in France, where most scientific institutions (the academies and the Jardin du roi, for instance) and individuals (traveling naturalists included) were supported by royal funds and placed under the direct patronage of the crown and its officials. Yet Plumier and his contemporaries need to be

the Ocean,” 1- 28, Safier, “Fruitless Botany: Joseph de Jussieu's South American Odyssey,” 203-24, Daniela Bleichmar, “Atlantic Competitions: Botany in the Eighteenth-Century Spanish Empire,” 225-52, and the excellent afterword by Margaret C. Jacob, “Science, Global Capitalism, and the State,” 333-44; James E. McClellan III, *Colonialism and Science: Saint-Domingue in the Old Regime* (Chicago: The University of Chicago Press, 2010); François Regourd, “Localités et centralités scientifiques: les mondes atlantiques (XVI^e-XVIII^e siècle),” in *Histoire des sciences et des savoirs*, vol. 1: *De la Renaissance aux Lumières*, ed. Stéphane Van Damme (Paris: Le Seuil, 2015), 325-44; and Samir Boumediène, *La colonisation du savoir: Une histoire des plantes médicinales du “Nouveau Monde”* (Vaulx-en-Velin: Les éditions des mondes à faire, 2016).

³² J. B. Shank, “The Sciences in Old Regime France: A Review of Recent Scholarship,” *French Historical Studies* 28, no. 4 (2005), 661-95, and Nicholas Dew, “Scientific Travel in the Atlantic World: The French Expedition to Gorée and the Antilles, 1681-1683,” *The British Journal of the History of Science* 43, no. 1 (2010), 1-17.

³³ Dena Goodman, *The Republic of Letters: A Cultural History of the French Enlightenment* (Ithaca, NY: Cornell University Press, 1994), 12-23.

studied on their own terms, rather than as the forerunners of the grand overseas scientific expeditions of the late eighteenth and nineteenth centuries.³⁴

The economic, military, and political upheaval of Louis XIV's France's "fin de siècle" finds a sort of epistemic equivalent in the unsettled field of the study of nature at the time. But what was natural history at the turn of the eighteenth century? By natural history, I will mostly mean here the study of plants and animals. Yet the story is more complicated than that; the question points, once again, to the particularity of the short and often neglected decades that are studied here. To start with, the specificity of the years spanning from the 1650s to the 1710s (roughly those that Paul Hazard famously identified with a "crisis of the European mind," and known in French as the "Classical Age")³⁵ becomes evident from a historiographical point of view. In respect to the history of natural history (if not the history of science in France, by and large), Plumier's times correspond to a period that has attracted far less scholarly attention than those between which it is sandwiched, each of them still pervasively homogenized within the powerful concepts of "Renaissance" and "Enlightenment."³⁶ This alone seems to me a good enough reason to inquire into the worlds of natural history in Plumier's age. In fact, one of the main theses of this dissertation (and of chapters 2 and 6, in particular) is that the history of natural history around 1700 has all too often been considered through the distortive lens of the Enlightenment.³⁷

³⁴ The case seems to confirm Romain Bertrand's general diagnosis of the current global history writing: "Les praticiens de l'histoire globale' . . . tracent le plus souvent des lignes droites: des trajectoires sans zigzags ni pointillés. . . . Quant au saut dans le passé, il vise le plus souvent à documenter des précédents ou à circonscrire des origines: 'prodromes' du capitalisme, 'genèse' (au singulier) de l'État, 'prémices' de la raison politique contemporaine." Romain Bertrand, "Un continent de possibles oubliés. Les relations économiques Europe-Asie à l'époque moderne," *Esprit* 12 (2013), 33. To get a sense of the naturalist-explorer during the Enlightenment, see Marie-Noëlle Bourguet, "L'explorateur," in *L'homme des Lumières*, ed. Michel Vovelle (Paris: Le Seuil, 1996), 285-346.

³⁵ Paul Hazard, *La crise de la conscience européenne, 1680-1715* (Paris: Boivin et Cie., 1935). See also Anthony Grafton's introductory essay to the English edition: *The Crisis of the European Mind: 1680-1715* (New York: The New York Review of Books, 2013), vii-xii. Hazard's approach was unmistakably teleological and rupturist: for him, this age of intellectual "crisis" was one in which the "ferment" of the Enlightenment was formed. In many ways, Hazard's account bears comparison with another famous narrative, also grounded on an intellectual history perspective: Jonathan Israel, *Radical Enlightenment: Philosophy and the Making of Modernity, 1650-1750* (Oxford: Oxford University Press, 2001).

³⁶ This was partly because, until the 1980s or 1990s, historians of early modern science placed little emphasis on natural history, which, as pointed out by Paula Findlen, "did not fit well with the model of science" erected upon the study of mathematical fields such as physics and astronomy. Paula Findlen, "Natural History," in *The Cambridge History of Science*, vol. 3: *Early Modern Science*, ed. Katharine Park and Lorraine Daston (New York: Cambridge University Press, 2006), 436.

³⁷ An excellent and recent summary and state of the art of early modern natural history is in Marie-Noëlle Bourguet and Pierre-Yves Lacour, "Les mondes naturalistes: Europe (1530-1802)," in Van Damme, *De la Renaissance aux Lumières*, 255-81. I have largely followed here Bourguet's and Lacour's persuasive account. See also Jacques Roger, "The Living World," in *The Ferment of Knowledge: Studies in the Historiography of Eighteenth-Century Science*, ed. G. S. Rousseau and Roy Porter (Cambridge: Cambridge University Press,

In the late seventeenth and early eighteenth centuries, the study of nature was an ill-defined and not yet altogether distinct field of knowledge, but one that experienced profound mutations. During the late fifteenth and sixteenth centuries, a new mode of studying flora and fauna emerged due to a series of factors: the diffusion of printing and the consequent expansion of the book market, the revival of classical scholarship, and the rise of medical humanism are probably the most important ones.³⁸ At the other end of the early modern period, the second third of the eighteenth century witnessed the clear delimitation of the contours of natural history as a distinct discipline—up until natural history slowly began to decline with the emergence of the word and concept of biology in the early nineteenth century.³⁹ In the 1760s, when the *philosophes* were trimming the tree of knowledge, “histoire naturelle” became—in the *Encyclopédie*, for instance—a clearly distinct discipline structured around an object “as vast as nature,” but clearly identifiable: plants, animals, and minerals.

This was not so clearly the case during Plumier’s lifetime. Natural history in these decades requires attention on its own terms so as not to assume that its advances constituted a mere intermediary step between those which we know took place in the sixteenth and eighteenth centuries. In France, as elsewhere in Western Europe, several developments had deeply affected the way in which the natural world was studied in the late seventeenth century. For instance, the diffusion of new techniques and modes of inquiry such as microscopy and experimentalism had a profound impact in the field. (Both are present in Plumier’s practice, as he not only directed his magnified gaze to the smallest details of seeds and plants, but also delighted in tormenting West Indian vipers with poisonous plants.) But three other phenomena had even more consequentially defined the contours of natural history by Plumier’s time: the consolidation of European states’ expansion overseas and of the interconnections at the global scale; the

1980), 255-83; Nick Jardine, J. A. Secord, and E. C. Spary, eds., *Cultures of Natural History* (Cambridge: Cambridge University Press, 1996), esp. 17-124; Gianna Pomata and Nancy G. Siraisi, eds., *Historia: Empiricism and Erudition in Early modern Europe* (Cambridge, MA: The MIT Press, 2005), esp. “Introduction,” 1-38, and Brian Ogilvie, “Natural History, Ethics and Physico-Theology,” 75-103; Findlen, “Natural History”; John Gascoigne, “The Study of Nature,” in *The Cambridge History of Eighteenth-Century Philosophy*, ed. Knud Haakonssen, vol. 2 (Cambridge: Cambridge University Press, 2006), 854-72; Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: The University of Chicago Press, 2006); Alix Cooper, *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007); and Pierre-Yves Lacour, “Histoire naturelle,” in *1740: Un abrégé du monde. Savoirs et collections autour de Dezallier d’Argenville* (Lyon: Fage, 2012), 112-20.

³⁸ The unavoidable reference here is Ogilvie, *Science of Describing*.

³⁹ Michel Foucault was probably the first to point out that it was incorrect to use the word “biology” for the eighteenth century. “Biology” first appeared in 1802 in the works of Lamarck, in France, and Treviranus, in Germany. See Roger, “Living World,” 258.

reinforcement of the study of plants and animals for their own sake, rather than for its medical utility; and naturalists' general abandonment of classical scholarship (that is, the textual criticism and exegesis of the Greek and Latin authors from Antiquity) but not, as I will argue below, of bookish tradition.

At the end of the seventeenth century, natural history was history above all. True, the ill-defined contours of the field were often blurred with neighboring forms of knowledge having plants and animals as their object, from *materia medica* to gardening and the collection of exotic natural curiosities. From a social point of view, Plumier was an exception as a botanist because, unlike most contemporary natural historians, he had no medical training. But what does it mean that natural history was history above all? In the late seventeenth century, the word "history" referred not so much to the study of the past or to a chronological approach to human actions, but rather to an approach based on description or on accounts devoid of interpretation. "Natural history"—or the "history of nature"—was the description of natural "things," and thus opposed to "natural philosophy," which searched for the causes of natural phenomena.⁴⁰ In other words, a natural historian would have been concerned by, say, whether ferns had seeds or not, while a natural philosopher would instead have worried about the causes for some bodies' buoyancy in water. The unity of natural history at that time is to be sought not so much in a series of specific objects (plants, animals, minerals), but rather in a concrete mode of inquiry roughly based on the description, collection, and arrangement of natural facts.⁴¹

History, therefore, straddled our current disciplinary boundaries between human and natural matters. The French word *histoire* encompassed natural history as well as anatomy and civil history—the one closest to today's usage—as reflected in the dictionaries of the time.⁴² Gianna Pomata's and Nancy Siraisi's powerful account of the concept of *historia*

⁴⁰ For Roger, natural history represented, unlike natural philosophy, "the primacy of fact over theory." Roger, "Living World," 264.

⁴¹ On the early modern notion of "natural fact," see Barbara J. Shapiro, *A Culture of Fact. England, 1550-1720* (Ithaca, NY: Cornell University Press, 2000), chaps. 5 and 6—although Shapiro deals here with both natural history and natural philosophy (sometimes confused) and her account is circumscribed to England.

For the notion of *historia*, see the indispensable work by Pomata and Siraisi, *Historia*. As they point out in the introduction (2), "it would be more correct to talk of a proliferation of natural histories—in the plural—all with different philosophical pedigrees and correspondingly different notions of what *historia* was about." See also Rafael Mandressi's interesting pages on *historia* in anatomy, Mandressi, *Le regard de l'anatomiste. Dissection et invention du corps en Occident* (Paris: Le Seuil, 2003), 18-25.

⁴² José Beltrán, "Nature *au naturel* in late-seventeenth-century France," in *Ad Vivum? Visual Materials and the Vocabulary of Life-Likeness in Europe Before 1800*, ed. Joanna Woodall and Thomas Balfe (Leiden: Brill, forthcoming). On civil history, see a classic: Anthony Grafton, *What Was History? The Art of History in Early Modern Europe?* (Cambridge: Cambridge University Press, 2007).

across the early modern period uncovered that this was not only a literary genre, but actually what they called an “epistemic genre”: that is, a cognitive category grounded on the “descriptive knowledge of particulars” and embracing “intellectual practices common to natural and human sciences,” as well as material practices of empiricism based on “gathering, observation and description.”⁴³

Drawing from this perspective, “Nature in Draft” follows images in an attempt to trace the history of natural history in the decades from the 1680s to the 1710s. In doing so, it reveals that Plumier’s practices of visual representation are representative of the genre of natural history in France and well beyond. The boundary between human and natural sciences was far from clear-cut: two fields as seemingly distant by modern standards as antiquarianism and natural history were, as Pomata and Siraisi put it, equally “idiographic”: that is, “highly suspicious of generalization and primarily bent on capturing the protean world of particulars through strongly analytical and descriptive skills.”⁴⁴ All the more so, indeed, when an interrogation on the role of visual representations is brought into the picture: this is why, in order to understand better the place that images played in late seventeenth-century natural history, I will be drawing comparisons (especially in chapter 1) between Plumier’s iconographic work and that of contemporary antiquarians, such as Bernard de Montfaucon (1656-1741).

By focusing mostly on images, this dissertation traces the two main intellectual bedrocks upon which natural history stood at Plumier’s time. The first is the close tie between empiricism and erudition, or between observational skills and scholarly learning.⁴⁵ “Autopsy,” or firsthand observation, offered not an alternative to bookish information, but the grounds on which to carry out its verification—an idea clearly opposed to Michel Foucault’s staunch opposition of history and science in the seventeenth century.⁴⁶ This also raises the question of the naturalist’s self from both a cognitive and a social perspective: the material and intellectual parallels between observation and reading, evinced for the case of Plumier in chapter 3, show that what

⁴³ Pomata and Siraisi, “Introduction,” 4-5.

⁴⁴ Pomata and Siraisi, “Introduction,” 5-6.

⁴⁵ This has also been pointed out by the editors and contributors to the volume of *Historia*: A good formulation is in Pomata and Siraisi, “Introduction,” 7.

⁴⁶ Michel Foucault, *Les mots et les choses. Une archéologie des sciences humaines* (Paris: Gallimard, 1994 [1966]), 69-70, who pronounces in his typical oracular style that “puisque connaître, c’est discerner, l’histoire et la science vont se trouver séparées l’une de l’autre. D’un côté, il y aura l’érudition, la lecture des auteurs, le jeu de leurs opinions. . . . En face de cette histoire, et sans commune mesure avec elle, se dressent les jugements assurés que nous pouvons faire par les intuitions et leur enchaînement.”

was at stake in the combined acts of perusing the “little books of men” and eyeing the “big Book of Nature” was the definition of the naturalist as a scientific persona.

The second foundation of natural history at Plumier’s time regards what would much later be known as natural classification or taxonomy. Images provide us, once again, with an excellent case for highlighting that the kind of order with which naturalists like Plumier were concerned was not that of the natural world itself but that of the information scholars had on it. This was not classification, but the clear identification of plants and animals and the inventory of the knowledge on them.

For these reasons, “Nature in Draft” places emphasis on material practices of paper production and management. As Marie-Noëlle Bourguet and Pierre-Yves Lacour have recently written, “far from being limited to the observation of nature, the naturalist’s task was a very material practice, made out of quotidian gestures—collection, preparation, inscription, arrangement—and natural history as a technology mobilizing both boxes and tags, both journals and registers; in other words, both objects and inscriptions.”⁴⁷ This dissertation goes along the lines proposed by Bourguet and Lacour: it aims at relocating the making and “reading” of images within a broader history of the material practices of inscription and paper management that sustained the daily work of the naturalist at around 1700 as a form of mobilizing and stockpiling the natural world on a global scale.

Inscriptions on the move

“Nature in draft” tackles the question of scientific images in the making, from the field and the cabinet to the printing workshop, and of their multiple transformations along the way. While focusing on visual productions, it adopts an approach that aims at not isolating these from other forms of inscription made and mobilized in the making of natural knowledge. In drawing from the resources offered in the last decades by studies in visual culture, memory practices and information management, manuscript culture, and the history of the book, it aspires to challenge and complicate—but not to blur altogether—two deceptively self-evident boundaries: that between graphic and written inscriptions, and that between manuscript and print.

Traveling scholars’ work in crafting inscriptions—graphic or not—and mobilizing them as a means for garnering knowledge of all that was afar has been a major focus in recent studies on the global deployment of European sciences, all the more when these

⁴⁷ Bourguet and Lacour, “Les mondes naturalistes,” 265 (and on naturalists’ inscription practices, both scriptural and iconographic, 265-70).

attempts happened to be closely intertwined with imperial ambitions. No one has probably articulated such a view more ingeniously, influentially, and provocatively than sociologist Bruno Latour in the 1980s. For Latour, inscriptions and the practice of inscribing allow scientists to stabilize claims onto paper so that they circulate without distortion through space and time; in doing so, they can account for modern sciences' purported long-range powers as the dominant form of knowledge. To illustrate his thesis, Latour uses the case of Jean-François de Galaup, count de Lapérouse (1741-ca. 1788), and his expedition to the South Seas on board of *L'Astrolabe*. Latour pays particular attention to Lapérouse's encounter with Chinese fishermen in Sakhalin in 1787: not knowing if Sakhalin was an island or a peninsula, Lapérouse inquired with the Chinese, who answered by drawing a map of the island on the sand. Seeing that the Europeans feared that the map could be erased by the mounting tide, one of the Chinese drew it again in one of the traveler's notebooks. While Lapérouse and his crew never made it back to Europe, the notebook did: hence Sakhalin and their geography came to the knowledge of Europeans. It is not, Latour says, that Lapérouse and his crew knew Sakhalin better than the Chinese fishermen—quite the contrary. The asymmetry between Lapérouse's and the Chinese fishermen's knowledge (i.e. the divide between modern science and other forms of knowledge) is grounded on the fact that Lapérouse's, in contrast to the fishermen's, operates in cycles of accumulation allowing European powers/sciences to deploy action at a distance. In Lapérouse's episode as in Plumier's case, Paris stood as a center of calculation, a cumulative hub in those long-distance networks of knowledge capitalization—or, to put it another way, of collection of inscriptions, be they Lapérouse's notebooks or Plumier's folders of drawings.⁴⁸

At first sight, Plumier's drawings and notes could indeed be enlisted as the purest example of such a view. For most of Plumier's corpus deals with a far-flung nature and with territories over which the French—but not only they—had imperial ambitions. The friar's corpus came into being thanks to the munificence of an increasingly colonial European power. Moreover, Plumier did not linger long on those islands (roughly seven

⁴⁸ Bruno Latour, "Visualization and Cognition: Thinking with Eyes and Hands," *Knowledge and Society: Studies in the Sociology of Culture Past and Present* 6 (1986), 1-40; *Science in Action: How to Follow Scientists and Engineers through Society* (Cambridge, MA: Harvard University Press, 1987), 215-47, and "Drawing Things Together," in *Representation in Scientific Practice*, ed. Michael Lynch and Steve Woolgar (Cambridge, MA: The MIT Press, 1990 [1988]), 19-68. For the practice of inscribing as the key for (European) modern sciences' long-range powers, compare with Simon Schaffer, "'On Seeing Me Write': Inscription Devices in the South Seas," *Representations* 97, no. 1 (2007), 90-122. On the notion of centers of calculation, compare with the recent issue edited by Lissa Roberts, and especially her introduction, "Accumulation and Management in Global Historical Perspective: An Introduction," *History of Science* 52, no. 3 (2017), 227-46.

non-consecutive years in total) and, much like Latour's Lapérouse, he seemed "not so much interested in this place as [he was] in bringing this place *back* . . . to Versailles."⁴⁹ Like the crew of *L'Astrolabe*, inscriptions seem to have been "the *final goal* of [his] travel." Like them, Plumier's papers allowed Parisian fellow scholars and policy-makers "to be familiar with things, people and events, which are *distant*." That must have been the intention, after all, in sending him there. Just like Lapérouse's representations of Sakhalin, Plumier's drawings, notes, lists, and maps of the plants, animals, lands, and peoples of the West Indies appear to be "some of these stable, mobile and combinable [i.e., liable to be accumulated] elements that allow a center to dominate faraway lands."⁵⁰

Upon close scrutiny, however, Plumier's drawings and practices of inscription become uncomfortably complex for a perspective such as Latour's. To begin with, their traveling across distance is not as clear a process as a simple movement from A to B. It is difficult—if not plainly impossible—to assess which or how many, if any, of Plumier's drawings of the West Indian flora and fauna were made in front of the reality they represent; or how many were made in the West Indies, although not in front of the animal and plants they depict but rather, say, in the cell of one of the convents in which the friar stayed during his journeys, while recollecting what he had seen earlier that day; or on board a ship navigating through the Atlantic back to Europe; or in Paris, while staying in the convent of the Minims at Place Royale, surrounded by books. Or simply in all these places at the same time, sketching here, completing there.⁵¹ Moreover, we are assuming perhaps too many things when we say that Plumier—or any state-sponsored traveling scholar at that time, for that matter—was "commissioned" by the crown to undertake a journey overseas in order to produce inscriptions on distant worlds. Chapter 2 will analyze how far more complex the equation between science, empire, and images actually was. Plumier's visual archive, one of the few in Europe portraying the nature of a highly disputed imperial and epistemic space (the Caribbean basin was at the time a

⁴⁹ As Daniela Bleichmar has rightly pointed out: she remarked that the case she studies in-depth, the expedition to New Granada in the 1770s led by José Celestino Mutis, fundamentally contrasts with previous enterprises of natural expedition to the New World (such as Plumier's or Sloane's) in that Mutis spent twenty years in New Granada before the expedition received official approval and then continued for almost another decade. The dynamics of Mutis's expedition, especially regarding collaborative work with local populations, are therefore quite different from those in Plumier's journeys through the West Indies—at least as far as we can know, for the evidence of Plumier's presence on the islands is virtually nonexistent. See Daniela Bleichmar, *Visible Empire: Botanical Expeditions and Visual Culture in the Hispanic Enlightenment* (Chicago: University of Chicago Press, 2012), esp. 17-41.

⁵⁰ Latour, *Science in Action*, 217, 220, 224.

⁵¹ Not unlike travel records: on the "moment" of travel note-taking and the subsequent elaborations of field records, see Marie-Noëlle Bourguet, "A Portable World: The Notebooks of European Travellers (Eighteenth to Nineteenth Centuries)," *Intellectual History Review* 20, no. 3 (2010), esp. 384-9 and 394-400.

coveted territory for both European governments and scholars), was ignored by the French crown until long after its author's death.

Two more points need to be made on the question of distance. First, trust in the accuracy and validity of specific inscriptions was neither immediate nor obvious: as chapter 1 will show, there was quite a lot of debate among naturalists and scholars by and large on how and who was to make observations at a distance.⁵² Second, my interest here is not so much how Plumier's images made facts move from one point to another, but rather how the distance these inscriptions claimed to bridge affected the way in which they were (or tried to be) put to use and allowed their author to operate specific transactions in terms of social and intellectual credit and authority. In other words, my emphasis is not so much on how these images traveled as on how the fact that they traveled shaped the way in which they were then (and are now) perceived.

Along with the far-from-plain notion of distance, there is a second point of resistance of Plumier's corpus to a Latourian approach to scientific travel inscriptions: their materiality. The friar's drawings, as any inscription when looked at in the making, reveal themselves as distressingly unstable.

The "instability" of inscriptions has been a fruitful object of inquiry for the history of the book and written culture in the last quarter of a century. In a memorable article of the early 1990s, literary scholars Margreta de Grazia and Peter Stallybrass were among the first to raise this question through a witty examination of the often minute editorial modifications of Shakespeare's early plays. With the expression "materiality of the text," De Grazia and Stallybrass stressed that the physical appearance of a text and its variations, however diminutive these might be, offer a unique glimpse into the changing social practices that make and transform their meanings through readings and appropriations. Their end, as they put it beautifully, is "the practices recorded on [texts'] surfaces."⁵³ The lesson is an important one for historians willing to reflect on the nature of their own sources. It forces us to be aware of the fact that our approach to images (or to any historical document, for that matter) is crucially conditioned by the operations that transformed them over time and brought them to the material state in which they can be

⁵² These debates stood on Renaissance controversies over the value of visual representations as instruments of knowledge. For such sixteenth-century controversies in the case of the printed book, see Sachiko Kusakawa, *Picturing the Book of Nature: Image, Text, and Argument in Human Anatomy and Medical Botany* (Chicago: The University of Chicago Press, 2012).

⁵³ Margreta de Grazia and Peter Stallybrass, "The Materiality of the Shakespearean Text," *Shakespeare Quarterly* 44, no. 3 (1993), 255-83.

consulted today as historical sources. Plumier's iconographic archive of the West Indian flora and fauna is a unique case study to explore this problem: in the form in which we can access it nowadays, this corpus is to a large extent an eighteenth- and nineteenth-century product—a story that is further evinced in chapter 6.

Images, too, are objects after all. Art history has not failed to pay attention to the implications of such an assumption. Philosopher Georges Didi-Huberman, for instance, articulated in the 1990s a criticism of a Panofskian art history (or a history of images, for that matter) exclusively based on a rational interpretation of visual representations—that is, in terms of discourse (the *lisible*) and mimesis (the *visible*).⁵⁴ Closer to my own perspective, Jérôme Baschet, a historian of medieval iconography, coined the expression “image-object” as an attempt to put forward two points: first, that the materiality of visual representations is intimately intertwined with both the message their authors aspire to convey and the sundry meanings viewers derived from of them; second, that images, as artifacts, are both the result and the object of various sorts of practices—made, but also used in many and complex ways.⁵⁵ As Baschet pointed out, their being representations cannot make us “forget their materiality and their being objects.”⁵⁶ Baschet's posture is partly based on Louis Marin and his foundational twofold definition of images as both *representations* (a discourse on an absent reality) and *presentation* (an object in itself).⁵⁷ “Every sign is both a thing and a representation,” Marin famously wrote.⁵⁸

⁵⁴ Georges Didi-Huberman, *Devant l'image: Question posée aux fins d'une histoire de l'art* (Paris: Éditions de Minuit, 1994), esp. 9-17. Didi-Huberman's is a dense book, but has enlightening fragments like this: “Where is the ‘specificity’ of a Gothic stained glass window? Absolutely nowhere. It is in the firing of the glass, it is in the long route of traders in colored minerals, it is in the dimensions of the window piercing determined by the architect, in the tradition of forms but also in the *stylet* of the monk recopying his translation of Pseudo-Dionysius the Aeropagite, it is in a Sunday sermon on the divine light, it is in the tactile sensation of being touched by color, and of simply looking up toward the source of this contact. Visual objects, objects invested with a figurability value, develop all of their efficacy to establish multiple bridges between orders of reality that are nonetheless quite heterogeneous. . . . Their functioning is multidirectional, their efficacy polymorphous. . . . [Art historians need] to think the dynamic and *economy* of visual objects (qualities that exceed the visible, physical limits of said objects).” From the English translation: *Confronting Images* (Philadelphia, PA: The Pennsylvania State University Press, 2005), 34. I thank Stéphane Van Damme for bringing this paragraph to my attention.

⁵⁵ Jérôme Baschet, *L'iconographie médiévale* (Paris: Gallimard, 2008), esp. 9-21. The third part of the book, moreover, puts forwards the notion of “serial iconography,” with which I deal in chapter 4 for the case of natural historical images. However, Baschet's approach to graphic seriality differs substantially from mine: while he adopts a morphological perspective drawn from historical anthropology (one in which the historian brings together images that had the same theme, but were not necessarily related historically), I study graphic series as a historical object, a central aspect, I argue, of the work of historically-oriented fields of knowledge such as natural history or antiquarianism.

⁵⁶ Baschet, *Iconographie médiévale*, 16.

⁵⁷ See Louis Marin, *Des pouvoirs de l'image. Glosses* (Paris: Éditions du Seuil, 1993), esp. 9-22 (“L'être de l'image et son efficace”), as well as Roger Chartier's informative commentary on this point in his “Pouvoirs

This tension between the image as representation (or discourse) and the image as an object with social (and even epistemic) effects was echoed in the analysis of texts proposed by bibliographer D. F. McKenzie, especially in his *Bibliography and the Sociology of Texts* (1999).⁵⁹ McKenzie took up the notion of “textual instability” to address the historicity of texts, and of books in particular, as artefacts. His aim was to reshape the methods and objects of material bibliography into what he termed a “sociology of texts.” This renewed field, McKenzie hoped, would address the historical “relation between form, function, and symbolic meaning.” Put another way, he placed the “historical study of the *making and use of books and other documents*” at the center of his program. The stakes in doing so were high indeed, for he was proposing a double shift that is of prime importance for my analysis of images in the making of natural knowledge. In the first place, he was including “all forms of texts” in his proposition: McKenzie had a rather catholic notion of “text” that encompassed “verbal, visual, oral, and numeric data” alike. Not all texts are verbal, nor are all verbal texts in the form of books. Without conflating all significant forms as if they were ontologically one and the same, McKenzie’s underlying statement was that the analysis of any “recorded form” should take into serious account their materiality.

In the second place, McKenzie’s emphasis on the materiality of “texts” was based on his famous assumption that the physical aspects of discourses deeply affect both the message their authors intend to convey through them and the multiple meanings readers and viewers construct when appropriating them. “Forms effect meaning.” The assertion reaches its most dramatic consequences when the materiality of a text varies. Hence his

et limites de la représentation: sur l’oeuvre de Louis Marin,” *Annales. Histoire, Sciences Sociales* 49, no. 2 (1994), 407-18. Chartier wittily connects this twofold notion to seventeenth-century definitions of “représentation” such as the one by Antoine de Furetière in his dictionary (“image qui nous remet en idée et en mémoire les objets absents,” but also “comparaître en personne et exhiber les choses”). This tension between meanings and materiality echoes also the fertile studies which have sometimes been referred to as the American Ceremonialist School, of which Ernst H. Kantorowicz’s *The King’s Two Bodies* (1958) is perhaps the best-known example.

⁵⁸ He elaborated these views further in Marin, *Opacité de la peinture. Essais sur la représentation au Quattrocento* (Paris: Usher, 1989), 73: “Tout signe est à la fois une chose et une représentation: considéré comme chose, le signe focalise sur lui-même la ‘vue de l’esprit’, il ne représente rien mais se présente lui-même. Comme représentation, il se dérobe à la considération et déplace la vue de l’esprit de lui-même à l’objet qu’il signifie. Le signe est alors comme la vitre transparente qui laisse voir autre chose qu’elle-même: lorsqu’elle s’opacifie, elle cesse de se dérober dans sa diaphanéité pour s’offrir à la vue et l’arrêter.”

⁵⁹ D. F. McKenzie, *Bibliography and the Sociology of Texts* (Cambridge: Cambridge University Press, 2004 [1999]). See also McKenzie’s *Making Meaning: “Printers of the Mind” and Other Essays*, ed. Peter D. McDonald and Michael F. Suarez, S.J. (Amherst, MA: University of Massachusetts Press, 2002), esp. “Printers of the Mind: Some Notes on Bibliographical Theories and Printing-House Practices” (13-85) and “Typography and Meaning: The Case of William Cotgrave” (198-236). See also Roger Chartier, “Bibliographie et histoire culturelle,” in *Au bord de la falaise. L’histoire entre certitudes et inquiétude* (Paris: Albin Michel, 2009), 305-20.

insistence on “the processes of [texts’] transmission including their production and reception”: “not only the technical,” he adds, “but also the social process of their transmission.” By this, McKenzie meant the “study of the social, economic, and political motivations for publishing, the reasons why texts were written and read as they were, why they were rewritten and redesigned, or allowed to die.”⁶⁰

McKenzie’s propositions for a “sociology of texts” had an enduring impact on the history of the book. French historian Roger Chartier has probably been the most creative champion of such an approach: in his studies on the relationship between inscription and forgetfulness, for instance, Chartier put into practice the view that “no text exists apart from the material object that makes it available to be read or heard.” But he went one step further by proposing “not to eliminate or resolve this irreducible tension [between the text as discourse and the text as object] in one way or another but rather to identify the way in which it was constructed at various historical moments.”⁶¹ Hence my focus on the operations by which Plumier’s corpus was made and reshaped, at different historical moments, into the forms in which it can be found today—and on which my historical account is based. Images are things that, to use Lorraine Daston’s words, “knit together matter and meaning.”⁶²

Scholarly practices and the materiality of images

When approaching Plumier’s drawings of the West Indian flora and fauna, “Nature in Draft” takes seriously the meaningful materiality of inscriptions. It further affirms that the comprehension of the processes by which they were produced is indissociable from those by which they were circulated and appropriated. To put it simply, what I propose here is to use the sophisticated methodological tools mainly developed in the history of the book (but which, I strongly believe, are not specific to nor exclusively applicable to written culture) to revisit two intertwined questions: that of “scientific images” and that of the circulation of (graphic) inscriptions in long-distance networks as a means for stockpiling information on faraway realities for purposes in which both epistemic and political (or imperial) considerations were at stake.

⁶⁰ McKenzie, “The book as an expressive form,” in *Bibliography and the Sociology of Texts*, 9-30.

⁶¹ Roger Chartier, *Inscrire et effacer. Culture écrite et littérature (XI-XVIII^e siècle)* (Paris: Gallimard/Le Seuil, 2005). I quote from the English translation *Inscription and Erasure: Literature and Written Culture from the Eleventh to the Eighteenth Century*, trans. Arthur Goldhammer (Philadelphia, PA: University of Pennsylvania Press, 2007), ix-x.

⁶² Lorraine Daston, “Introduction,” in *Things that Talk: Object Lessons from Art and Science* (New York: Zone Books, 2002), 9-24.

This thesis approaches Plumier's images from a double standpoint: that of their *meaningful materiality*—that is, as artifacts whose (often mutable) physical characteristics had social, cultural, and epistemic effects—and that of the *practices* by which they were produced, modified, circulated, and used. To put it another way, paying attention to the meaningful material aspects of Plumier's images means to place equal emphasis on the practices by which they were made, seen, copied, and interpreted. Such a methodological position has several consequences for the way I delimit my object of inquiry. One of them has already been sketched out: what I call Plumier's "corpus" is to a certain extent the result of my own operations as a historian, in my attempt to integrate into my analysis the transactions by which those papers have reached us. I do not limit myself to MS 1 to 37 in the Bibliothèque centrale of the Muséum national d'histoire naturelle (which would probably be the obvious choice) because this is a product of the material modifications of which Plumier's papers were the object during the second half of the eighteenth century and the early nineteenth century. Perhaps the best example of this are Plumier's "reading notebooks," dealt with in chapter 3: manuscript volumes in which the friar copied, abridged, or modified images and texts from printed books. In the mid-eighteenth century, however, these volumes were judgmentally branded as "copies" by the scandalized librarians who reorganized the collection between the 1760s and 1810s, and were probably excluded from the corpus for this reason. For these "reading notebooks," or *enchiridia* (as Plumier once referred to them), did not conform, it can reasonably be argued, to the notion of originality (in the sense of being made by the author from his own observations) that began developing in Western Europe from the mid-eighteenth century onwards.

The second consequence of my methodological standpoint regarding the demarcation of my object of inquiry has to do with two pervasive boundaries whose pertinence I aim at relativizing. In approaching Plumier's corpus as a whole, "Nature in Draft" reveals that two taken-for-granted delimitations in the history of images can actually prove to be highly permeable: that between graphic and written cultures, on the one hand, and that between manuscript and printed media, on the other. The consequences with regard to the history of science are of prime importance.

In the first place, the case of Plumier's corpus convincingly shows that graphic and verbal elements were interwoven in manifold ways, and that the function and functioning of texts and images were equally varied. The work of Sachiko Kusukawa on sixteenth-century botanical and anatomical images has been consequential in stressing the links

between written and visual culture in the sciences, while calling into question any hasty association of the graphic form with the act of scholarly observation. Hence her emphasis on the “importance of understanding the uses and functions of images in relation to text, and the larger project envisaged by” their authors, while calling historians—and historians of science in particular—“to appreciate and acknowledge a visual and pictorial world . . . which was not necessarily defined by direct observation.”⁶³ Such an approach gives us the opportunity to elaborate on the much-debated notion of “epistemic image.” For Lorraine Daston, an “epistemic image” (a term largely attributed to her) “is one made with the intent not only of depicting the object of scientific inquiry but also of replacing it. A successful epistemic image becomes a working object of science, a stand-in for the too plentiful and too various objects of nature, and one that can be shared by a dispersed community of naturalists who do not have direct access to the same flora and fauna.”⁶⁴ But, when images like these are considered in relation to the density of the practices by which they were made and used and to their mutable materiality, a question arises: to what extent are these characteristics exclusive to visual representations?

One of my aims in this thesis is to cast serious doubt on historical accounts that depart from a sharp opposition between images and texts. Louis Marin devoted much of his writing to tracing the multiple ways in which the written and the graphic “registers” are interwoven in works of art. Yet, Marin concluded, they are mutually irreducible after all: images cannot be approached with the methodologies of textual analysis.⁶⁵ I agree fully: my purpose here is not to “read” images as if they were verbal texts. But, by approaching scientific images from the standpoint of the intellectual and manual practices by which they were crafted and often diversely put to use, the boundary between “text” and “image” appears not only to be problematic for the reasons already stated, but on occasion even more flexible than the one between different sorts of images

⁶³ The quote is from Sachiko Kusakawa, “The Sources of Gessner’s Pictures for the *Historia animalium*,” *Annals of Science* 67, no. 3 (2010), 327. She put such views into practice in her “Leonhart Fuchs on the Importance of Pictures,” *Journal of the History of Ideas* 58, no. 3 (1997), 403-27, and recently developed them further in *Picturing the Book of Nature*, esp. 229-48.

⁶⁴ Lorraine Daston, “Epistemic Images,” in *Visions and Its Instruments: Art, Science, and Technology in Early Modern Europe*, ed. Alina Payne (University Park, PA: The Pennsylvania State University Press, 2015), 13-35.

⁶⁵ Louis Marin, “Lire un tableau. Une lettre de Poussin en 1639,” in *Pratiques de la lecture*, ed. Roger Chartier (Paris: Payot, 1993 [1985]), 129-57 (154: “Le plus haut sens travaille dans l’écart entre le visible, ce qui est montré, figuré, représenté, mis en scène, et le lisible, ce qui peut être dit, énoncé, déclaré; écart qui est à la fois le lieu d’une opposition et celui d’un échange entre l’un et l’autre registres”). There is an English translation: “On Reading Pictures: Poussin’s Letter on *Manna*,” in *Comparative Criticism: A Yearbook*, ed. E. S. Shaffer (Cambridge: Cambridge University Press, 1982), 3-18.

or various kinds of texts. In line with Kusakawa's argument, chapters 3 and 4 explore some of the intricate and varied ways in which texts and images worked together in Plumier's corpus. Chapter 3, for instance, looks at how Plumier used graphic depictions as a means for recording his field observations: his drawings appear not only to be interspersed with textual annotations, but also to be in a close dialog with the bookish tradition. What is more, his field records (graphic and textual) can be seen in parallel with the notes resulting from his reading of books, where Plumier copied, abridged, excerpted, and modified printed images and texts by hand. Another example of how textual and graphic elements were often employed for the very same purpose is presented in chapter 4: there, I study Plumier's manuscript corpus as a whole, and conclude that iconographic seriality was the result of the very same preoccupations and anxieties that resulted in written lists and catalogs.⁶⁶

Incidentally, another division becomes far more fluid than it seemed at first: that separating the cabinet scholar from the scholarly traveler. Writing very recently about the Portuguese missionary in Asia, Gaspar da Cruz, Antonella Romano rightly pointed out that "throughout the early modern period, authors with a 'direct' knowledge elaborate their experiences anew with a close confrontation with the written sources, indigenous or not, visual materials, cartographical or not, [and] material traces, seen *in situ* or in cabinets."⁶⁷ Indeed, the tension between observational practices and erudite culture is a leitmotif of this dissertation; they can both be approached, I believe, from the standpoint of what Anke te Heesen has suitably called "paper technologies."⁶⁸ In sharp contrast to Michel Foucault's famous and resolute claims regarding late seventeenth-century natural history, the observation of nature was all about paperwork of one sort or another.⁶⁹

⁶⁶ For a compelling later example of a naturalist's material practices of reading, see Dorothee Rusque, "L'histoire naturelle dans les marges: écrire dans et à partir des livres. Le cas de Jean Hermann," in *Écrire les sciences*, ed. Isabelle Laboulais and Martial Guédron (Brussels: Éditions de l'Université de Bruxelles, 2015), 81-96.

⁶⁷ Antonella Romano, *Impressions de Chine: L'Europe et l'englobement du monde (XVI^e-XVII^e siècle)* (Paris: Fayard, 2016), 59.

⁶⁸ Anke te Heesen, "The Notebook: A Paper Technology," in *Making Things Public: Atmospheres of Democracy*, ed. Bruno Latour and Peter Weibel (Cambridge, MA: The MIT Press, 2005), 582-9. Though very brief and with a quite generalistic scope, te Heesen's article has posed a good number of powerful questions that recent historiography on the history of science and paperwork has been exploring in the last decade or so, some of which are explored in this dissertation: she notes, for instance, that "one is member of a paper-community" and that "noting means paying attention."

⁶⁹ Foucault, *Les mots et les choses*, 143: "Les documents de cette histoire neuve ne sont pas d'autres mots, des textes ou des archives, mais des espaces claires où les choses se juxtaposent: des herbiers, des collections, des jardins."

Few have given as much due heed to note-taking and paper recording in the history of scientific observation as Marie-Noëlle Bourguet.⁷⁰ In her work on Alexander von Humboldt's travel notebooks—and particularly the one that resulted from Humboldt's peregrinations through Italy, the *Tagebuch*—, Bourguet studies the quotidian practices of inscription produced not only during Humboldt's travels, but also his visits to libraries and museums. Even more important than the contents of these records are, for Bourguet, the practices of inscription by which they are produced. When paying attention to these, field and cabinet do not appear as antithetical as they might have seemed at first sight.

In the second place, by tracing Plumier's scholarly practices of inscription from the field to the cabinet, "Nature in Draft" shows that the circulation of visual representations—but also of written texts—between the manuscript and the printed media were manifold and complex in the early modern period, far from limited to the linear, unidirectional transmission postulated by approaches such as genetic criticism.⁷¹ Chapter 5 is centered on the printed images in Plumier's books, and argues that these could be just as unstable as manuscript depictions. By now, a substantial number of studies have convincingly shown that print was no guarantor of textual fixity.⁷² But, as a matter of fact, neither was it of graphic stability: as the study of Plumier's plates of ferns convincingly shows, woodcuts and copperplates were not necessarily more stable than text—despite the former being in a single wooden or metal piece while the latter was composed of movable types.

Although not without difficulties, Plumier successfully saw a good number of his depictions into print. Yet the transmission of images and texts across media was put to

⁷⁰ Marie-Noëlle Bourguet, "Écriture du voyage et construction savante du monde. Le carnet d'Italie d'Alexander von Humboldt," Max-Planck-Institut für Wissenschaftsgeschichte, Preprint 266 (2004); "La fabrique du savoir. Essai sur les carnets de voyage d'Alexander von Humboldt," in "Festschrift für Margot Falk," special issue, *Humboldt im Netz* 7, no. 13 (2006), 17-33, and "A Portable World."

⁷¹ Genetic criticism or "la génétique des textes" proposed an innovative approach to printed texts, and literary texts in particular, by paying attention to the preparatory manuscripts at their origin, thus shifting the focus from the finished product to the process of writing. See especially the work of Pierre-Marc de Biasi, *Génétique des textes* (Paris: CNRS Éditions, 2011) and, for the history of science, Biasi's "Sciences: des archives à la genèse. Pour une contribution de la génétique des textes à l'histoire des sciences," *Genesis* 20 (2003), 19-50, as well as Michel Contat and Daniel Ferrer, eds., *Pourquoi la critique génétique? Méthodes, théories* (Paris: CNRS Éditions, 1998) and Michel Espagne, *De l'archive au texte: Recherches d'histoire génétique* (Paris: Presses universitaires de France, 1998).

⁷² This has been the main argument of Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: The University of Chicago Press, 1998). Johns dismantled the idea of fixity most famously articulated by Elizabeth L. Eisenstein in her ground-breaking *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe*, 2 vols. in 1 (Cambridge: Cambridge University Press, 2005 [1979]). The debate between Johns and Eisenstein ensued: see the 2002 AHR Forum: Eisenstein, "An Unacknowledged Revolution Revisited," and Johns, "How to Acknowledge a Revolution," in *American Historical Review* 107, no. 1 (2002), 87-105 and 106-28, respectively.

use in the reverse direction, too. Throughout the entire early modern period—that is, long after the so-called revolutionary “impact of print”—copying and re-working printed materials by hand was a pervasive practice among scholars, much more so than historians used to think.⁷³ This is, as stated above, the question I tackle in the last section of chapter 3 by looking at volumes of manuscript images copied from printed books. The reasons for such curious artifacts need to be sought in a culture that relied on and cherished manuscript transmission. The production and circulation of handwritten texts in social spaces as diverse as the literary underground and the humdrum political administration worked concurrently with the print trade for the entire handpress era.⁷⁴ In the worlds of scholarship, moreover, copying by hand was done not only with practical reasons in mind (to own a copy of a book), but the act itself held a pedagogical, even devotional value. Many were those who actually advised not to delegate copying and excerpting from printed books to secretaries and professional amanuenses, but to do it rather by oneself for reasons both mnemonic and spiritual.⁷⁵ Mid-eighteenth-century developments, however, such as the increasing importance accorded to the distinction between originals and copies in the worlds of art and the emerging figure of the author, have obscured these practices.⁷⁶

The analysis of Plumier’s printed images, a luxury commodity after all, also allows us to reassess the manuscript corpus by pointing out the specific space occupied by natural history—and natural historical productions—in the social and cultural cartography of late seventeenth- and early eighteenth-century France. Drawings, paintings, books, herbaria, and collections of exotic plants and animals—dead or alive—were objects of both

⁷³ The proof is that few works have addressed this question directly, with the exception of Michael D. Reeve, “Manuscripts Copied from Printed Books,” in *Manuscripts and Methods: Essays on Editing and Transmission* (Rome: Edizioni di Storia e Letteratura, 2001), 175-83, and more recently Ann Blair, “Reflections on Technological Continuities: Manuscripts Copied from Printed Books,” *Bulletin of the John Rylands Library* 91, no. 1 (2015), 7-33.

⁷⁴ McKenzie, “Speech—Manuscript—Print,” in *Making Meaning*, 237-58; Harold Love, *The Culture and Commerce of Texts: Scribal Publication in Seventeenth-Century England* (Amherst: University of Massachusetts Press, 1998 [1993]), and Fernando Bouza, *Corre manuscrito: Una historia cultural del Siglo de Oro* (Madrid: Marcial Pons, 2001). For Love, “scribal publication . . . [was] an accepted and important medium for the transmission of texts during the seventeenth century, quite equal in terms of status to transmission in printed form” [Love, “Scribal Publication in Seventeenth-Century England,” *Transactions of the Cambridge Bibliographical Society* 9 (1987), 147, quoted in McKenzie, “Speech—Manuscript—Print,” 244].

⁷⁵ Blair, “Technological Continuities”; *Too Much to Know*, 108-10 and 175-6, and especially “Early Modern Attitudes toward the Delegation of Copying and Note-Taking,” in *Forgetting Machines: Knowledge Management Evolution in Early Modern Europe*, ed. Alberto Cevolini (Leiden: Brill, 2016), 265-85.

⁷⁶ Charlotte Guichard, “La main et le geste. Signature et autographie au XVIII^e siècle,” in *De l’authenticité. Une histoire des valeurs d’art (XVI^e-XX^e siècle)*, ed. Charlotte Guichard (Paris: Publications de la Sorbonne, 2014), 64-77, and Roger Chartier, “Figures of the Author,” in *The Order of Books: Readers, Authors, and Libraries in Europe Between the Fourteenth and the Eighteenth Centuries* (Stanford, CA: Stanford University Press, 1994 [1992]), 25-59.

aesthetic and epistemic appropriations and uses. Chapters 2 and 5 in particular deal with this issue. In Louis XIV's absolutist France, naturalists like Plumier—and scientific practitioners by and large—appear as more or less skilled courtiers or, at the very least, contrived navigators of the refined worlds of polite and genteel interest in the exotic in which the natural history of the Americas needs to be located.⁷⁷ This was a Parisian world to a large extent, one in which natural knowledge often had to flow through the channels carved by the social and political dynamics of the city.

“Nature in Draft” aims at offering the first comprehensive account of a virtually untapped corpus of natural historical images by a rather obscure scholar. But, in doing so from the standpoint of practices of inscription and visual representations' materiality, it also aspires to explore the modes of knowledge production at play in the making of natural history in late seventeenth- and early eighteenth-century France. Wielding the quill and setting out to draw plants and animals over hundreds of pages, to craft lists and catalogs, to accompany the act of passive or active observation on paper, and to heap drawings and texts equated to specific forms of intellectual engagement and concrete ways of knowing the natural world. Here, I aim at studying the “arts of making” by which Plumier's corpus was composed and brought to us, or, in other words, the working methods and intellectual technologies within which his images made sense.⁷⁸

Chapter outline

Each chapter of this dissertation foregrounds a different aspect of Plumier's iconographic corpus. The first two chapters explore the intellectual and political dimensions of Plumier's images, respectively. Chapter 1 explores the place of visual representation in the intellectual project of overseas natural history, and does so by drawing comparisons with another sort of *historia*: that made by antiquarians. It moves then to consider the essential tension in late seventeenth-century French natural history between observational practices and erudite culture. Chapter 2 interrogates the brokered royal patronage that sustained Plumier's naturalist enterprise and the role that images

⁷⁷ On natural history in early modern France, see especially Salomon-Bayet, *L'institution de la science*; Alice Stroup, *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-Century Parisian Royal Academy of Sciences* (Berkeley, CA: University of California Press, 1990); E. C. Spary, *Utopia's Garden: French Natural History from Old Regime to Revolution* (Chicago: The University of Chicago Press, 2000); Van Damme, *Paris, capitale philosophique*, 173-90, and Terrall, *Catching Nature in the Act*.

⁷⁸ The notion of “arts de faire” comes from Michel de Certeau: see *The Practice of Everyday Life*, trans. Steven Rendall (Berkeley, CA: University of California Press, 1984 [1980]), esp. xv-xxii, but also *The Writing of History*, 5-6, 20-1, 69-86. On the “arts de faire” in the history of science, see Stéphane Van Damme, “Un ancien régime des sciences et des savoirs,” in Van Damme, *De la Renaissance aux Lumières*, 26-30.

played in securing it. While challenging any strong or coherent link between enterprises of natural exploration overseas and state imperial projects, it shows that images played a crucial part in creating the conditions of possibility for Plumier's travels.

The following two chapters move towards an in-depth analysis of Plumier's iconographic archive as a tool for the storing and management of natural historical information. Chapter 3 deals with Plumier's manuscript images and texts as observational inscriptions, and attempts to relocate traveling records (whether written or graphic) within the broader context of manuscript practices in the work of the naturalist. To do so, it turns, in the last section, to Plumier's *enchiridia*: notebooks in which he copied and abridged from printed images and texts. Note-taking appears, then, as mediating two as deceptively opposed learned activity as observation and reading. Chapter 4 aims at embracing Plumier's collection of images as a whole, and tackles material practices of information management such as the making of graphic series and written inventories. It argues that the sort of order with which naturalists were concerned at the time was not so much that of nature itself, but rather that of their own knowledge.

The final chapters of the dissertation deal with the transmission and reception of Plumier's archive. Chapter 5 studies Plumier's printed plates: by tracing the naturalist's struggles and negotiations to have his pictures printed, it argues that the local conditions of print production affected the formal characteristics of his books to the most minute details of his copperplates. Chapter 6 deals with the afterlives of Plumier's images: it follows how they were edited, copied, plagiarized, or simply relocated after the death of their author, and the ways in which, along with these transits, new meanings were given to them.

1. “Ce qui peut tomber sous les yeux”

Images and Learned Empiricism in the Work of Natural History

Plumier’s bunch of drawn papers was not the only collection of images that brought to Europe far-off natures in draft. Plumier belonged to a generation of French naturalists for whom images and exotic natures were two central, closely intertwined components of their work. Some examples can help illustrate this point. The first is a well-known one: it involves the sedentary *physiciens* (i.e. botanists, chemists, and anatomists) at the newly founded, but still unchartered, Paris Royal Academy of Sciences during the 1670s and the 1680s. Images became particularly important in the series of researches into the anatomy of exotic animals shepherded by Claude Perrault (1616-1688), an architect and anatomist, brother of the better-known Charles, and one of the first members of the exclusive association. The early members of the Academy began to meet on an almost informal basis in 1666 upon the instigation of Jean-Baptiste Colbert, and the project of Perrault’s group was part of the learned assembly from the outset. During the first two decades of their existence, Perrault’s anatomists focused on dissecting, describing, and drawing exotic animals at their quarters in the Bibliothèque du roi in rue Vivienne. The animals, most of which were provided by the royal menageries in Versailles and Vincennes, included beasts as alluring as a shark, a lion, a dromedary, a couple of ostriches, a chameleon, a beaver, and an Asian elephant.¹

Artists were a crucial part of the project: as an architect, Perrault himself was a reasonably skilled draftsman, and others like Philippe de la Hire (1640-1718) later joined the company. The beasts were sketched before and during the dissections, and some of these drawings found their way into print through the ambitious editorial project of the *Mémoires pour servir à l’histoire naturelle des animaux* (Essays for a natural history of animals), whose first two massive volumes, issued by the Imprimerie royale in 1671 and 1676 respectively, each boasted about fifteen full-page intaglio engravings cut by some of the

¹ The most recent and comprehensive account of the Paris Academy of Sciences’ project on the anatomy of animals is Anita Guerrini, *The Courtiers’ Anatomists: Animals and Humans in Louis XIV’s Paris* (Chicago: The University of Chicago Press, 2015), esp. 92-164. On the royal menageries, see Matthew Senior, “The Ménagerie and the Labyrinth: Animals at Versailles, 1662-1792,” in *Renaissance Beasts: Of Animals, Humans, and Other Wonderful Creatures*, ed. Erica Fudge (Urbana, IL: University of Illinois Press, 2004), 20-32.

trendiest artisans of the time. Some of the original drawings and red-chalk preparatory sketches are extant (fig. 1.1): along with the plates, they provide a stunning example of collaboration between naturalists and artists.²

Despite the exoticism of the animals they usually inspected, the Academy's anatomists were scholars reluctant to abandon the comforts of Parisian life. There was one notable exception: the journey of La Hire with the anatomist Joseph-Guichard Duverney (1648-1730) along the French West coast to dissect and draw fishes. Colbert himself had entrusted them to do so. La Hire's and Duverney's work on fishes did not thrive as that of Perrault's circle, however: they presented parts of it to the Academy several times between 1680 and 1682, a few observations on the circulation of blood and on the respiratory and auditory system of fishes were read by Duverney in the society, and the drawings made by La Hire were given to Perrault with the hope that a fourth volume of the *Histoire des animaux* would ensue, but this never came to fruition. The case confirms nonetheless the close link that existed, in late seventeenth-century France, between the world of ministers and that of scholars, between natural historical undertakings and visual representation.³

Overseas, Plumier was also not the only naturalist who took pains in registering his observations in the form of visual depictions. Another major crown-funded journey of natural historical research—one in which images also played a central part—was undertaken between 1700 and 1702 by Joseph Pitton de Tournefort (1656-1708), one of the first pensioned members of the Academy of Sciences and *demonstrateur* of botany at the Jardin du roi. At the peak of his career and while his major publication was being printed at the Imprimerie royale (the *Institutiones rei herbariae*, in which he laid the foundations of his system of natural classification), Tournefort departed to explore the flora and, to a lesser degree, the fauna of several Eastern Mediterranean countries, from Greece, Crete, and the Aegean islands to the Ottoman Empire and Safavid Persia. Unlike

² [Claude Perrault, ed.], *Mémoires pour servir à l'histoire naturelle des animaux* (Paris: de l'Imprimerie royale, 1671), and *Suite des mémoires pour servir à l'histoire naturelle des animaux* (Paris: de l'Imprimerie royale, 1676). Some of the extant drawings made by Perrault's group are kept at the AAS (e.g., Dossier Claude Perrault, Pochette des séances for 1667, and Cartons 1666-1793).

³ Jean-Baptiste Colbert to Jean Picard, Fontainebleau, September 21, 1679, in *Lettres, instructions et mémoires de Colbert. Publiés d'après les ordres de l'empereur sur la proposition de son excellence M. Magnet, ministre secrétaire d'État des finances*, ed. Pierre Clément, vol. 5, *Fortifications, sciences, lettres, beaux-arts, bâtiments* (Paris: Imprimerie impériale, 1868), 403-4. Some of the drawings are conserved at BCMNHN MS 244 "Dissections de divers poissons faites sur les costes de France pendant les années 1679 et 1680." See Aline Hamonou and François J. Meunier, "Les dessins ichtyologiques réalisés par J.-G. Duverney et P. de la Hire pendant leur voyage en Basse-Bretagne en 1679-1680," *Cybiurn* 34, no. 1 (2010), 19-27, and Guerrini, *Courtiers' Anatomists*, 201-2.



Fig. 1.1. (top left) Black chalk drawing of a lion's paw, from the project on the natural history of animals by Claude Perrault's circle of anatomists at the Paris Academy of Sciences. (Archives de l'Académie des Sciences, Paris.) (top right) One of the engravings in Tournefort's *Relation d'un voyage au Levant* (1717). (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.) (bottom) Drawing of a sea sponge sent by Augustin Lippi from his journey along the Nile. (Muséum national d'histoire naturelle, Paris.)

Plumier, however, Tournefort did not travel alone: he brought along “two trustworthy men who were in the mood to share with me the pains of a long journey”: one was the German and “excellent physician” Andreas von Gundelsheimer (ca. 1668-1715), for “there is nothing sadder than getting sick in an unfamiliar country where medicine is little known”; the other was the “skillful painter” Claude Aubriet (1665-1742), just appointed as *peintre ordinaire* at the Jardin du roi and joining the team because “it is also distressing to see beautiful things and be unable to draw them.” For Tournefort, the assistance of an artist was crucial to a journey of botanical exploration overseas, all the more so given that “without this instrument [drawing] it would be impossible to make any intelligible account” of such distant marvels. Thus the party returned to France with a sheer number of paper materials besides those, especially letters, sent along the journey to friends, family, and patrons. Tournefort and his men set foot in France with catalogs of the specimens observed, dried plants, some “botanical diaries” (*journaux de botanique*), and several hundred drawings and paintings skillfully crafted by Aubriet and depicting mostly plants, but also landscapes, antiquities, architecture, animals, and the peoples they encountered en route. Some of these pictures were engraved and published in the two volumes of Tournefort’s posthumous *Relation d’un voyage du Levant* (*Account of a voyage to the Levant*, 1717).⁴

Less well-known enterprises of natural history overseas go along similar lines. Such is the case of the ill-fated Augustin (or Agostino) Lippi (1678-1705). A Parisian-born physician of Italian origins, Lippi believed it to be his life’s chance when he was proposed in 1704 to join the diplomatic mission of Lenoir du Roule, vice-consul in Tripoli, to the *Negus* of Abyssinia. Things eventually turned out badly, for the entire expedition was massacred mercilessly before even reaching their aim; still, some letters, boxes of specimens, and drawings by Lippi reached Paris beforehand. Only sixteen of these pictures survive: they present the specimens (mostly seaweeds and corals) elegantly

⁴ Joseph Pitton de Tournefort, *Relation d’un voyage du Levant fait par ordre du roy* (Paris: de l’Imprimerie royale, 1717), vol. 1, 2: “J’avois besoin de deux hommes de confiance, qui fussent d’humeur à partager avec moi les peines inséparables des grands voyages. Il n’y a rien de si triste que de tomber malade dans des pays où l’on ne connoît personne, & où l’on ignore la medecine. Il est fort chagrinant aussi de voir de belles choses sans les pouvoir faire dessiner, & sans ce recours l’on ne sçauroit rendre une relation bien intelligible.” See also Pierre Guiral, “Tournefort et son voyage au Levant,” in G. Becker *et al.*, *Tournefort* (Paris: Muséum national d’histoire naturelle, 1957), 77-96. For some of Aubriet’s extant drawings and paintings made during the journey to the Levant, see BCMNHN MS 78 “Voyages de Tournefort. Dessins de plantes et d’animaux par Aubriet”; MS 185 “Dessins d’Aubriet pour le voyage de Tournefort dans le Levant”; MS 675 “Dessins de plantes du Levant et d’Espagne, observées par Tournefort et dessinées par Aubriet,” and MS 998 “Journal de botanique du Levant, par Tournefort,” fol. 461 (“Catalogue des plantes que M. Aubriet a dessinées dans son voyage du Levant, commencé en 1700”).

colored and carefully labeled, one per page within an ink frame, thus highlighting their factuality, as if they were items of a collection.⁵

The case of our Minim friar is certainly exceptional in the size of the paper materials collected (whether or not they were entirely made in the West Indies) and in that, unlike Perrault’s circle and Tournefort, he presumably worked alone or, at most, with a young black helper—perhaps a slave—whose traces have almost completely disappeared from the record.⁶ But as in the cases mentioned above, visual representations, along with written materials, were the cornerstone of the making, transmission, and reception of Plumier’s work as a naturalist on the West Indian flora and fauna, from his fieldwork (in which graphic and textual inscriptions mediated the act of observation, as we shall see in chapter 3) to his printed books (a question further evinced in chapter 5). The Minim friar belongs to a generation of scholars (natural historians, yes, but not only) for whom visual representations served their epistemic purposes well—or so went usually their justification for working with images or attempting to include costly copperplates (and less often woodcuts) in their publications. The preface of Plumier’s *Description des plantes de l’Amérique* (1693), a folio volume with more than one hundred full-page engravings, placed image-making at the center of his natural historical practice and as the sine qua non of the comprehension of a far-off flora: “I have been around two years [in the West Indies] through the two journeys I made &, during that time, I drew & described towards six hundred different plants, of which I offer a part in this volume; & since I know by my own experience that it is very difficult to know a plant well through a small figure, I wanted to draw them in their natural size; if not entirely, at least a part of them.”⁷

My aim in the following pages is to explore some of the themes evoked by the examples mentioned above, which are both distinctive of the culture of natural history around 1700 and crucial to understanding Plumier’s engagement with the graphic medium. The chapter proceeds in three parts. First, it considers the new place that travel was given in the work of the naturalist at the turn of the century. A specific sort of legitimacy underpins the images of West Indian nature by the Minim friar: that of the

⁵ BCMNHN MS 1299 (2) “Description des plantes observées en Aegypte par Mr Lippi depuis le 22^e du mois d’Avril jusqu’au 18^e de juillet 1704 avant son départ du Caire pour l’Ethiopie. Plus la description de celles qu’il a observées dans la haute Aegypte depuis le 18^e juillet jusqu’au 5^e septembre de la même année.”

⁶ On the young Black helper, see below, 153n1.

⁷ Charles Plumier, *Description des plantes de l’Amérique, avec leurs figures* (Paris: de l’Imprimerie royale, 1693), sig. [a3^v]: “J’y ay resté environ deux ans, en deux voyages que j’y ay faits, & pendant ce tems-là, j’y ay dessiné, & décrit près de six cens plantes differentes, dont je donne une partie dans ce volumen; & comme je sçavois par ma propre experience, qu’il est tres-difficile de bien connoistre une plante par des figures en petit, j’ay voulu les dessiner dans leur grandeur naturelle; si non en tout, au moins en partie.”

traveling scholar and of the topos, pivotal at that time, of firsthand observation by a trained eye. The role of visual representations in this sort of scholarly undertakings overseas was, I argue, the result of a newly redefined relationship of the (natural) historian to his (exceptionally her) sources at that time. The hypothetical utility of images for the study of flora and fauna was largely left unsaid by the practitioners of what was still a discipline-to-be—and most particularly by Plumier himself. An instructive comparison is provided by another sort of historical inquiry, namely antiquarianism, which came to rest on very similar epistemic (but also social) grounds.⁸ Not only did Plumier's lifetime coincide with the early development of archeological research, but his work with images did not differ wildly from that of contemporary antiquarians like Dom Bernard de Montfaucon. Finally, I challenge the assumption that travel and firsthand observation were in any way opposed to the commerce of texts and written culture by and large. To do so, I consider the erudite foundations of Plumier's images: the bookish references in relation to which his observations and depictions were made, as well as the nature of this relationship and the way in which both “worlds”—that of books and of what was seen—interacted in the graphic space and beyond.

Fatiguing scholarship

At the turn of the eighteenth century, French traveling naturalists were fatigued scholars. Unlike most men of letters of the time, the students of the natural world came to believe that the sources of their knowledge should be sought in recondite, distant places of the globe.⁹ This was obviously not new, but the persistent emphasis that a good number of botanists were placing on the necessity of distant travel probably was. In late seventeenth-century France, many were the botanists who presented themselves as

⁸ As Charlotte Guichard pointed out in relation to the status of images in the making of knowledge around 1700, the comparison can be extended not only to antiquarianism, but also to art history (and the theory of portraiture in particular), for they both (along with natural history) were then fields based on description and observation: Charlotte Guichard, “D’après nature’ ou ‘chose vue’? Autorité et vérité de l’image scientifique au XVIII^e siècle,” in *À perte de vue: les nouveaux paradigmes du visuel*, ed. Daniel Debusson and Sophie Raux (Dijon: Les presses du réel, 2015), 35-51. I will nevertheless limit my comparison to natural history and antiquarianism, for my principal concern here is not so much the status of images in general terms as the role that these could play for practitioners in the making of their respective fields of knowledge. Moreover, both antiquarianism and natural history were “historically” oriented sciences, based not only on description, but also on the accumulation of data. They are also comparable from an epistemic point of view at this precise period of time, for they came to develop a “documentary paradigm.”

⁹ Marie-Noëlle Bourguet, “La collecte du monde: voyages et histoire naturelle (fin XVII^e-début XIX^e siècle),” in *Le Muséum au premier siècle de son histoire*, ed. Claude Blanckaert (Paris: Muséum national d’histoire naturelle, 1997), 163-96. See also Yves Laissus, “Les voyageurs naturalistes du Jardin du Roi et du Muséum d’histoire naturelle: un essai de portrait-robot,” *Revue d’histoire des sciences* 34, no. 3-4 (1981), 259-317, and Bourguet, “L’explorateur,” in *L’homme des Lumières*, ed. Michel Vovelle (Paris: Le Seuil, 1996), 285-345.

pioneers of what was in their view a crucial, much-needed turn in the way in which the natural world was known, one that entailed abandoning the comfort of their cities’ countryside for the perils of the high seas. The examples in the correspondence of traveling naturalists with their patrons are numerous. During his herborizations along the Nile during 1705, the abovementioned Augustin Lippi often narrated the dangers to which he and his party were exposed on sea and land (such as the “immense fatigues of the desert”) in his correspondence with the intendant of the Jardin du roi, Guy-Crescent Fagon (1638-1718).¹⁰ We have seen, however, that Lippi did not exaggerate his account in the least, for his adventure was dramatically interrupted when he and his entire party was slaughtered in the Sudanese city of Sennar.

Plumier’s destiny was not this tragic, but he repeatedly insisted on the perils and discomforts of distant voyages. The friar once described the health problems he endured as a result of the “fatigue of the journey” during his first trip to Martinique. He related on another occasion a dangerous adventure, from which he finally escaped, to his fellow Minim friars and to his friend Tournefort, who wished that Plumier “could continue to make such beautiful discoveries without having to risk his life so often.”¹¹ This event in particular took place at the end of 1695, in the middle of the Nine Years’ War confronting, both in Europe and the colonies, the French with the Anglo-Dutch and Spanish forces. Plumier’s misadventure became known in certain Parisian circles because it mobilized considerable resources from the crown. In a report on the evolution of the war, the governor of Martinique informed the “governor-general of the isles of America” that the fishing ship in which Plumier was traveling had been captured while returning from the Grenadines, and that the friar was made prisoner and transferred to Barbados.¹² In a letter dated some days before, the governor of Saint-Domingue informed the minister of the navy that “Father Plumier, Minim, arborist of the King” was safe and sound: “he went from the Martinique to the Grenade on a boat that ran aground until here. It was a miracle that neither the crew nor Plumier died, since they were more than

¹⁰ Augustin Lippi to Guy-Crescent Fagon, Korti, March 8, 1705, in BCMNHN MS 1299, vii.

¹¹ Ars. MS 2875 “Descriptions des plantes de l’Amérique” (this was one of Plumier’s unpublished drafts for the *Description*), fol. 108v: “une chaleur de poitrine . . . m’estant survenue par la fatigue des chemins dans mon premier voyage à la Martinique”; BNF Est. Réserve Ye-27 Fol, fol. 3: “Lettre d’un religieux minime de Paris, en datte du 22 avril 1695, par laquelle il le félicite sur les dangers dont le P. Plumier s’est tiré pendant sa traversée.”

¹² Nicolas de Gabaret to Charles de Courbon, Count of Blénac, n.p., November 19, 1695, in ANOM C^{8A} 9 F^o, fol. 151v: “Depuis trois ans deux vaisseaux anglois de 50: pièces ont paru deux fois devant cette Rade, et ny ont pris qu’une petite Barque venant de la Pesche des Grenadins, dans laquelle il [y avait] le père Plumier Minisme qu’ils ont transferez à la bar[bade] au rapport de quelques prisonniers.”

fifteen days drinking but two glasses of water per day, and eight entire days without drinking a drop. They were in agony when a ship from this coast found them. He was researching on plants and trees, and I take as much care of him as I can.”¹³ About a year later, Secretary of State of the Navy Pontchartrain himself wrote to the governor of the American islands on the tribulations of the botanist, for it came to his notice that an “enemy privateer has taken Father Plumier, Minim friar who has been entrusted by the King to travel through the French islands of America in order to finish to take knowledge of the simples that grow there, and that was brought to Tobago. I briefed His Majesty, and he orders me to inform you that his intention is that you free him as soon as possible, by exchanging one of the enemy prisoners that are in Martinique for him, if he was taken by the English; by claiming him in the terms of the cartel, if it was the Dutch; and that you ensure that he will soon be able to continue his destination.”¹⁴ This time it was a false alarm: soon afterwards Plumier thanked the minister for his intercession to have him rescued from the enemies, “believing that I have been taken”: “I hope, Monseigneur, that you will have the same kindness in the case of a real accident, to which I am so often exposed for the continuation of my small work.”¹⁵

The hazardousness of the journey to, and life in, the Caribbean islands during the 1680s was well-known among French elites: Michel Bégon, perhaps Plumier’s most consequential patron, did not receive with much enthusiasm his appointment as intendant of the West Indies due to the “fatigues of crossing 20,000 *lieues*, [and] the air of a clime that was called at the time the cemetery of Frenchmen.”¹⁶

¹³ Jean-Baptiste du Casse to Louis Phélypeaux, comte de Pontchartrain, L’Éogâne, November 8, 1695, in ANOM C^{9A} 3, fol. 176^v, quoted in Odile Krakovitch, “La vie intellectuelle dans les trois couvents minimes de la place Royale, de Nigeon et de Vincennes,” *Bulletin de la Société d’histoire de Paris et d’Île-de-France* 109 (1982), 115: “Le père Plumier, minime, arboliste [*sic*] du Roy, estant allé de la Martinique à la Grenade dans une barque qui s’est effloquée jusques icy, il y a du miracle comme cet équipage ne soit pas mort, ny luy non plus, ayant esté plus de quinze jours à ne boire que demy verre d’eau par jour, et huit jours entiers sans boire une goutte. Ils estoient à l’agonie, lorsqu’un vaisseau de cette coste les rencontra; il travaille à la recherche des plantes et des arbres curieux; et j’en prens tout le soin possible.”

¹⁴ Pontchartrain to Blénac, Versailles, March 21, 1696, in ANOM B¹⁸, fol. 270^v, quoted in Krakovitch, “La vie intellectuelle,” 116: “J’ai esté informé que le père Plumier, religieux minime auquel le Roy a donné ordre de repasser aux isles françoises de l’Amérique pour achever d’y prendre des connoissances des simples qui y croissent, a esté pris par un corsaire ennemi et mené à Tabago. J’en ay rendu compte à Sa Majesté, et elle m’a ordonné de vous dire que son intention est que vous l’en retiriez le plus tost possible, en l’eschangeant avec quelqu’un des prisonniers ennemis qui se trouvent à présent à la Martinique, s’il a esté pris par un Anglois; en le réclamant suivant le cartel, si c’est un Hollandais; et que vous fassiez en sorte qu’il puisse bientost suivre sa destination.”

¹⁵ Plumier to Pontchartrain, Martinique, July 20, 1696, in ANOM C^{8B} 2 N^o, fol. 32: “J’espere Monseigneur que vous aurez toujours la meme bonté en cas qu’il m’arrivast quelque accident ou je suis assez souvent exposé pour la continuation de mon petit ouvrage.”

¹⁶ Andrée Freiche, “Michel Bégon, Intendant de Louis XIV à Rochefort ville nouvelle du XVII^e siècle” (PhD diss., École des Hautes Études en Sciences Sociales, 2004), 29-30.

For naturalists like Plumier, however, the dangers of the journey seemed to be useful sources of legitimacy in the making of natural knowledge. In his few extant letters, the Minim friar often delighted in narrating the distressing episodes of his trips, as when an obscure physician of La Rochelle inquired to him about the supposed cold blood of amphibians:

I can assure you that [the sea turtle’s blood] is as cold as running water. I went about two months fishing this kind of animal across the Grenadines with some buccaneers from Martinique. The fishing was quite favorable, we were returning with the boat full of salted meat, as well as twelve big [turtles] alive. [But] the weather was so adverse . . . that after several days drifting in all directions with no possibility of landing . . . we used all our Water up . . . and we decided to drink the blood of the only turtle that was still left alive out of the twelve we had. . . . We were sixteen [people] and we shared it, as it is commonly said, like good brothers. I found this blood as cold as running water from the river (*experto crede Roberto*).¹⁷

Plumier also elaborated on this rhetoric of a laboriously-gained experience and the strenuousness of botanical travel in the preface of an unpublished work, the “Solum, salum, coelum Americanum” (American land, sea, and sky). The manuscript consisted of nearly one hundred pages of text, including the preface and descriptions and two hundred leaves of images, from simple pencil sketches to ink-and-watercolor drawings. The subtitle announced the heterogeneous contents of the work: “descriptions and images [made] from the living plants, fishes, and birds of the islands of the West Indies and Santo Domingo.” In the preface, addressed to “botanists and curious people” (*Botanicis Et Curiosis*) and filled with extracts borrowed from Horace, Seneca, and Virgil, the friar went into flowery self-congratulatory praise of his enterprise, undertaken for the sake of natural knowledge:

¹⁷ Plumier to Isaac Baulot, copied in a letter from Plumier to Bégon, March 6, 1703, in MMC MS 867, fol. 148^r-150^v: “Quant à la froideur du sang des tortuës, je puis vous assurer qu’il est aussi froid que de l’eau commune. Je fus environ deux mois à la pesche de ces animaux dans les Grenadins avec quelques flibustiers de la Martinique. La Pesche fut assez heureuse, nous nous en retournions la barque bien chargée de la viande salée et outre ce de douze grandes en vie. Le temps nous fut si contraire . . . qu’après avoir couru plusieurs jours par tous les rhombs des vents sans jamais pouvoir prendre terre, ny à la Grenade, ni à Tabago, ni meme en terre ferme ou le mauvais temps nous avoit mené, nostre Eau nous manqua entierement, et quantité d’une chopine d’Eau chacun, nous nous avisâmes de boir le sang d’une tortuë qui nous restoit encore en vie des douze. . . . Nous etions seize et nous nous partageames comme l’on dit en bons frères. Je trouvay ce sang aussi froid que l’eau commune des rivières (*experto crede Roberto*).” On this certain Isaac Baulot (1658-1712), I have only found a short manuscript biographical note in MMC MS 335, fol. 77^r. The Latin motto “*experto crede Roberto*” means “something I can speak out of experience,” as Robert Burton explained in *The Anatomy of Melancholy*, vol. 1 (New York: Sheldon & Co., 1862), 34.

It is fair to say that not few of the sagacious researchers of the natural things have endured similar efforts and invested as much as I did in their work, but among those who entered the world of study, I did not fear (despite being weak) to expose myself to the wild open seas, to cross mountains, to journey through American valleys and jungles, so as to thoroughly examine the marvelous forms of both animals and plants that inhabit them and, since they are worth being observed, to show them to everybody's eyes [*spectandasque oculis omnium exhiberem*].¹⁸

In the same preface, Plumier justified the need for long-distance travel in botany as a way of confronting novelty: "It seems to me that, as Lucius Anneus Seneca would say if he could give his opinion, those who preceded us have not exhausted what can be said, but have only opened the way. Knowledge grows day after day [*crescit enim in dies materia*], and what has already been discovered does not prevent further discoveries."¹⁹

Plumier was not the only naturalist to portray himself as a resigned and adventurous traveler: Tournefort did so, too, and no doubt more successfully when it came to self-fashioning himself before the Parisian elite. Although in a comfortable position at both the Jardin du roi and the Paris Academy of Sciences, Tournefort refused to present himself as an armchair scholar. He certainly had an early thirst for adventure. At twenty-two years old, he undertook his first herborizations through the mountains of the Dauphiné and Savoy and some time later, while a medical student at the university of Montpellier, across the area around that city. In 1681, he traveled through the mountains of Catalonia and the Pyrenees. After being appointed *demonstrateur* at the Jardin du roi in 1683, Tournefort went back to the Iberian Peninsula to herborize across Spain and Portugal and a few years later visited both the main university cities and the wildernesses

¹⁸ Plumier, "Solum, salum, coelum Americanum, seu plantarum, piscium, volucrumque insulis Antillanis et Sandominicana naturalium icones et descriptiones," BCMNHN MS 23, fol. 1-2: "Eosdem licet exanclauerint labores, iisdemque insudauerint operibus no[n] pauci rerum naturalium perscrutatores sagacissimi, eorum tamen accessus studiis, me fragilem truci committere pelago, montes adire, ualles, siluasque americanas peragrarare non horruui.. ut in iis enascentium tum plantarum tum animalium mirabiles formas perlustrarem, spectandasque oculis omnium exhiberem.." The reference to his fragility against the wild open sea is borrowed from Horace, Ode 1.3.10-12: "qui fragilem truci / conmisit pelago ratem / primus."

¹⁹ Plumier, "Solum, salum, coelum Americanum," BCMNHN MS 23, fol. 2: "Quid tum, ipsius Lucii Annai Seneca sententiam effari liceat, qui praecesserunt non mihi praeripuisse videtur quae dici poterant, sed apervisse.. Crescit enim in dies materia, et inventuris inventa non obstant." This impinges upon the contemporary developments of the so-called Quarrel of the Ancients and the Moderns in France: on the quarrel, see two classics: Joan de Jean, *Ancients against Moderns: Culture Wars and the Making of a Fin de Siècle* (Chicago: The University of Chicago Press, 1997) and Marc Fumaroli, "Les abeilles et les araignées," in *La Querelle des Anciens et des Moderns (XVII^e-XVIII^e siècles)*, ed. Anne-Marie Lecoq (Paris: Gallimard, 2011), 7-218, and compare both with Larry F. Norman, *The Shock of the Ancient: Literature and History in Early Modern France* (Chicago: The University of Chicago Press, 2011), esp. 1-8, and Paddy Bullard and Alexis Tadié, eds., *Ancients and Moderns in Europe: Comparative Perspectives* (Oxford: Voltaire Foundation, 2016).

of the Low Countries and England.²⁰ In 1700, when he was already a very influential member of the Parisian intellectual milieu, Tournefort undertook his well-known journey to the countries of the Eastern Mediterranean, from which he narrated in a lively manner to ministers and socialites the many dangers he and his team survived when crossing seas filled with “bandits” and “crooks.”²¹

A specific definition of natural history was at stake in Tournefort’s self-fashioning as an intrepid botanist: the sort of knowledge he aimed at producing was to be sought in the field, however recondite this might be. When explaining his method for the classification of the vegetable world (which he boasted was the simplest a curious mind could find among authors) the professor insisted that, if there was any difficulty in the practice of botany, this was not—against the common belief—the diversity and ordering of species but their observation at first hand:

If there is any fatigue in herborizing, it is because very often we need to seek the plants in the highest mountains, or in dreadful precipices; whereas we can learn the other sciences at school, & in the cabinet: but we are quite rewarded for this exertion with the pleasure we get from seeing a part of the most beautiful things that there are in nature.²²

The image of Tournefort as an “outdoor” botanist was famously consecrated by Bernard Le Bovier de Fontenelle (1657-1757), the Paris Academy of Sciences’ perpetual secretary (and consequently prolific eulogy-writer): in his “Éloge de M. Tournefort,” Fontenelle related how the naturalist nearly died of starvation and cold in the Pyrenees in 1680; how, the following year, he remained buried for two hours when the tumbledown cabin in which he was sheltering close to Perpignan collapsed in the middle of the night; and how he was robbed so many times by the militias of Miquelets in the Catalan mountains that he eventually included 15 *livres* and 14 *sols* “to the highwayman” among

²⁰ Bernard Le Bovier de Fontenelle, “Éloge de M. de Tournefort,” in *Histoire de l’Académie royale des sciences. Année MDCCVIII* (Paris: par la Compagnie des Libraires, 1708), 143-54.

²¹ His letters with Pontchartrain were published posthumously as Tournefort, *Voyage au Levant*. His reference to the “bandits” and “crooks” that filled the seas of the Greek archipelago is in Tournefort to Fagon, Mykonos, December 26, 1700, in BCMNHN MS 998, fol. 428.

²² Joseph Pitton de Tournefort, *Éléments de botanique ou méthode pour connoître les plantes*, 2 vols. (Paris: de l’Imprimerie royale, 1694), vol. 1, 4: “S’il y a de la fatigue à herboriser, c’est parce qu’il faut aller bien souvent chercher des plantes dans les plus hautes montagnes, ou dans des précipices affreux; au lieu que l’on peut apprendre les autres sciences dans l’école, & dans le cabinet: mais on est assez récompensé de cette peine par le plaisir qu’on a de voir une partie de ce qu’il y a de plus beau dans la nature.”

the entries of the accounts book of his journey in 1687 to Spain.²³ For Fontenelle (a comfortably settled *philosophe* himself), this inclination for travel was a rare virtue among scholars: “Philosophers do hardly roam the world, & those who do are not ordinarily Philosophers, & thus a journey by a Philosopher is extremely precious.”²⁴ This was particularly true of botany, Fontenelle said:

Botany is not a sedentary & lazy science that can be acquired in the calm & shadows of a Cabinet, like Geometry or History, or one such as Chemistry, Anatomy, & Astronomy, which demand operations of little movement. [The botanist] is required to run through Mountains & Forests, to climb steep crags, to expose himself on the edge of cliffs. *The only Books that can instruct him in depth on this subject have been sprinkled over the surface of the whole Earth,* & one has to accept the fatigue & danger of seeking & gathering them.²⁵

To be a naturalist was to seek and gather the “books sprinkled over the surface of the whole Earth.” The metaphor was a powerful one, an example of the longstanding ideal according to which the origins of modern science are to be found in a turn of attention from the “little books of men” to the “big Book of Nature.”²⁶ Fontenelle continued with the analogy: “those dreadful & almost inaccessible Boulders, surrounding him [Tournefort] everywhere, had turned for him into a magnificent Library, where he

²³ Fontenelle, “Éloge de M. de Tournefort,” 145-6. On Fontenelle, see Simone Mazauric, *Fontenelle et l'invention de l'histoire des sciences à l'aube des Lumières* (Paris: Fayard, 2007), esp. 85-102 for the “éloges,” and the witty review of this book by J. B. Shank on *H-France Review* 9, no. 72 (2009), 288-96.

²⁴ Fontenelle, “Éloge de M. de Tournefort,” 151-2: “Les Philosophes ne courent guere le monde, & ceux qui le courent ne sont ordinairement guere Philosophes, & par-là un voyage d'un Philosophe est extrêmement précieux.”

²⁵ Fontenelle, “Éloge de M. de Tournefort,” 144: “La Botanique n'est pas une science sedentaire & paresseuse, qui se puisse acquerir dans le repos & dans l'ombre d'un Cabinet, comme le Geometrie, & l'Histoire, ou qui tout au plus, comme la Chimie, l'Anatomie, & l'Astronomie, ne demande que des operations d'assez peu de mouvement. Elle veut que l'on coure les Montagnes & les Forêts, que l'on gravisse contre des Rochers escarpez, que l'on s'expose aux bords des Précipices. Les seuls Livres qui peuvent nous instruire à fond dans cette matiere, ont été jettez au hazard sur toute la surface de la Terre, & il faut se résoudre à la fatigue & au peril de les chercher & de les ramasser.” My emphasis.

²⁶ The history of the book has long dismantled the ideal turn, constructed by early modern savants themselves, from the little books of men to the big book of nature. Elizabeth L. Eisenstein, for instance, made of this critique one of the foundations of her classic *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe*, 2 vols. in 1 (Cambridge: Cambridge University Press, 2005 [1979]), 455, in which she rightly announced that “the long-lived metaphorical image of by-passing other books in order to read in the book of nature, ‘that universal and publick manuscript that lies expans'd unto the Eyes of all,’ is a source of deception which needs further analysis.” Eisenstein finds this particularly clear in the realm of early modern anatomy: in Leonardo da Vinci, for example, an “eagle-eyed observation (even when combined with masterful drawing and dissection) was not in itself sufficient to set the study of anatomy on a new course. Familiarity with books as well as bodies was required” (269).

had the pleasure of finding all that his curiosity was demanding.”²⁷ Tournefort effectively associated his work and own persona with an idea of botany built upon new foundations: a review of his *Institutiones rei herbariae* (1700) fostered this view of botany as a science of unmediated observation as if it were an innovation. In the fifteenth century, naturalists “did not look for plants but in the Books of the Greek & the Latin,” wrote the anonymous reviewer (perhaps Fontenelle again), but “eventually reason came with the Sciences. Nature began to be studied as much as Books, and we dared to seek Plants in the countryside.”²⁸

To understand this revived rhetoric of firsthand observation in the generation of French naturalists to which Plumier belonged, we need to turn our attention to the way in which the unstable field of natural history was being defined among them at the time.

Histories

This insistence that the naturalist ought to endure the fatigues of long journeys in exotic lands for the sake of the natural historical enterprise needs to be placed in the larger context of its practitioners’ contemporary ideals and attitudes towards the sort of knowledge they aimed at producing. Consider once again the Academy’s project for the natural history of animals. The unsigned preface to the 1671 volume of the *Histoire des animaux*, written in fact by Claude Perrault, provides an explicit articulation of the principles they sought to apply to their intellectual project. What they aspired to create in stabbing dead exotic animals and drawing their entrails had a name: history. The author distinguished between two types of historical writing: in the first, he said, the historian gathers what has been written at different times and by different authors on the topic he treats; in the second, in contrast, the historian “confines himself in the narration of particular facts, on which he who writes has *a positive knowledge* [*une connoissance certaine*].” We may call the first typology a general history, made out of testimonies, and the second, a history of particulars. To this second typology, Perrault continued, Romans referred with the term “commentaries,” and he and his circle of academicians-anatomists with

²⁷ Fontenelle, “Éloge de M. de Tournefort,” 145: “ces Rochers affreux & presque inaccessibles, qui l’environnoient de toutes parts, s’étoient changez pour lui en une magnifique Bibliotheque, où il avoit le plaisir de trouver tout ce que sa curiosité demandoit.”

²⁸ *Histoire de l’Académie royale des sciences, année 1700. Avec les Memoires de Mathematiques & de Physique, pour la même année. Tirés des Registres de cette Academie* (Paris: chez Jean Boudot, 1703), 71: “alors qu’on ne songea qu’à entendre les Anciens pour en tirer les lumieres, qui avoient été si long-tems ensevelies, les Botanistes ne chercherent les Plantes que dans les Livres des Grecs & des Latins. . . . Il n’étoit pas possible qu’enfin la raison ne revint au monde après les Sciences. On se mit à étudier la Nature aussi-bien que les Livres, & on osa chercher les Plantes dans les campagnes.”

that of “essays” or “memoirs” (*mémoires*)—which gave title to their volume on the anatomy of animals. This history of particulars was not without pitfalls, but the benefits in his view far exceeded the limits: “although [the second typology of history] does not contain but the parts, or the elements that compose the body of History, & has not the majesty of a general history, it has nonetheless the advantage of Certitude & Truth [*la Certitude & la Vérité*], which are the most commendable virtues of History, provided that the one who writes is exact, & honest [*exact, & de bonne foy*].” But exactitude and honesty, Perrault warned the reader, “is not enough for the general Historian, who often may not be veritable, however passionate he is about truth, & regardless of the care he employs to discover it, *for he is always in danger of being misled by the testimonies he works with.*”²⁹

A remark needs to be made here. History indeed was a word and a mode of inquiry that, at that time and place, applied to both the natural world and the human past. Plumier consistently referred to his work as a “history of plants” or a “natural history of animals.”³⁰ Similarly, “natural history” was not the object of an independent entry in contemporary dictionaries, but it was rather integrated into that of “history” at large.

What was history, then? The *Dictionnaire universel* (1690) by Antoine Furetière, for instance, defined it as a “description, narration of *things as they are*, or of the actions as they happened or could have happened.” Furetière continued as follows: “in the first meaning [a ‘narration of things as they are’], it is said of the *description of natural things*, of animals, vegetables, minerals &c. . . . With regards to actions, it is said of the real narration, coherent and continuous, of several memorable events that happened in one or several nations, in one or several countries.” At a more basic level, history “also means the exposition of things of which we have been the spectators. For [the Greek word] *Historein* means precisely to know something as a result of having seen it. It is true,”

²⁹ [Perrault,] “Préface,” in *Histoire des animaux* (1671), sig. a: “L’Histoire, de quelque nature qu’elle soit, s’écrit en deux manières. En l’une on rapporte toutes les choses qui ont esté recueillies en plusieurs temps, & qui appartiennent au sujet qu’elle traite: en l’autre on se renferme dans la narration des faits particuliers, dont celui qui écrit a une connoissance certaine. Cette dernière manière, que les Romains appelloient Commentaires, & que nous nommons Memoires, bien qu’elle ne contienne que les parties, & comme les éléments qui composent le corps de l’Histoire, & qu’elle n’ait pas la majesté qui se trouve dans celle qui est générale, a néanmoins cet avantage, que la Certitude & Vérité, qui sont les qualitez les plus recommandables de l’Histoire, ne lui scauroient manquer, pourvû que celui qui écrit soit exact, & de bonne foy; ce qui ne suffit pas à l’Historien general, qui souvent peut n’estre pas veritable, quelque passion quil ait pour la verité, & quelque soint qu’il emploie pour la découvrir; parce qu’il est toujours en danger d’estre trompé par les memoires sur lesquels il travaille.” My emphasis.

³⁰ E.g., Charles Plumier, *Traité des fougères de l’Amérique* (Paris: de l’Imprimerie royale, 1705), ii (“celles [plantes] dont je pretends faire l’Histoire”) and vii (“les plantes . . . dont je fais ici l’Histoire”); or the “mémoires pour l’histoire naturelle du crocodile appelé vulgairement cayman, dans l’isle de St. Domingo,” in BCMNH MS 33 “Notes diverses du P. Plumier,” unpaginated.

Furetière nuanced, “that the signification of this word became afterwards larger, & means [also] a narration of several memorable things, even if we do not know them but by the report of others.”³¹

The essential tension evinced by Furetière in his *Dictionnaire* between direct and mediated experience was the one at the core the discussion in the preface of the *Histoire des animaux*. The problem was for Perrault one of credit and distance. Many histories of animals of both types existed at the time, he tells us: not only were there “the great & magnificent Works that Aristotle, Pliny, Solinus, & Aelianus composed by drawing from other Authors or from those who made the observations themselves,” but also “particular accounts that Travellers have written on a number of Animals that can only be seen in the Countries in which they journeyed.” Yet “we do not see any certitude neither in those Histories nor in those Accounts.” The difficulty was twofold. On the one hand, the writers of “general Histories of Animals” had been concerned about putting order into their narratives, which they wrote using the testimonies of those “who made the descriptions of the Animals on the scene.” However (and this was crucially important), those concerned by a general history had no way to be assured of “the exactitude and fidelity [of these descriptions].” In other words, those general histories were “laid upon poor foundations, and all the great building erected on them with such a beautiful symmetry has no real solidity.”³²

³¹ Antoine Furetière, *Dictionnaire universel, contenant généralement tous les mots françois, tant vieux que modernes, & les termes de toutes les sciences et les arts*, 3 vols. (The Hague and Rotterdam: chez Arnout & Reinier Leers, 1690), vol. 2, 262-3: “Histoire. s. f. Description, narration des choses comme elles sont, ou des actions comme elles se sont passés, ou comme elles se pouvoient passer. . . . Il signifie aussi l’exposition des choses dont nous avons esté les spectateurs. Car *Historein* signifie précisément connoistre, sçavoir une chose comme l’ayant veuë. Il est vray que la signification de ce nom devient ensuite bien plus étendue, & signifie une narration de plusieurs choses memorables, quand bien même nous ne les sçaurions qu’au rapport des autres. . . . Au premier sens il se dit de la description des choses naturelles, des animaux, vegetaux, minéraux, &c. . . . à l’égard des actions, se dit de cette narration veritable suivie & enchainée de plusieurs évenemens memorables qui sont arrivez en une ou en plusieurs nations, en une ou en plusieurs siecles.” My emphasis. See José Beltrán, “Nature *au naturel* in late-seventeenth-century France,” in *Ad Vivum? Visual Materials and the Vocabulary of Life-Likeness in Europe Before 1800*, ed. Joanna Woodall and Thomas Balfe (Leiden: Brill, forthcoming).

³² [Perrault,] “Préface,” sig. [a^r-v]: “Nous avons assez d’Histoires des Animaux de l’une & de l’autre de ces manières. Car outre les grands & magnifiques Ouvrages qu’Aristote, Pline, Solin, & Elian ont composez de tout ce qu’ils ont pris dans d’autres Auteurs, ou qu’ils ont appris de ceux qui avoient fait eux-mesmes des observations; nous avons encore des relations particulières que les Voageurs ont écrites de quantité d’Animaux, qui ne se voient que dans les Pais où ils sont passes. . . . Mais on peut dire qu’on ne voit aucune certitude ni en ces Histoires, ni en ces Relations. Ceux qui ont écrit l’Histoire générale des Animaux . . . [ont utilisé des témoignages de] ceux qui avoient fait les descriptions des Animaux sur les lieux, & dont l’exactitude & la fidélité ne leur pouvoit estre assez connuë pour en répondre. . . . [Ces histoires étant] posées sur des mauvais fondemens, il est vrai de dire que tout le grand édifice qu’ils ont élevé en suite dessus avec une si belle simmetrie, n’a point de veritable solidité.”

On the other hand, those who traveled and observed by themselves the animals they described mostly were not scholars, and thus lacked the qualities required for “exact research”: “it does not seem likely that Merchants & Soldiers were endowed with the *esprit* of Philosophy & the patience that are necessary for observing all the particularities of so many different Animals.” Perrault argued that the accounts of this kind of traveler were of little fidelity, for “to what they have seen they usually add what they could have seen, & . . . read in the Authors.” The lack of the necessary “qualities in most of those who have written particular accounts makes their work irrelevant, and their testimony very suspect.” So what are for Perrault those necessary qualities that a traveler should have, and most of them actually missed? The model in his view was that of Petrus Gyllius (1490-1555), a scholar and traveler under the aegis of Francis I of France, who not only was a “very judicious, and very knowledgeable man,” but also was “instructed by the reading of all the Authors who wrote about this topic.”³³

This seemingly schizophrenic relationship to textual tradition is distinctive of natural historical writing at the turn of the eighteenth century. The reading of “the Authors” was both a site for the training of the scholar’s eye and a source of corruption for firsthand observational accounts: those less trained among books were purportedly all the more prone to be deceived by them. The resulting twofold problem was the one still echoed by Fontenelle thirty years later: “Philosophers do hardly roam the world, & those who do are not ordinarily Philosophers.” Perrault’s remarks bear evident traces of the hesitant configuration of natural history around 1700 and of the undecided attempts to cope with the problem of far-off natural observations.

What, then, were the solutions proposed by the Academy’s *physiciens* for overcoming this twofold predicament? With a calculated caution, Perrault traced a clear line between bookish and firsthand experience and warned against any “blind veneration of the works & opinions of the Ancients” in particular. The alleged exactitude of his and his circle’s descriptions was founded upon the fact that “we do not propose anything that we have not seen.” The *Histoire des animaux* was thus presented as a “selection of all that we found

³³ [Perrault,] “Préface,” sig. [a^v-e^f]: “[Petrus Gyllius] étoit un homme tres-judicieux & tres-éclairé; qui estoit instruit par la lecture de tous les Auteurs qui ont écrit sur ce sujet. . . . Le défaut de ces qualitez dans la plupart de ceux qui ont fait des relations particulières & des memoires, rend leur travail peu considerable, & leur témoignage fort suspect: n’y aiant gueres d’apparence que des Marchands & des Soldats soient pourvus de l’esprit de la Philosophie & de la patience, qui sont necessaires pour observer toutes les particularitez de tant de differens Animaux. . . . Mais ce qui doit davantage diminuer l’estime qu’on peut faire de ces sortes de Memoires, c’est le peu de fidélité dont les Voageurs usent d’ordinaire en leurs Relations; qui ajoutent Presque toujours aux choses qu’ils ont vuës, celles qu’ils pouvoient voir, & . . . rapportent ce qu’ils ont leu dans des Auteurs.”

& carefully noted in the Animals we could examine.” This amounted to a clear epistemic choice in favor of a history of “particulars,” rather than a “general History”: “we have limited ourselves to such a description, to such a naïve painting, & we have no other intention than *to show things as we have seen them* [*de faire voir les choses telles que nous les avons veües*], like a mirror, which adds nothing, and represents only what is presented to it.” Much was at stake: “in contrast to the Ancients & most of the Moderns, who treat the knowledge of Animals as if it were a Science—that is, by speaking always generally—we do not present things but as being particular.” Lest the point was not clear enough, Perrault offered an example: “instead of claiming . . . that Bears have fifty-two kidneys on each side, we only state that *the* Bear we dissected had such a particular constitution; and if we seem surprised that those other authors having made the anatomy of these animals do not conform, it is just because we *assume* that Nature . . . made the kidneys of all other bears in the same way that we found in our case.”³⁴

What Perrault is saying is dramatically important. He is explicitly articulating the two central components of a specific way of making natural history that came to prevail at the turn of the eighteenth century—particularly among those scholars who, like Plumier, saw visual representations as a reliable means for fixing and circulating the observation of far-distant natural particulars. The two central elements formulated by Perrault are the simultaneous presence of subject and object of observation and the non-representative nature of the knowledge thus acquired.³⁵ This approach to nature was an imperfect and “naïve painting” because it did not aspire to establish generalities (which was the aim of a

³⁴ [Perrault,] “Préface,” sig. [e^v-o^r]: “[L]’on a voulu que ce Recueil fust un choix de tout ce qui a esté trouvé & remarqué soigneusement dans les Animaux qu’on a pu examiner. . . . [O]n ne se soit pas arrêté qu’à cette description, & à cette peinture naïve, que nous avons tâché de faire avec simplicité, & sans ornement, & qu’on n’ait point eü d’autre intention que de faire voir les choses telles que nous les avons veües, & de mesme qu’un miroir, qui ne met rien du sien, & qui ne represente que ce qui lui a esté présenté. . . . Nous estimons que ceux qui seront capables de ces réflexions, n’auront pas la malignité de se prévaloir de l’autorité qu’on donne au grand nombre de ceux, qui n’en estant pas capables, veulent que l’on ait comme eux une vénération aveugle pour les ouvrages & pour les sentimens des Anciens. . . . [N]ous nous sommes donnée [la liberté], de dire que nos Descriptions sont exactes, parce que nous ne proposons rien que ce que nous avons vü. . . . C’est pourquoi nous avons choisi une manière de faire nos Descriptions toute particulière. Car au lieu que les Anciens & la pluspart des Modernes traitent la doctrine des Animaux comme celle des Sciences, parlant toujours généralement, nous n’exposons les choses que comme estant singulières: & au lieu d’assurer, par exemple, que l’Ours a cinquante-deux Reins de chaque costé, nous disons seulement qu’un Ours que nous avons dissequé avoit la conformation tout-à-fait particulière, & en la décrivant, si nous témoignons estre estonnez que personne n’ait fait cette remarque, & que mesme ceux qui ont fait l’Anatomie de ces Animaux n’en ayent rien dit, c’est parce que nous supposons que la Nature, qui se jouë rarement dans la conformation des parties principales, a formé les Reins des autres Ours de la mesme façon que nous les avons trouvez en nostre sujet.” My emphasis.

³⁵ The copresence of image maker and object represented and the individuality of representation are the two principal components of the visual regime “de la chose vue” identified by Charlotte Guichard at the very same period: see Guichard, “D’après nature’ ou ‘chose vue,’” esp. 39 for her identification of these two conditions in Perrault’s text.

“Science”), but particularities: “general propositions,” continued the anatomist, “need to be founded upon the knowledge of all the particularities, of which universal notions are composed.” Consequently, “we vouch for nothing except what we advance ourselves, and . . . *these facts* are our only assistance against the authority of the great Personages who wrote before us.”³⁶ The term “facts” (*faits*) is not random in Perrault’s writing. In 1668, he produced a manuscript, “Projet pour les expériences et observations anatomiques” (Projet for anatomical experiences and observations), in which he distinguished between truths “of fact” (*de faict*) and truths of law (*de droict*) in anatomy: the former referred to the “knowledge of the structure of organs,” while the latter named “the discovery of their use and actions.”³⁷ It is worth keeping this distinction in mind, for it mirrors that in botany, discussed below, between the observation, description, and enumeration of plants, on the one hand, and the study of their virtues and medical properties, on the other.

The abandonment of the textual tradition was not as radical as it was trumpeted, however: on the contrary, the dialog with it was constant—an aspect to be discussed below. But before we turn in detail to this question, let us consider the fact that Perrault’s Baconian program did not solve the problem of certainty hanging over the collection of natural particulars overseas. The academician’s injunctions for making exact observations were largely based on the collective organization of their own work: their essays on the anatomy of animals were confidently presented as not being “the work of an individual, who can be influenced by his own opinion.” In fact, the soundness of their observations was grounded on the fact that they “do not contain but what has been verified by an entire Company composed of individuals *whose eyes are made to see this sort of thing*, unlike most people, and have hands to find them with more dexterity and success.” Collective empiricism, announced by Perrault’s circle as the (convenient) foundation for the making of any “truth of fact” about the natural world, turned out to be more complicated across a distance.³⁸

³⁶ [Perrault,] “Préface,” sig. i^r: “[Les propositions générales] doivent estre fondées sur la connoissance de toutes les choses particulières, dont les notions universelles sont composées. . . . [N]ous ne prétendons répondre que des faits que nous avançons, & que ces faits sont les seules forces dont nous voulons nous prévaloir contre l’autorité des grands Personnages qui ont écrit avant nous.” My emphasis.

³⁷ Claude Perrault, “Projet pour les Experiences et observations Anatomiques,” in AAS, *Procès verbaux de l’Académie royale des sciences*, vol. 1: “Registres de physique: 22 décembre 1666-avril 1668,” fol. 22-30. On the notion of “fact” in early modern history and law, see Barbara J. Shapiro, *A Culture of Fact: England, 1550-1720* (Ithaca, NY: Cornell University Press, 2000).

³⁸ [Perrault,] “Préface,” sig. e^r: “[Ces Memoires] ne sont point le travail d’un particulier, qui peut se laisser prévenir de sa propre opinion. . . . Mais ces inconveniens ne se peuvent pas rencontrer en nos

“To take an exact account”

Perrault’s preface and the Academy’s project in the 1660s and 1670s set the tone for French projects on natural history to come. The anatomist’s exhortations bear witness of the tensions that lay at the core of the naturalist project, a wavering terrain of knowledge made out of longings and frailties. The most apparent of these were related to text and distance. He formulated a general aspiration to draw a sharp separation between an empiricist program, on the one hand, and the inherited textual tradition, on the other, even if (or precisely because) the latter still weighed heavily on the objects and questions of their natural research—as we will see in more detail below. Moreover, Perrault explicitly articulated the problem of making natural facts circulate across a distance, but had to leave it unresolved in his preface: neither could the key of collective observation easily be applied across oceans, nor could the whole exotic flora and fauna of the world be brought to Paris so as to be comfortably examined by the Academy’s gentlemen on the premises of the Bibliothèque du roi in rue Vivienne.

This last issue is the topic of this section. Tournefort’s and Fontenelle’s open (and Plumier’s mostly tacit) vindication that the naturalist ought to be a traveler, a scholar enduring the fatigues of long journeys in exotic lands, needs to be placed in this intellectual context. The self-fashioning of naturalists as scholars resigned to strenuous voyages does not, however, tell us much about how the “books sprinkled over the surface of the whole Earth” were to be sought and gathered. The use of visual representations for mobilizing far-distant flora and fauna is not self-evident, not even for those whose approach to the natural world developed along the lines advanced by Perrault.

Were there any explicit directives for observing and making descriptions overseas? To answer this question, one might turn to the instructions for travelers that mushroomed at that time. This sort of normative text blossomed as a genre in its own right during the early modern period.³⁹ Particularly well-known are the “Directions for

Memoires, qui ne contiennent point de faits qui n’aient pas esté verifiez part toute une Compagnie, composée de gens qui ont des yeux pour voir ces sortes de choses, autrement que la pluspart du reste du monde, de mesme qu’ils ont des mains pour les chercher avec plus de dexterité & de succès.” On collective empiricism, see Lorraine Daston and Elizabeth Lunbeck, eds., *Histories of Scientific Observation* (Chicago: The University of Chicago Press, 2011), esp. Gianna Pomata, “Observation Rising: Birth of an Epistemic Genre, 1500-1650” (45-80) and Daston, “The Empire of Observation, 1600-1800” (81-113), as well as the introduction and contributions in part 5, “Observing Together: Communities” (369-444).

³⁹ On instructions for travelers in general, see Joan-Pau Rubiés, “Instructions for Travellers: Teaching the Eye to See,” *History and Anthropology* 9, nos. 2-3 (1996), 139-90; Maurizio Bossi and Claudio Greppi, eds., *Viaggi e scienza: Le istruzioni scientifiche per i viaggiatori nei secoli XVII-XIX* (Florence: Leo S. Olschki,

Sea-men, bound for far Voyages” published by the London Royal Society in the first issue of the *Philosophical Transactions* (1665); they were translated into French and printed in the *Journal des Sçavans* the year after.⁴⁰ Seemingly penned by Lawrence Rooke (1622-1662), Professor of Geometry at Gresham College and one of the founders of the Society, the “Directions” adopted a clearly institutional tone and, therefore, the Baconian vantage point on the progress and accumulation of knowledge of far-distance natures: “it being the Design of the R. Society . . . to study *Nature* rather than *Books*,” and to “compose a History of Her, as may hereafter serve to build a Solid and Useful Philosophy upon.”⁴¹ The general tenor is not far from that of their Parisian counterpart (which may explain why the “Directions” were so rapidly translated and published in French), apropos not only of the literary corpus but also of the agents involved in the gathering and circulation of natural facts. The instructions were addressed to “Sea-Men” and “Navigators,” who, like Perrault’s “Merchants & Soldiers,” were unfamiliar with the manners in which “*Inquiries* of things Observable” should be carried “in forrain Countries.” No reference was made to visual depictions apart from making “Plotts and Draughts of prospect of Coasts, Promontories, Islands and Ports,” but instructions were given to “keep an exact *Diary*” of observations, a copy of which ought to be delivered to the Lord High Admiral of England (the head of the navy) and the Royal Society.⁴²

2005), and María Eugenia Constantino and Juan Pimentel, “Cómo inventariar el (Nuevo) Mundo. Las instrucciones como instrumentos para observar y coleccionar objetos naturales,” in *Circulación de saberes: Instrumentos y colecciones en la historia*, ed. Laura Cházaro, Achim Miruna, and Nuria Valverde (México: CINVESTAV, UNAM, CONACYT, in press). I thank Juan Pimentel for allowing me to read this paper before its publication.

⁴⁰ “Directions for Sea-Men, Bound for Far Voyages,” *Philosophical Transactions* 1 (1665-1666), 140-3, translated into French as “Extrait du journal d’Angleterre, contenant des instructions pour ceux qui ont à faire de long voyages sur mer,” *Journal des sçavans* (Paris: de l’Imprimerie de Jean Cusson, 1666), 193-6.

⁴¹ “Directions for Sea-Men,” 140-1.

⁴² Far from disappearing, instructions for the collection of natural historical observations by travelers continued to mushroom in England during the following decades. Two good examples during Plumier’s lifetime are Robert Boyle, “General Heads for a Natural History of a Countrey, Great or small, imparted likewise by Mr. Boyle,” *Philosophical Transactions* 1 (1665), 186-9, and that of John Woodward (1665-1728), a London naturalist and a contentious Fellow of the Royal Society who had his *Brief Instructions for Making Observations in All Parts of the World* printed in 1696. In the form of a booklet, Woodward’s text was primarily concerned with the author’s preferred aspect of the study of nature: namely, shells, stones, and fossils (he would found by bequest a professorship “of Fossils” at Cambridge), although they globally reflected the encyclopedic, inventorial ambitions of the natural history of the time. Although a long appendix enumerating “Directions for the Collecting, preserving, and Sending over natural things, from Foreign Countries” was added, his *Instructions* gave only a vague advice—if any at all—on how to register observations (“observe,” “let there be an account taken,” “take an exact account”). Woodward made scarce references to record keeping: he hastily noted at the beginning of the work the interest of keeping a nautical logbook (“keep a *Journal* of the *Ship’s Course*”), and the sole reference to paper regarded the one used in packing the items to be sent.

In the early 1660s, pride of place was already given to overseas journeys in the early projects for the foundation of the Paris Academy of Sciences: they stated the need of “send[ing] intelligent people with the purpose of observing all the curious things of the new Lands,” but gave no specific instructions on the making of records themselves. In France, printed instructions for travelers were less common during Plumier’s lifetime, but became increasingly numerous and detailed as the eighteenth century progressed.⁴³ During the Régence, for example, Réumur and the abbé Bignon wrote a list of “researches . . . to carry out in foreign countries”: addressed to “Frenchmen who travel,” it highlighted the need to “draw up exact reports [*mémoires*] and to send them . . . along with specimens.”⁴⁴ Instructions specifically devoted to natural history elaborated on to *what* travelers should pay attention (and they could be exasperatingly comprehensive in this regard), but not to *how* they should register their observations onto paper.

Travel and the compilation of observations in the form of written and graphic notes were far from being the preserve of natural historians. A Parisian antiquarian, Charles César Baudelot de Dairval (1648-1722), wrote along similar lines in a remarkable work on travel and antiquities: *De l'utilité des voyages et de l'avantage que la recherche des antiquitez procure aux sçavans* (On the utility of travels and the advantages that the research of antiquities presents to scholars), printed in 1686. For Baudelot de Dairval traveling to “foreign climates” (*les climats étranges*) made men better: it allowed them to acquire new talents, to strengthen those they already have, and to correct their faults.⁴⁵ But in order not to travel vainly (*pour ne pas voyager inutilement*), the scholar should deftly gather and store the memory of his experiences:

⁴³ As pointed out by Silvia Collini and Antonella Vannoni in “I testi di istruzioni scientifiche per i viaggiatori: aspetti di un genere dal seicento al novencento,” in *Viaggi et scienza: Le istruzioni scientifiche per i viaggiatori nei secoli XVII-XIX*, ed. Maurizio Bossi and Claudio Greppi (Florence: Leo S. Olschki, 2005), xxiv-v. Instructions for travelers multiplied in France during the mid- and, especially, the late eighteenth century: on these, see Lorelai Kury, “Les instructions de voyage dans les expéditions scientifiques françaises (1750-1830),” *Revue d'histoire des sciences* 51, no. 1 (1998), 65-91, and Silvia Collini, “Conseils pratiques et orientations théoriques dans les instructions pour les voyageurs (XVIII^e siècle),” in *Le terrain des sciences humaines (XVIII^e-XX^e siècle)*, ed. Claude Blanckaert (Paris: L’Harmattan, 1996), 57-72. For the case of the West Indies in particular, see François Regourd, “Diffusion et assimilation des techniques académiques de collecte et d’expertise dans l’espace caraïbe français (XVII^e-XVIII^e s.),” in *Techniques et colonies (XVII^e-XX^e siècles)*, ed. Philippe Hrodej and Sylvanie Llinares (Paris: Publications de la Société Française d’Histoire d’Outre-Mer, 2005), 33-47.

⁴⁴ “Project de la Compagnie des Sciences et des Arts,” in Christian Huygens, *Oeuvres complètes* (The Hague: Martinus Nijhoff, 1891), vol. 4, 326, and “Recherches proposées par l’Académie des sciences, à faire dans les pays étrangers,” 1716, both quoted in Marie-Noëlle Bourguet, “La collecte du monde: voyage et histoire naturelle (fin XVII^e siècle-début XIX^e siècle),” in *Le Muséum au premier siècle de son histoire*, ed. Claude Blanckaert et al. (Paris: Muséum nationale d’histoire naturelle, 1997), 168-9.

⁴⁵ Charles César Baudelot de Dairval, *De l'utilité des voyages et de l'avantage que la recherche des antiquitez procure aux sçavans*, 2 vols. (Paris: Pierre Ausoin and Pierre Emery, 1696), 16.

What you have to do for this research . . . is to visit the Palaces, the public and private Libraries, the Cabinets . . . for in these places one can always discover and collect an infinity of things that you have to describe and gather exactly. Do not mind about the order at this stage. Write immediately, and do not miss anything. Once you are back at home, you will be able to organize it. . . . Find who are the scholars and curious people in every place . . . for they will allow you to copy their Manuscripts, or to draw the rarest things they have.⁴⁶

Baudelot de Dairval's traveling scholar was an obstinate compiler not only of objects, but also (and mostly) of notes and drawings: in his quest for the remains of the past, he ought to draw the ancient medals and coins (particularly if they were Greek) and, in the case he fell short of time and enthusiasm to copy them, the author gave a couple of tricks to easily take their imprints.⁴⁷ The cultivated man by and large equally had an interest in carefully observing and recording during his wanderings. He was to measure the elevation of the pole and to not neglect being provided with instruments such as astrolabes or magnetic compasses ("we recently make small thermometers, excellent and practical to transport in a leather case"). He should note (*remarquer*) and describe (*décrire*) the mountains and the rivers, the customs of the people, the commodities and dangers of the journey, particularly during sea travels, where observations are infinite.⁴⁸

Unfortunately, Baudelot de Dairval never reflected explicitly on the materiality of note-taking: how and where to write or draw, which materials and instruments had to be employed, or how to transport all these papers. Advice for travel by naturalists being equally silent at that time on the specifics of making and (more importantly) shipping natural observations, one may turn to the instructions proposed by contemporaries of Plumier that were not devoted to the study of nature. Consider those made by precisely one of the most famous image-makers of the time, the Franciscan friar and famous cartographer Vincenzo Coronelli (1650-1718), who opened his *Viaggio d'Italia in Inghilterra* (Journey from Italy to England [1697]) with praise for travel and "twenty precepts for the

⁴⁶ Baudelot de Dairval, *Utilité des voyages*, 524-5: "Ce que vous devez faire pour cette recherche . . . c'est de visiter, les Palais, les Bibliothèques publiques & particulières, les Cabinets, les thresors d'Églises, de Monastères, de Temples, de Palais, & des autres monuments publics; car dans tout cela, on ne laisse pas de découvrir & de ramasser une infinité de choses que vous devez décrire & recueillir exactement. Ne vous embarrassez d'abord de l'ordre que vous y mettrés. Ecrivés tout de suite, & ne laissez rien échapper. Quand vous serés de retour, vous y remettrez la main, & vous retaillerez ce Jardin pour luy donner une symmetrie plus réguliere. Enquêtez-vous en chaque lieu qui sont les savans ou les gens curieux qui y demeurent . . . car ils vous permettront ou de copier leurs Manuscrits, ou de designer ce qu'ils auront de plus rare."

⁴⁷ Baudelot de Dairval, *Utilité des voyages*, 74, 644-5.

⁴⁸ Baudelot de Dairval, "Mémoires, de quelques observations generales qu'on peut faire, pour ne pas voyager inutilement," in *Utilité des voyages*, 695-732.

young people who undertake it.”⁴⁹ Among Father Coronelli’s commandments were reading “attentively many Authors” writing on the topic of travels and the regions to be visited before departure (for, as Perrault would say, it trains the eye). Coronelli also urged his readers to be generous with those who provide accommodation, and to be ready to endure the pains of the journey. His advice for travelers were full of references to the literary tradition, from Moses to Pythagoras, and of moral guidance for conducting oneself during the journey. His directions for the collection of information did not usually involve natural specimens or observations, but were mainly confined to the realm of antiquarianism: he recommended to learn about medals (*medaglie*) before leaving, because it was mostly in gathering them that the scholar would learn about the history of the region (*raccoglierà il nome de’ molti Principi . . . [e] la Cronologia del loro Regno*). In the most probable case that the scholar was not able to take the medals with him, he should “try to have their imprint, either with parchment glue or with wax, paper, plaster or still another way.” He should also “copy exactly their legends” in the same position as they occupy in the medals: “it becomes easier in this way to grasp their meaning, which serves to denote the Epochs of the Reign, of the Prince, of the City, and their durations.”⁵⁰ Likewise, “the erudite Traveler should take copies with the same attention” of inscriptions, “representing the marble, stone or metal on which they are sculpted. When copying them, you will reflect the same order in their location, letters, words, lines, even the corrections, for all of these will become useful.” And Coronelli warned the unpersuaded reader: “you must know that so many ancient and modern men undertook long Travels for this purpose. You can be convinced of the advantages of imitating them, *all the more so given that History often requires the support of such proofs [tali prove]*.”⁵¹

Coronelli gave similar advice regarding other objects from ancient times and from nature: when confronted with statues, precious stones, talismans, and “other curious

⁴⁹ Vincenzo Coronelli, “Dell’Utilità de’ Viaggi, e XX. Precetti per i Giovini, che gli entraprendono,” in *Viaggi del P. Coronelli, Parte Prima* (Venice: per Giovan Battista Tramontino, 1697), 1-16.

⁵⁰ Coronelli, “Dell’Utilità de’ Viaggi,” 9: “Copierà esattamente la legenda, benche non si rilevassero, che una, ò due lettere nel principio, ò nel fine, e non ometterà di ponervi la medesima situatione, c’hanno nelle Medaglie. In tal modo indovinasi più facilmente il sense, il quale serve à denotare l’Epoche del Regno, del Prencipe, della Città, e loro duratione.”

⁵¹ Coronelli, “Dell’Utilità de’ Viaggi,” 9: “Vi sono parimenti alcune Iscrittioni, delle qualli il Viaggiatore erudito deve prender copia colla medesima attentione, disegnando il marmo, la pietra, ò il metallo, sopra di cui sono scolpite. Nel copiarle osserverà lo stesso ordine nella situatione, nelle lettere, nelle parole, nelle linee, fino nelle cassature, poiche da ogni una di queste osservazioni riporterà profitto. Sappia, che tanti huomini antichi, e moderni, hanno intrapreso lunghi Viaggi per questo fine. Onde può promettersi qualche vantaggio con imitarli; tanto più che l’historia hà sovente bisogno de’ soccorsi di tali prove.” My emphasis. Coronelli’s arguments reiterated those of some humanists a century before: see Peter Burke, “Images as Evidence in Seventeenth-Century Europe,” *Journal of the History of Ideas* 64, no. 2 (2003), 276-7.

Antiquities,” our erudite traveler ought to “make their Drawing, to take their measures, to observe their matter, and to register every word, or letter, sculpted in them, for all these data can equally give light to History.”⁵² From the botanic gardens he would bring the catalog of their plants and seeds, and he recommended organizing those inventories according to one of the books of John Ray’s *Sylloge* (1694). The recommendation of this work by the English naturalist is revealing of the bridges connecting the study of antiquity and that of the natural world (plants, in particular) at the turn of the eighteenth century. The book was an extended edition of the catalog that resulted from Ray’s tour through Europe between 1663 and 1666—it also included species of plants enumerated by authors like Carolus Clusius (1526-1609), Gaspard Bauhin (1560-1624), or Fabio Colonna (1567-1640). It discussed natural classification and, since it mainly consisted of an enumeration of known specimens, it was conceived as a tool for students of nature during their herborizations.⁵³ The term “Sylloge” itself (from the Greek συλλογή, “collection”) points at the common cumulative endeavor of antiquarianism and natural history, on which analogous modes of inquiry were grounded.⁵⁴

Coronelli’s advices for the making of observations in foreign countries were not limited to antiquities and plants: his “erudite Traveler” should consider with equal attention other aspects related to the politics, geography, customs, and traditions of the places visited. Unlike instructions for travelers by naturalists such as those penned by the Royal Society, his precepts were addressed mainly to scholars journeying through the Old World (principally antiquarians) rather than to laymen observing natural marvels overseas. Like those other instructions, however, the prominent Venetian map-maker specified the sort of information to be collected, but not so much *how* to do so—that is, once again, the material dimension of this information gathering. And yet Coronelli makes clear the assumption that the production of information through paper records

⁵² Coronelli, “Dell’Utilità de’ Viaggi,” 10: “Incontrandosi à vedere Statue, Dei Tutelari, Idoli, Pietre pretiose, e intagliate, Tallismani, Anelli, ed altre Antichità curiose, procurerà di recavarne i Disegni, pigliarne le misure, osservarne la materia, ed iscrivere ogni parola, e lettera, che vi fosse scolpita, perche tutte queste notizie possono parimente dar lume all’Istoria.”

⁵³ John Ray, *Styrpium Europaeorum extra Britannias nascentium sylloge. Quas partim observavit ipse, partim è Car. Clusii Historia, C. Bauhini Prod. & Cat. Bas. F. Columnae Ephrasi, Catalogis Hollandicar. A. Commelini, Altorsinarum M. Hofmanni, Sicularum P. Bocconi, Monspelensium P. Magnoli collegit* (London: prostant apud Sam. Smith & Ben. Walford, 1694). On the *Sylloge*, see Charles Raven, *John Ray, Naturalist: His Life and Works* (New York: Cambridge University Press, 1942), 282-6.

⁵⁴ On the linkages between antiquarianism and natural history in eighteenth-century England, see Rosemary Sweet, *Antiquaries: The Discovery of the Past in Eighteenth-Century Britain* (London: Hambledon and London, 2004), 2-13. For the case of the Americas in particular, see Philip L. Kohl, Irina Podgorny, and Stephane Gänger, eds., *Nature and Antiquities: The Making of Archeology in the Americas* (Tucson: The University of Arizona Press, 2014), although this covers a later period.

rather than objects was concomitant to scholarly travel and, more importantly, that these texts and images substituting for absent or distant realities could constitute adequate sources for a historical form of knowledge (*tanto più che l'istoria hà sovente bisogno de' soccorsi di tali prove*).

A comparable reliance on inscriptions can also be found among other contemporary scholars, especially antiquarians: prominent French students of the past like Bernard de Montfaucon were convinced travelers and paper record stockpilers. Moreover, they explicitly elaborated on the use of visual representations, in particular for coping effectively with epistemic problems of their discipline that echoed those of natural history. By turning to French antiquarians in the next section, my aim is to contextualize Plumier outside the realm of natural history. My reasons to do so are not only that antiquarianism and natural history were two of the forms that the epistemic genre of history could take during that period, but also the fact that scholars like Montfaucon articulated explicitly an approach to visual representation that is the one, I believe, sustaining the epistemic economy in which we need to understand Plumier's iconographic work and the role of images in the study of nature in France by 1700.

A knowledge of what “may be represented in Figures”

What Coronelli was saying apropos the study of antiquities can help us better understand natural historical undertakings in the same period, especially when carried out overseas. If visual representations were deemed by naturalists to effectively guide, capture, and convey observations and, consequently, to assist in fabricating *facts* on which a “historical” writing of nature could be based, they fell short of overtly formulated reasons for doing this. Let us remember that Perrault, for all his elaborate dictates about how to reach a “certain & recognized truth” in the knowledge of nature, did not clearly connect the visual form with the minutely verified observations of natural particulars by him advocated. He only discussed the plates of the *Histoire des animaux* in the penultimate paragraph of the preface, and images were presented there as mere accompaniments to the exact written descriptions provided in the book. And yet for Perrault, the same rules guiding the act of observation should shepherd the making of images: first, the simultaneous presence of the author and the object of representation at the time of its making and, second, collective verification.

This extremely precise exactitude in reporting all the particularities that we remark is accompanied by an equal care in making the Figures of both the entire Animals and their

external & internal parts. After being considered & examined . . . these parts are drawn there and then [*sur le champ*] by one of those to whom the Company charged with the written Descriptions; & they have not been engraved until all those who present in the Dissections confirmed that they were consistent with what they have seen. We considered that it was good, for the perfection of these Figures, that they were made by a hand guided by a knowledge other than that of Painting, which is not sufficient, because what is important here is not so much to represent well what we see, but to see well what we want to represent.⁵⁵

If images were but mere illustrations of written descriptions of nature, then why take such pains in crafting them? True, the work of Perrault's circle of anatomists was, after all, part of a luxurious editorial project whose images' force resided as much in their being glorifications of Louis XIV's monarchy as in their representations of the virtually unknown anatomy of exotic animals. And there was a bit of this, too, in Plumier's images, as we will see in chapters 2 and 5. How, then, can we explain the efforts of Plumier, Tournefort, Lippi, and Perrault's academicians in producing their astonishing visual archives of distant natures? I think part of the answer is to be sought in the epistemic mechanisms at the basis of natural history, as it was practiced there and then. In the context of the epistemic crisis, so to speak, described by Perrault and related to the problem of certainty in the making of natural historical observations (a question all the thornier when faraway and unfamiliar floras and faunas were involved), visual representations such as Plumier's provide an interesting entry point into a new relationship to sources that historians (of nature or otherwise) were elaborating in late seventeenth-century France. Parallel developments (if not simply the same) were taking place in the world of antiquarianism, a sort of "material turn": a new reliance on objects—objects to be dully and meticulously registered onto paper records, graphic or verbal—was believed to offer a solid foundation for a form of descriptive knowledge devoid of controversies.

⁵⁵ [Perrault,] "Préface," sig. [0^v]: "Cette exactitude si précise à rapporter toutes les particularitez que nous remarquons, est accompagnée d'un pareil soin, pour bien faire les figures tant des Animaux entiers, que de leurs parties externes, & de toutes celles qui sont cachées au dedans. Ces parties, après avoir esté considérées, & examinées avec les yeux aidez du secours des Microscopes, quand il en est besoin, sont dessinées sur le champ par un de ceux-là même, à qui la Compagnie a donné la charge de faire les Descriptions par écrit; & elles n'ont point esté gravées, que tous ceux qui ont esté presens aux Dissections n'ayent trouvé qu'elles estoient tout-à-fait conformes à ce qu'ils ont veû. On a jugé que c'estoit une chose bien avantageuse pour la perfection de ces Figures, d'estre faites d'une main qui fust conduite par d'autres connoissances que par celles de la Peinture, lesquelles ne sont pas toutes seules suffisantes, parce que l'importance en ceci n'est pas tant de bien représenter ce que l'on voit, que de bien voir comme il faut ce que l'on veut représenter."

This is one of several substantial ways in which the study of antiquities and that of nature coincided around the end of the seventeenth century and beginning of the eighteenth century. To start with, both embraced a wide, loosely defined, conception of their objects of inquiry. Just as antiquarians aimed at embracing the “wholeness of history,” natural history (as practiced by Plumier and reflected in his drawings) comprised plants and animals of any kind, from trees and fishes to mushrooms and mollusk shells, but also landscapes and occasionally humans—and excitingly exotic non-European humans in particular.⁵⁶

Moreover, antiquarians’ and naturalists’ respective approaches to the world of the past and the world of nature were both marked at that time by a fiercely proclaimed material dimension. At the turn of the eighteenth century, the rhetorical shift from bookish learning to a “materialist” approach or *sola autopsia*—meaning “by firsthand observation alone,” a turn traditionally associated with modernity in both the natural and archeological sciences—affected both groups of scholars equally.⁵⁷ The “revolution in historical method” brilliantly diagnosed by Arnaldo Momigliano in early eighteenth-century ancient history (“the Age of Antiquarians”) had its equivalent in natural history, for although each field targeted different objects of research, both shared a “historical” way of proceeding.⁵⁸ Perhaps unsurprisingly then, the metaphor of the “book of nature” or the legibility of the natural world (as expressed in Fontenelle’s “books sprinkled over the surface of the whole Earth,” for instance), found its counterpart in the realm of antiquarianism around the same time. In a study of the antiquities of Lyon, the Protestant scholar Jacob Spon (1647-1685) posed the problem of the difference between factual and bookish sources (“one may ask why we should research ancient History on broken marbles, or half-faded stones, if we can learn it by means of Books”) and unsurprisingly swung the balance in favor of the latter (“how many contrarities & falsities there are in the Authors of Roman History that can only be resolved by turning to ancient monuments!”). Mirroring the longstanding metaphor of the legibility of nature, Spon proposed that “Antiques are nothing else than Books, whose stone & Marble pages

⁵⁶ The expression “wholeness of nature” (*historiae integritatem*) comes from Ezechiel Spanheim, *Dissertatio de praesentia et usu numismatum antiquorum* (Rome: apud Blasium Deversin, & Felicem Cesarettum, typis Fabii de Falcho, 1667), 97, as quoted in and translated by Burke, “Images as Evidence,” 273.

⁵⁷ *Sola autopsia* echoes the Protestant *sola scriptura*, as pointed out by Lorraine Daston, “The Sciences of the Archive,” *Osiris* 27 (2012), 163. The expression of a “materialist” approach for defining this shift in antiquarianism and early archeological science is from Burke, “Images as evidence,” 277.

⁵⁸ Arnaldo Momigliano, “Ancient History and the Antiquarian,” *Journal of the Warburg and Courtauld Institutes* 13, nos. 3-4 (1950), 286. I follow Momigliano’s authoritative account in the next paragraphs.

have been written with Iron & chisel.”⁵⁹ Such a purported neglect of literary sources was reflected in the use not of images themselves, but of *a certain type* of graphic and written descriptions. Tournefort’s praise of botanical travel and Perrault’s determined defense of the “narration of particular facts” can indeed be seen as manifestations of an emphasis on the value of direct observation. It can also—and perhaps more accurately—be seen as a sign of the new status of objects (whether natural specimens or antiquities) as evidence for the making of “historical” (i.e. descriptive) forms of knowledge.

One of the most revealing examples of the role that visual representations were given within this economy of antiquarian knowledge is the work of the abovementioned French Benedictine monk of the Congregation of St. Maur Dom Bernard de Montfaucon.⁶⁰ The case of Montfaucon offers a good comparison for nuancing the role of images in natural history around 1700. A disciple of Dom Jean Mabillon at the Parisian abbey of Saint-Germain-des-Prés, Montfaucon came from an aristocratic family: he had been a soldier before taking his vows and was well-connected within the French court—he was to become the confessor of the elderly Louis XIV. In 1719, he published the first volume of his *L’antiquité expliquée et représentée en figures* (Antiquity explained and represented in figures), a colossal editorial enterprise by subscription composed of ten volumes plus five of supplements.⁶¹

⁵⁹ [Jacob Spon,] *Recherche des Antiquités et curiosités de la ville de Lyon, ancienne colonie des Romains & capitale de la Gaule Celtique. Avec un mémoire des principaux antiquaires & curieux de l’Europe* (Lyon: de l’Imprimerie de Jacques Faeton, 1673), unpaginated preface: “Mais quelqu’un me dira, porquoy tant de peine à rechercher l’Histoire ancienne sur des Marbres rompus, ou des pierres à demy effacées, si nous pouvons l’apprendre par le moyen des Livres, que nous avons dans nos Cabinets. . . . Combien y a t’il, par exemple, de contrariétés & de faussetés dans les Auteurs de l’Histoire Romaine, qui ne peuvent être aisement terminées, que par ces monuments antiques? . . . Disons que nos Antiques ne sont pas autre chose, que des Livres, dont les pages de pierre & de Marbre ont été écrites avec le Fer & le Ciseau.”

⁶⁰ On Bernard de Montfaucon and late seventeenth-century Maurist scholarship by and large, see Bruno Neveu, *Érudition et religion aux XVII^e et XVIII^e siècles* (Paris: Albin Michel, 1994), esp. “La vie érudite à Paris à la fin du XVII^e siècle,” 25-92, and “Mabillon et l’historiographie gallicane,” 105-74, and the indispensable work by Daniel-Odon Hurel, especially Hurel and Raymon Roge, eds., *Dom Bernard de Montfaucon* (Saint-Wandrille: Éditions de Fontenelle, 1998); Hurel, “Les Bénédictins de Saint-Maur et l’histoire au XVII^e siècle,” *Littératures classiques* 30 (1997), 33-50; and Hurel, ed., *Érudition et commerce épistolaire: Jean Mabillon et la tradition monastique* (Paris: Vrin, 2003), esp. Hurel, “Introduction générale,” 7-11, and Jean-Dominique Mellot, “Les Mauristes et l’édition érudite: un gallicanisme éditorial?” 73-88.

⁶¹ Bernard de Montfaucon, *L’antiquité expliquée et représentée en figures*, vol. 1 (Paris: chez Florentin Delaulne, Hilaire Foucault, Michel Clousier, Jean-Geoffroy Nyon, Etienne Ganeau, Nicolas Gosselin, et Pierre-François Giffart, 1719). On the *Antiquité expliquée*, see James Westfall Thompson, “The Age of Mabillon and Montfaucon,” *The American Historical Review* 47, no. 2 (1942), 225-44, and Francis Haskell, *History and Its Images: Art and Interpretation of the Past* (New Haven, CT: Yale University Press, 1993), 131-44. I will occasionally use the 1721 English translation by David Humphreys: *Antiquity explained, and represented in sculptures, by the learned father Montfaucon*, vol. 1 (London: printed by J. Tonson and J. Watts, 1721). When using Humphreys’s translation, I shall still give the French original of 1719 in the footnotes. I will give my own translation in cases in which I think Humphreys’s version does not capture the French original accurately enough. Montfaucon’s project in the *Antiquité expliquée* was followed by an equally cyclopean

A striking symmetry exists between this work and contemporary natural history books like Plumier’s, not only from a formal point of view, but also in the epistemological purposes at which they aimed. To start with, Montfaucon’s massive work revolved around images: “It treats of All Antiquity, every Part is considered and illustrated with a great Number of Figures; and these Figures explained with all the Accuracy I was capable of.”⁶² The fifteen volumes of the *Antiquité expliquée* boasted indeed over 1,100 large copperplates on which the author reproduced and methodically organized ancient monuments and antiquities: “These plates contain around thirty or forty thousand figures. . . . This large number has disconcerted several people: how can the work contain so many figures; if they are of a fair size, as it is promised; can they be made large enough so as to notice distinctly all their parts, if there are up to thirty per plate? . . . You will see that the figures are even larger than I initially planned, for I understood the importance of making them of a good size so as to be able to distinguish all their parts, and that they strike our imagination more powerfully” (fig. 1.2).⁶³

Like Plumier in the preface of his *Description des plantes de l’Amérique*, Montfaucon claimed the need of large intaglio plates so as to appreciate all the parts of the figures—an alleged necessity that the book market would not always be able to fulfill. Yet this transmits the perception that naturalists and antiquarians had at the time of the double function of images for their work: both as a tool of knowledge and an object of distinction and aesthetic appreciation (*qu’elles frappent davantage l’imagination*). The books of the *Antiquité expliquée*, just like Plumier’s botanical books printed at the Imprimerie royale, were folio volumes with full-page intaglio engravings and (in line with the Minim’s *Traité des fougères de l’Amérique*, 1705) in both French and Latin “in the favor of foreign people.”⁶⁴ Montfaucon also expressed his aspiration to reach an audience beyond

editorial project: *Les monuments de la monarchie française*, 5 vols. (Paris: chez Julien-Michel Gandouin and Pierre-François Giffart, 1729-33).

⁶² Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^r]; Montfaucon, *Antiquité expliquée*, i: “Il s’agit ici de toute l’antiquité: on en rapporte toutes les parties, on donne sur chacune un grand nombre de figures: ces figures sont expliquées avec toute l’exactitude & toute la précision dont j’ai été capable.”

⁶³ This paragraph on the number and purpose of the figures was not included in Humphreys’s translation: Montfaucon, *Antiquité expliquée*, xi: “Ces planches renferment environ trente ou quarante mille figures, comme nous avons dit dans le Programme. Ce grand nombre a embarrassé plusieurs personnes: comme l’ouvrage contiendra-t-il tant de figures, si elles sont d’une juste grandeur, comme l’on promet, pourra-t-on les faire assez grandes pour qu’on en puisse remarquer distinctement toutes les parties, si l’on en met jusqu’à trente dans une planche? . . . on y verra les figures plus grandes même que j’avais projeté d’abord, parceque j’ai compris combien il étoit important de les faire de belle grandeur, afin qu’on en puisse mieux remarquer toutes les parties, & qu’elles frappent davantage l’imagination.”

⁶⁴ The Latin translation occupied the lower part of the pages of the preface. Montfaucon gave a detailed explanation of his choice in a paragraph that was omitted from Humphreys’s English translation: see Montfaucon, *Antiquité expliquée*, xiii-xiv.



Fig. 1.2. Antique medals and sculptures representing the Roman god Jupiter on one of the numerous plates included in Bernard de Montfaucon's *L'antiquité expliquée et représentée en figures*. Montfaucon's use of images reflects a material and documentary approach to the study of the past and its remains that can be compared with naturalists' contemporary reliance on visual representations and specimens. Both natural history and antiquarianism (the equivalent of modern archeology) were, after all, fields of "history" as it was understood in the seventeenth century: that is, forms of knowledge devoted to the description of particulars and the collection of incontrovertible facts (be they about nature or about antiquity). (Universitätsbibliothek Heidelberg.)

the circle of specialists; he opened the preface to the first volume with such a declaration of intentions: "It would be desirable that this work was executed well enough so that it interests *the public*."⁶⁵ Utility and curiosity were entangled, as they were in contemporary natural historical pursuits—an aspect which is the subject of the next chapter. Montfaucon, like most scholars who aspired to conquer the book market, hoped that "the Figures joined to the Explanations will be very useful. Instruction will be convey'd with Ease to the Reader, and he will find the Agreeable mix'd with the Profitable, according to *Horace's Advice*."⁶⁶

⁶⁵ Montfaucon, *Antiquité expliquée*, i: "Il seroit à souhaiter que cet ouvrage fût aussi-bien executé, qu'il est intéressant pour le public." Humphreys gives a slightly modified translation: "It were to be wished that a Work of such Use and Advantage to the Publick as this is, was executed in the best manner possible" (Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^r]).

⁶⁶ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [c1^r]; Montfaucon, *Antiquité expliquée*, x: "Ces figures jointes aux explications seront d'une utilité merveilleuse; on s'instruira là à peu de frais, & l'on joindra l'agreeable à l'utile selon le precepte d'Horace."

From a formal point of view, images were indeed the cornerstone of Montfaucon’s *Antiquité expliquée*, just as they were of Plumier’s *Description* and *Traité des fougères*: each of the volumes was organized into books devoted to topics of antiquity as represented in objects (e.g., groups of deities figured in sculptures and reliefs, temples and sacred instruments, costumes, weapons, and so forth). Along the text, some sections were entirely devoted to the explanation of the figures, with a marginal reference to the plate in question and superscript numbers within the text indicating the particular figure that was being discussed. The Benedictine monk frequently used the evidence of the images to compare, or correct, that of chronicles, just like Tournefort advised naturalists to do.⁶⁷

Beyond these formal analogies, the *Antiquité expliquée* articulates another much more salient aspect that allows for further comparison between the fields of antiquarianism and natural history: that is, the material turn of the “historical” approach (to nature or to the past) around 1700.⁶⁸ The origins of Montfaucon’s gargantuan visual project lay in his dissatisfaction with a purely philological work: all began thirty-four years earlier, as he relates in the preface, when his superiors at Saint-Germain-des-Prés assigned him the task of undertaking an edition of the Church fathers. He then realized the need of profane history for such a pious work: this was a thorny enterprise, however, given that “Antiquity hath been treated of by a great Number of skillful Writers . . . but the greater Number of the Moderns have run into an excessive length on this Subject.”⁶⁹ The rationale behind the Maurist’s massive project runs, paradoxically, along the lines of a double information overload in the work of learning: not only that of the object of study itself, “this vast sea of antiquity” (*cette vaste mer de l’antiquité*), but also that of the whopping literary corpus dealing with it: “[the study of antiquity has] produced almost an infinite Number of Books,” Montfaucon complained, “and many of them large, and difficult to be procured; and when got, can scarce be read over in a Man’s Life.”⁷⁰ The large quantity of writings on the ancient world by Greek and Latin profane authors, but especially by

⁶⁷ See Burke, “Images as Evidence,” 291.

⁶⁸ This is close to Stephanie Moser’s thesis, for whom “the production of conventionalized drawings of antiquities during this period represents a fundamental shift in the approach to ancient material culture, signifying the recognition of objects as evidence”: Moser, “Making Expert Knowledge through the Image: Connections between Antiquarianism and Early Modern Scientific Illustration,” *Isis* 105 (2014), 58.

⁶⁹ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^{r-v}]; Montfaucon, *Antiquité expliquée*, iii: “L’antiquité a été ci-devant traitée par un grand nombre d’habiles gens . . . mais la plûpart de ces livres modernes penchant par une trop grand longueur.”

⁷⁰ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^v]; Montfaucon, *Antiquité expliquée*, v: “Tout cela nous a produit un nombre presque infini de livres, & souvent de gros livres, qu’il est tres-difficile de rassembler; & quand on les a rassemblez, la vie d’un homme suffit à peine pour en faire la lecture.”

modern antiquarians, was a source of confusion rather than clarification: “when two [authors] have wrote [*sic*] on the same Subject, they seldom agreed. The later Writers have frequently refuted the foregoing. Some who have been wrote [*sic*] against by their Contemporaries have replied. Nay, some who have seen they were justly opposed, would not own their Mistake, but have endeavoured to raise a Dust, in order to retreat [all] the better in the Cloud.”⁷¹

There exists a significant symmetry between Montfaucon’s complaints for the field of antiquarianism and Perrault’s for the natural history of animals: the reasons articulated by the Benedictine monk for composing his fifteen volumes of figures and explanations of antiquities mirrored those by the academician a decade earlier. “There are a great many things in Antiquity which the Antiquaries are not agreed about,” lamented Montfaucon: those who aspired, therefore, “to inform themselves right” about the topic “must separate what is true from what is false.”⁷² The monk presented his *Antiquité expliquée* as a convenient tool to circumvent this endless task by offering a (colossal) abridgment of facts, rather than opinions:

Everyone will allow the Necessity of abridging a Study which the Multitude of Books has made so difficult. This is the Design of the following Work. I have reduced into one Body all Antiquity. By the Word *Antiquity* I mean only what may be the Object of the Sight [*ce que peut tomber sous les yeux*], and may be represented by Figures; and this alone is of a vast Extent.⁷³

In other words, Montfaucon explicitly formulates an idea that seems to sustain contemporary visual enterprises of natural history, too: that images could function as legitimate sources for an historical knowledge—be it of an antiquity distant in time or of a flora and fauna distant in space—whose epistemic foundations at the time were

⁷¹ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^v], and Montfaucon, *Antiquité expliquée*, iii: “Quand plusieurs on écrit sur le même sujet, il est rare qu’ils s’accordent ensemble. Ceux qui sont venus après on souvent refuté les auteurs qui les avoient précédéz. Quelques-uns qui ont été contredits de leur vivant, on fait des repliques pour soutenir leur opiniôn, & repousser leurs adversaires. . . . Il y en a même qui se voient repris avec raison, & ne voulant pas avouer leur erreur, ont tâché de jeter de l’obscurité dans la matiere, pour se tirer comme ils pouvoient d’un mauvais pas.”

⁷² Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b2^r]; Montfaucon, *Antiquité expliquée*, vi: “De plus, comme il y a beaucoup de choses dans l’antiquité dont les Antiquaires ne conviennent pas entre eux; ceux qui veulent s’instruire ont à démêler le vrai d’avec le faux.”

⁷³ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b2^r]; Montfaucon, *Antiquité expliquée*, vi: “il n’est personne qui ne comprenne la necessité d’abreger une étude que ce trop grand nombre de livres rend presque impracticable, quand on veut étendre ses connoissances sur toutes ses parties. C’est ce que je tâche de faire ici; je reduis dans un corps d’ouvrage toute l’antiquité: par ce terme d’antiquité j’entens seulement ce qui peut tomber sous les yeux, & ce qui se peut représenter dans des images; cela ne laisse pas d’être d’une très-vaste étendue.”

grounded on a pragmatic and material approach. Objects functioned as evidence that could be reproduced and described in writing and images, stockpiled, and arranged. More important, they allowed a certain form of knowledge: “my Method is,” he announced, “not to say any thing but what was certain or very probable.”⁷⁴

Despite the extent of the work itself, Montfaucon optimistically claimed that, with it, “two Years will be enough for the Study of Antiquity.” The monk called upon the patience of the reader to “carefully consider the images, to compare them with each other, to relate them to the explanations: perhaps he will discover things that escaped me.”⁷⁵ Images functioned for Montfaucon as substitutes of the traces of the past on which the knowledge of antiquity ought to be based, rather than on the writings of modern and ancient authors. The reader, Montfaucon tells us, “will find in these Images mute Histories, which Authors do not mention.”⁷⁶ The production and accumulation of these images (and that of their written explanations) amounted to the constitution of sources—a practice that became central to the work of the erudite at the turn of the eighteenth century.⁷⁷ By presenting the visual representations and unpassionate textual descriptions collected in the *Antiquité expliquée* as materials beyond the conflating and often dissenting opinions and interpretations of the authors, Montfaucon was drawing a distinction between original and derivative authorities or, in Arnaldo Momigliano’s wise words, “the difference between collecting facts and interpreting facts”—something that “became the common patrimony of historical research only in the late seventeenth century.”⁷⁸

Indeed, Montfaucon’s images were imbued with a specific legitimacy: that of a direct contact between the author and the object represented. The Maurist took care to contextualize the production of his representations and to sustain in this way their veracity: “All the Images are taken from ancient Monuments, excepting only about three

⁷⁴ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b2^r]; Montfaucon, *Antiquité expliquée*, vii: “Ma maxime est de ne dire sur chaque chose en particulier que ce qu’on en peut savoir de sûr ou de fort probable.”

⁷⁵ Humphreys omits most of this sentence in his translation: Montfaucon, *Antiquité expliquée*, vi-vii: “je conseille au lecteur de ne point courir en lisant, de se donner le loisir de bien considerer les images, de les comparer entre elles, de les rapporter aux explications: il y découvrira peut-être des choses qui m’auront échappé.”

⁷⁶ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [c1^r]; Montfaucon, *Antiquité expliquée*, x: “On trouvera souvent dans les images des histoires muettes que les anciens auteurs n’apprennent pas.”

⁷⁷ Stéphane Van Damme, “Les livres du P. Claude-François Ménéstrier (1631-1705) et leur cheminement,” *Revue d’histoire moderne et contemporaine* 42, no. 1 (1995), 9.

⁷⁸ Arnaldo Momigliano, “Ancient History and the Antiquarian,” *Journal of the Warburg and Courtauld Institutes* 13, no. 3-4 (1950), 286.

or four, which were made upon the Descriptions of Authors, which is mention'd in its proper place.”⁷⁹

If we are to believe Montfaucon, the 30,000 to 40,000 figures he claims to have included in the *Antiquité expliquée* were not initially gathered with publication in view, but for the sole sake of documenting, or creating a visual archive of, antiquity. Unsatisfied as he initially was with how much both profane authors and modern antiquarians had to say about the ancient world, Montfaucon “began to make a Collection of Drawings and antique Pieces about six and twenty Years ago.” His time was shared, he tells us, between the work with texts and that with objects, “between the Study of the Holy Scriptures and the Fathers, and that of Antiquity.” The monk began then complementing the study of texts with that of the remaining traces left by the past. A previous step for the writing of a history of the ancient world was, therefore, the gathering of antiquities (either literally or by means of images) and the constitution of a documentary collection—defined by Montfaucon as *recueils*, a common term also used by antiquarians and naturalists alike (including Plumier), especially when they referred to compilations of images. “From this time,” Montfaucon continues, “my Collection [*recueils*] continued to increase.”⁸⁰

Moreover (and along lines similar to those of contemporary projects of natural history), the Maurist related the constitution of a documentary archive to the practice of travel: partly following in Mabillon’s footsteps, Montfaucon undertook a three-year journey to Italy (from 1698 to 1701), in which “I spent the most part of the time going to see ancient Monuments, and Cabinets, in increasing my Collection [*mes recueils*], and gaining more Light in the vast Study of Antiquity.”⁸¹ The observations, notes, and gatherings of his journey to Italy resulted in a volume published shortly after his return

⁷⁹ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [c1^r]; Montfaucon, *Antiquité expliquée*, x: “À trois ou quatre figures près qui ont été faites sur la description des auteurs, comme j’en avertis en son lieu, toutes les images sont tirées d’anciens monuments.” On this question see Guichard, “D’après nature’ ou ‘chose vue.’”

⁸⁰ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^r]; Montfaucon, *Antiquité expliquée*, ii: “je lûs les auteurs profanes tant grecs que latins; & non content de ce qu’ils nous apprennent sur la fable & sur l’histoire, je commençais il y a environ vingt-six ans, à ramasser des desseins & des pieces antiques. . . . Je partageois le tems de ma journée entre l’Étude de l’Écriture sainte & des Peres, & celle de l’antiquité. Depuis ce tems-là mes recueils ont toujours grossi.”

⁸¹ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^r]; Montfaucon, *Antiquité expliquée*, ii: “La meilleure partie de ce tems fut employée à visiter les monumens antiques & les cabinets qui s’y trouvent en grand nombre, à augmenter mes recueils, & à acquerir de nouvelles connoissances sur cette vaste mere de l’antiquité.”

by Jean Anisson (the printer of Plumier’s *Nova plantarum Americanarum genera*, 1703) and illustrated with woodcuts.⁸²

Naturalists, therefore, were not the only sort of historians whose work began to rely on a culture of mobility based on the making and accumulation of firsthand observations. Jean Mabillon offers a telling comparison when considering contemporary traveling naturalists: his journey through Italy and Germany during the 1680s aimed at the search of manuscripts and rare books for the royal library. Under the actual patronage of Colbert, both of Mabillon’s travels were announced to be made “on the orders and at the expenses of His Majesty” (a pervasive formula also in naturalists’ travel accounts, as we will see in chapter 2). His fellow Benedictine monk and biographer, Dom Thierry Ruinard (1657-1709), reported on how the master gathered and copied manuscripts and described monuments and antiquities during his peregrinations through cabinets, churches, and monasteries across the Holy Roman Empire and the Italian Peninsula.⁸³

Like Mabillon’s, Montfaucon’s *recueils* brought together objects of the past and drawings of those he could not possess. Most of the engravings in the *Antiquité expliquée*, therefore, represented monuments and objects conserved in cabinets to which he (or his assistants) had direct access, but the claim of firsthand observation did not exclude witnessing delegated to a network of correspondents spread across Europe: a good number of pages at the end of the preface was precisely devoted to acknowledging those “who have communicated to me ancient pieces for their inclusion in this work.” Scholars and educated collectors sent him drawings of the objects in their cabinets (occasionally the objects themselves) or copies of engravings and manuscript pictures they kept in their libraries.⁸⁴ Montfaucon’s collection can be seen as a “paper museum,” but one that (unlike Cassiano del Pozzo’s or most of Plumier’s) found its way into print.

The work of Montfaucon illustrates the centrality of the accumulation and managing of visual (and textual) information in the work of the seventeenth-century historian. The production and organization of sources (that is, documents standing for the objects themselves and consequently impervious to controversies) was at the core of history’s descriptive endeavor (whether that of the antiquarian or that of the naturalist).

⁸² *Diarium italicum. Sive monumentorum veterum, bibliothecarum, musaeorum, &c. Notitiae singulares in itinere collectae, additis schematibus ac figuris* (Paris: apud Joannem Anisson Typographiae Regiae Praefectum, 1702).

⁸³ Thompson, “Mabillon and Montfaucon,” 236; Thierry Ruinart, *Abrégé de la vie de dom Jean Mabillon* (Paris: chez la veuve François Muguët et Charles Robustel, 1709), 95-146.

⁸⁴ Montfaucon, *Antiquité expliquée*, xviii-xxiv.

For all the obvious differences between them, some underlying convictions seem to underpin Tournefort's "need to seek the plants in the highest mountains," Fontenelle's flamboyant narration of a foundational turn of botany towards the "books sprinkled over the surface of the whole Earth," Plumier's own self-congratulatory praise of the value of travel, Coronelli's exhortation in favor of the gathering of those "proofs" (*tali prove*) required by history, and Montfaucon's restriction to "what may be the Object of the Sight." In the first place, they reflect a concern for the kind of evidence used in the making of their respective histories, by which they drew a sharp distinction between literary and non-literary sources—with a clear preference for the latter and a generally rhetorical disfavor of the former. In his study on antiquarianism, Momigliano argued that Montfaucon and the antiquarians of his time laid the distinction (foundational for the modern historical method) between "collecting facts and interpreting facts" as the essential premise for the study of the past. For Momigliano, "non-literary evidence became especially authoritative in the late seventeenth and early eighteenth centuries."

In the second place, the relationship between non-literary and literary sources was laid on similar—if not plainly equal—terms. For both antiquarians like Momigliano and naturalists like Perrault, Tournefort, and Plumier, learned empiricism took the form of a verification of the literary tradition via the making and collection of firsthand observations. Neither antiquarians nor naturalists were banning literary sources altogether from their respective forms of historical knowledge, but rather introducing the "method of checking literary by non-literary evidence," as Momigliano wrote for the case of antiquarians. This methodological principle is strikingly analogous to that articulated in the realm of natural history: as we will see below, Tournefort stated that one of the principal aims of the botanist should be the verification and amendment of previous authors' descriptions through a direct contact with the flora.

In the third place, the ideal of collection (and consequent classification) was also common to both natural and antiquarian history: as noted by Burke for antiquarianism, the "concern for system and method was associated with a concern for evidence"—which I shall analyze, for the cases of natural history, in chapter 4.⁸⁵

For Momigliano, the emphasis on the value of non-literary evidence was an answer to the generalized controversy on the value of historical evidence during the seventeenth century: "bias was easily scented everywhere." Responses to this situation were varied,

⁸⁵ Burke, "Images as Evidence," 275.

from a pessimistic skepticism to attempts (like Montfaucon’s) “to put historical knowledge on a safer basis by analyzing the sources thoroughly and drawing, if possible, upon other evidence than that provided by past historians.” In the realm of ancient history, members of religious orders in particular—such as the Maurists—actively participated in this quest for a “sound historical knowledge.” The use of images in projects of historical inquiry (from Montfaucon’s to Plumier’s) needs to be understood in relation to this attempt to provide a basis firmer than literary evidence. Momigliano gives the example of the Italian historian and astronomer Francesco Bianchini (1662-1729), who produced in 1697 *La istoria universal provata con monumenti, e figurate con simboli de gli antichi* (Universal history based on the evidence of monuments and represented in symbols from the ancients). Bianchini’s title in a way echoes that of Montfaucon, and—like this—it says a lot about the approach of the author; for Bianchini, “the *figures of the facts*, drawn from extant ancient monuments, are in my view symbols and proofs of history” (*le figure dei fatti, ricavate da monumenti d’antichità oggidì conservate, mi sono sembrate simboli insieme e pruove dell’istoria*).⁸⁶ Images served them well for this purpose. Monuments were proofs for the writing of history, and images an adequate medium to collect those facts.⁸⁷

By bringing up the debates in the making of antiquarian knowledge in this study of a traveling naturalist’s iconographic work, I aim at stressing that much necessary light can be shed on the role of images in natural history if we consider the parallel developments in the field of antiquarianism. The new importance attributed to images by naturalists can only be understood against the background of the transformations of the natural historical method which took place in reaction to the perceived overload of natural information, mostly from overseas. Plumier’s corpus of images was an attempt to grapple with this intellectual context of generalized distrust (however rhetorical it might have been) on literary sources. In other words, it is not that natural history experienced a “visual turn” at the time, a shift towards a visual epistemology of firsthand observations that could be exclusively fixed and mobilized through images. It was rather that materials

⁸⁶ Francesco Bianchini, *La istoria universale provata con monumenti, e figurata con simboli degli antichi* (Rome: stampata à spese dell’Autore nella Stamperia di Antonio di Rossi, 1697), 10, quoted in Momigliano, “Ancient History and the Antiquarian,” 299. My emphasis.

⁸⁷ Momigliano refers to the “history of the attempts to create a scientific iconography from, say, Jacques Spon, *Miscellanea Eruditae Antiquitatis* (1679) to J. Spence, *Polymetis* (1747), passing through *L’Antiquité expliquée* by Montfaucon (1718)”: Momigliano, “Ancient History and the Antiquarian,” 304. Burke argues that it was precisely this emphasis on visual evidence at the turn of the eighteenth century that allowed a history of “barbarians” (as peoples producing scarce texts) to consolidate: Burke, “Images as Evidence.”

(natural specimens and remains of the past) came to have an equally fundamental evidentiary power in these two descriptive forms of knowledge.

We have passed from the dissected bodies of far-flung animals to the artifacts of a far-flung past, from the adventurous Plumier and Tournefort to the erudite Montfaucon, and yet we still encounter very similar methods and principles at work. It is now time to specify the relation of late seventeenth-century naturalists with the literary sources they so vehemently claimed to abandon.

Natural books and the Book of Nature

Despite Perrault's passionate exhortation in favor of a natural history made out of "certitude & truth" by means of a direct experience of the natural world, his and his circle's work continued to be carried out in light of the textual tradition. He acknowledged this in his preface: "we could not avoid straying from the path we initially sought to follow, and found it necessary to take part in the controversies of Naturalists on the problem of knowing if some of the Animals we study are those mentioned by the Ancients."⁸⁸ This tension between the seen and the read is a paramount component of late seventeenth- and early eighteenth-century natural history, and a pervasive feature in Plumier's iconographic work. Along the lines set out by Perrault, references to ancient and modern authors were made in terms of a comparison between what authors said and what could be observed in nature—or a verification of the former by the latter, as stated by Momigliano. The leader of the botanical equivalent of Perrault's project in the Paris Academy of Sciences, Denis Dodart (1634-1707), followed along these lines in his *Mémoires pour servir à l'histoire des plantes* (Essays for the history of plants [1676]): "In order to arrange these Memoirs, & to prepare them to be printed, the Company decided that the People who were charged with this work had to read for each plant all the ancient and modern Authors of whom they had some knowledge, so as to confront their descriptions to ours and to excerpt those facts that we could consider worth being reported, & verified."⁸⁹

⁸⁸ [Perrault,] "Préface," sig. [e^v]: "Nous n'avons pu aussi nous empêcher quelquefois de nous écarter de ce chemin si droit & si serré, que nous nous sommes proposez de suivre, & nous avons cru estre obligez d'entrer dans les controverses qui sont entre les Naturalistes, touchant la difficulté qu'il y a de sçavoir, si quelques-uns des Animaux que nous avons, sont précisément ceux dont les Anciens ont parlé."

⁸⁹ Denis Dodart, ed., *Mémoires pour servir à l'histoire des plantes* (Paris: de l'Imprimerie royale, 1676), 51: "Pour disposer ces Memoirs, & les mettre en estat de paroistre, la Compagnie a resolu que les Personnes qu'elle a particulierement chargées de ce travail, liront sur chaque Plante tous les Autheurs anciens & modernes, dont il pourroient avoir quelque connoissance, tant pour confronter leurs descriptions aux nostres, que pour faire l'extrait des faits que l'on jugera dignes d'estre rapportez, & d'estre verifiez."

This is not far from Tournefort’s considerations of the aims of natural history in his *Histoire des plantes qui naissent aux environs de Paris* (History of the plants growing around Paris [1698]). In the introduction to this study on the capital’s regional flora, Tournefort listed three main goals of his history of plants: “1. The enumeration (*dénombrément*) of the plants growing around Paris; 2. The critique of the authors that have written about these plants, & whose descriptions are not consistent with the natural (*ne sont pas conformes au naturel*); 3. The choice of the virtues & usages that the best Physicians have proposed.”⁹⁰ While the inventorial component of natural history around 1700 will be further evinced in chapter 4, we must focus here on the erudite dimension of natural history hinted at by Tournefort. Enumeration and “the critique of the authors” were two closely related tasks after all, for they constituted what he called “the knowledge of plants” (*la connoissance des plantes*) based on grasping the names given to them by previous authors. The work on naming, which is the subject of chapter 4, allowed the botanist to collate the different denominations that various authors had previously given to the same plant; to compare those names (which are, for Tournefort, “like definitions”) with the living plants; to draw, finally, a comprehensive inventory on which the work of classification into genera and classes could be based. The “knowledge of plants” and their names was a preliminary—yet unavoidable—step to that of their medical virtues, which was indisputably, Tournefort reluctantly acknowledged, the most useful part of botany.⁹¹

For all the vociferous disapprovals to wordy books, French natural history by 1700 was still far from having lost altogether the textual criticism component of its Renaissance days, as naturalists loudly claimed. Perusing the “book of nature” and poring over the books of men were still two sides of the same coin.⁹² Botany, as Tournefort conceived it, aimed not only at acquiring new knowledge on both familiar and exotic plants, but also (and crucially) at surveying and arranging what was already known and at confirming the exactitude of the existing mass of knowledge by comparing it with reality. Or, putting it another way, for naturalists like Tournefort (but also Perrault and Plumier)

⁹⁰ Joseph Pitton de Tournefort, *Histoire des plantes qui naissent aux environs de Paris* (Paris: de l’Imprimerie royale, 1698), sig. a4: “On s’est proposé trois choses dans cet Ouvrage: 1. le dénombrement des plantes qui naissent aux environs de Paris: 2. la critique des auteurs qui ont parlé de ces plantes, & dont les descriptions ne sont pas conformes au naturel: 3. le choix des vertus & des usages que les plus habiles Medecins ont proposez.”

⁹¹ Tournefort, *Éléments*, vol. 1, 1-2.

⁹² For an analysis of the role that books played in overseas natural expeditions during the late eighteenth century, see Daniela Bleichmar, *Visible Empire: Botanical Expeditions and Visual Culture in the Hispanic Enlightenment* (Chicago: The University of Chicago Press, 2012), esp. 54-66.

the “study of the observable parts of plants” (*l'examen des parties sensibles des plantes*) ought to be coupled with bookish inquiries.

This central aspect of the culture of natural history was far from being one more of the Frenchmen's many peculiarities. Take as an example one of the most influential naturalists on the other side of the Channel: Plumier's contemporary John Ray was preparing the third and last volume of his massive *Historia plantarum* (History of plants [1686-1704])—whose publication seemed imminent to him but was not to be printed until 1704. Although he insistently praised the direct observation of the specimens, his correspondence bears witness to the central role that the management of information played in his daily work. In 1698, for instance, he announced to the influential physician and collector Hans Sloane (1660-1735) what were for him the two main and complementary merits of the third volume of his *Historia*: on the one hand, it digested most of the botanical information so far published by other authors (“It takes a great deal. The last six volumes of the ‘Hort. Malab.’ entire; all Father Plumier's work; all Dr. Plukenet's; Dr. Herman's ‘Paradisus Batavus’; Sig. Boccone's ‘Museum Plantarum’; Commelin's more Rare Plants of the Amsterdam Garden; besides collections out of many other books, and descriptions of dried plants”); on the other hand, it treated a “multitude of rare plants not yet described by any[one else].”⁹³

The work of the naturalist thus conceived was doubly linked to book (or paper) culture. The first connection regards the figure of the naturalist as an author and his relation with the production and commerce of his own volumes—an aspect that I shall discuss further in chapter 5 for the case of Plumier. The second connection has to do with the naturalist as an almost obsessive compiler and manager of textual and graphic information. To duly digest the little books of men came to be an enterprise of almost as gargantuan in proportion as reading the book of nature. In the very same letter to Sloane, Ray claimed that his supplement was not still ready, for “your collection of Maryland plants I am desirous to add to this work,” and “I shall add [too] Herman's ‘Parad. Bat.’ and Boccone's ‘Museum Rariorum,’ which I have already almost transcribed into papers, to lie in their proper places inserted into my Supplement.”⁹⁴ For Ray too, the firsthand inspection of nature went hand in hand with textual management, as reflected in his praise of Sloane's work on Jamaican plants: “I cannot but admire your industry and

⁹³ John Ray to Hans Sloane, Black Notley, March 1, 1698, in *The Correspondence of John Ray*, ed. Edwin Lankester (London: printed for the Ray Society, 1848), 336.

⁹⁴ Ray to Sloane, Black Notley, March 1, 1698, in *Correspondence of John Ray*, 336-7.

patience in reading and comparing such a multitude of relations and accounts of voyages. . . . You have done botanists a great service in distributing or reducing the confused heap of names, and contracting the number of species. But who is able to do the like? No man but who is alike qualified, and hath seen the things growing in their natural places.⁹⁵ The Englishman lamented in this respect that he barely had access to living specimens: “Did I live in London, and had I opportunity frequently to visit the physic gardens thereabouts, and to observe and describe the new species, I might make a better Supplement to my History than now I shall do.”⁹⁶

That the direct observation and exact description of the natural world interlocked with the manipulation and collation of texts and images becomes particularly evident in Plumier’s manuscript and printed images. The depictions by the Minim friar of the West Indian flora and fauna were a site of the dissemination and reemergence of written culture—usually in a literal sense, as texts were scattered across the graphic space of the depictions. This was the case of both printed and manuscript images. The plates of Plumier’s *Description des plantes de l’Amérique* and *Traité des fougères de l’Amérique* always bore the name of the plant and often Plumier’s signature; detailed bookish references were usually made, too, in the accompanying texts.⁹⁷ His multifarious manuscript drawings were virtually never signed, but they usually presented other sorts of textual information: names, descriptive notes, and (more importantly) numerous references to authors who had previously treated and pictured the plant or animal in question. The literary tradition that shaped late seventeenth- and early eighteenth-century naturalists crops up within Plumier’s images in two ways: either by means of lettering (letters sprinkled over the images that connected specific parts of them with marginal notes or the text accompanying them), or by references to authors directly annotated on or next to the depictions.

The vast majority of Plumier’s images, printed or manuscript, were in all likelihood made out of the living specimens observed by the friar in the West Indies, but that does not mean that the bookish tradition did not often weigh heavily on both how and what to observe and depict in the field. A good example is the drawing of the remora among Plumier’s “notes diverses,” a folder of various sorts of graphic and textual notes taken during his fieldwork in the Caribbean islands. The remora, a kind of fish with a

⁹⁵ Ray to Sloane, Black Notley, June 23, 1696, in *Correspondence of John Ray*, 295.

⁹⁶ Ray to Sloane, Black Notley, June 23, 1696, in *Correspondence of John Ray*, 295.

⁹⁷ See below, chap. 5.

distinctive oval sucker-like organ used to attach itself to large marine animals, was a beast resonant with meaning in the Western tradition. It had for a long time been associated with a mythical creature described by Pliny the Elder and subsequently by medieval bestiaries and Renaissance alchemical texts. Reputed for its coldness, the *echeneis* (from the Greek ἔχειν, to hold, and ναῦς, ship) was believed to attach itself to ships and hold them back despite its small size. Well into the sixteenth and seventeenth centuries, the remora continued to bewilder authors and naturalists equally: it was one of the exotic animals that the humanist Thomas Platter (1599-1682) reported to have seen in a cabinet of curiosities in Montpellier (along with a chameleon, a crocodile, and a pelican), and Cyrano de Bergerac (1619-1655) narrated, in his *Les États et Empires du Soleil*, the fabled battle between a hot salamander and an icy remora (*l'animal glaçon*), cold “in so an eminent degree, that passing under a Ship the Vessel is seized with Cold, and struck with such a Numens, that it cannot wag out of the place.”⁹⁸ The fame of the ship-stopping fish went well beyond the confines of literature and lent itself to inflamed scholarly debates, from the Polish physician Jan Jonston to Cardano and Scaliger.⁹⁹

The remora appears among Plumier’s papers on several occasions (fig. 1.3). In one of them, two detailed ink drawings reproduced an upper and a lower view of the *echeneis* (the former displaying its characteristic sucker) and related the animal to Marcgraf’s “pira quiba” and to its vernacular name, “grand succet.”¹⁰⁰ Another version of the same drawings, also in ink, had its lines marked in dots with a needle (a technique to copy pictures from one leaf to another) and some marginal notes gave a detailed account of the colors of the fish, missing in the drawing (“the whole in pinkish-grey, the belly in white,” and so forth).¹⁰¹ Some other pencil drawings of the remora, perhaps the sketches on which the ink ones were based, appear on another loose, unnumbered sheet filled on

⁹⁸ Thomas Platter, *Journal of a Younger Brother*, quoted in Paula Findlen, “Natural History,” in *The Cambridge History of Science*, vol. 3: *Early Modern Science*, ed. Katharine Park and Lorraine Daston (New York: Cambridge University Press, 2006), 286; Savinien de Cyrano de Bergerac, *The Comical History of the States and Empires of the Worlds of the Moon and Sun*, trans. A. Lovell (London: Henry Rhodes, 1687), 160-69. On Cyrano’s science-fiction novel, see Frédérique Ait-Touati, *Fictions of the Cosmos: Science and Literature in the Seventeenth Century* (Chicago: The University of Chicago Press, 2014), 63-71.

⁹⁹ Brian P. Copenhaver, “A Tale of Two Fishes: Magical Objects in Natural History from Antiquity through the Scientific Revolution,” *Journal of the History of Ideas* 52, no. 3 (1991), 372-98, and *Magic in Western Culture from Antiquity to the Enlightenment* (New York: Cambridge University Press, 2015), esp. 127-54.

¹⁰⁰ BCMNHN MS 24 “Poissons, oiseaux, lezards, serpens et insectes. Dessinés par le Pere Plumier,” fol. 82: “Pira Quiba Marcg. L.[iber] IV C.[aput] XVIII. Vulgo grand succet.” Georg Marcgraf, “Historiae rerum naturalium Brasiliae libri octo,” in Marcgraf and Willem Piso, *Historia naturalis Brasiliae, auspicio et beneficio illustriss. I. Mauritii Com. Vassau illius provincie et maris summi praefecti adornata in qua non tantum plantae et Animalia, sed et in digenarum morbi, ingenia et mores describuntur et iconibus supra quingentas illustrantur* (Leiden: apud Franciscum Hackium; and Amsterdam: apud Lud. Elzevirium, 1648), 180.

¹⁰¹ BCMNHN MS 31 “Poissons et coquilles dessinés par le père Plumier Minime,” fol. 27.

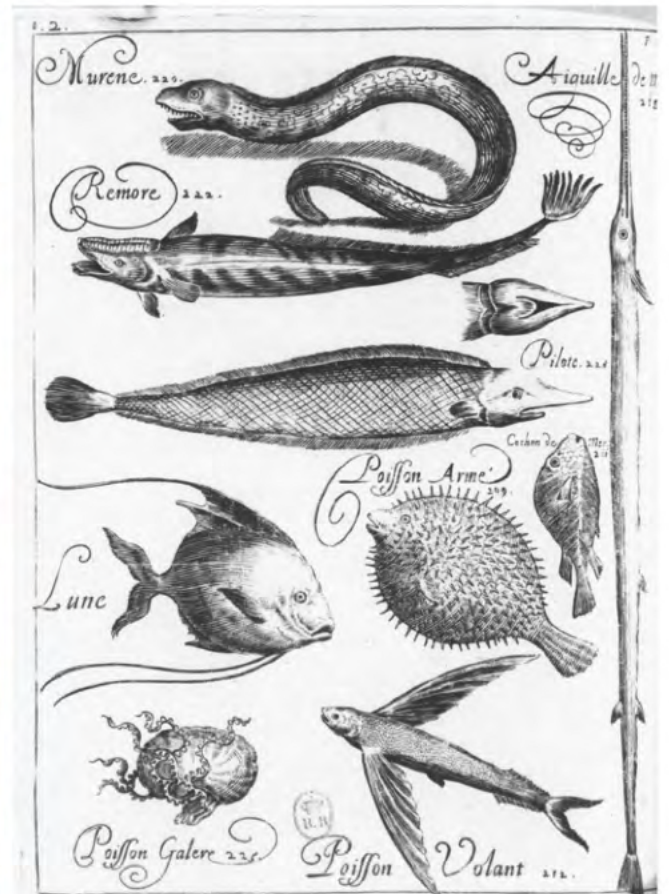


Fig. 1.3. (top) Drawing of the mythical remora or *echeneis* by Plumier. (bottom left) Pencil drawing of the remora among Plumier’s *papiers divers*. Note that the four drawings show different sides of the fish, as if it was “turning” on its own axis—a technique he also used for other natural objects such as a pelican’s skull or shells. (Muséum national d’histoire naturelle, Paris.) (bottom right) Depiction of the remora and other fishes in one of the plates of Jean-Baptiste du Tertre’s *Histoire des Antilles*. (Bibliothèque nationale de France, Paris.)

both sides with scattered entries of his travel log and with a sketch of the coastal landscape of Martinique on the back. There were four aligned images of the remora, each displaying a different view of it: profile, upper view, lower view and a tilted view—as if the fish was turning on its own axis. In some marginal notes in ink the author described it as “piscis peltatus” (“shield-bearing” fish), commonly known in French as *sucet*. Plumier also identified it with “la remore du Père du Tertre” and, once again, Marcgraf’s “iperuquiba” or “piraquiba.” In the abovementioned second volume of his *Histoire générale des Antilles* (1657), the French Dominican Jean-Baptiste du Tertre devoted a section to this sort of fish: after a page-long description of the appearance of the remora, Father Du Tertre declared himself hesitant about what “some Authors affirm about the Remora, that it stops ships altogether,” but he ended up attributing the myth to the fact that these animals were found in the hull of ships run aground. In Marcgraf’s text, the fish was described formally, but no reference was made to the legend of its ship-staying powers.¹⁰²

Out of Plumier’s hundreds of variegated drawings of Caribbean fishes, those of the remora are among the very few depicting a marine animal so methodically and comprising such a number of bookish references. The legendary weight of the creature prompted a much more thorough comparison of the authors with the real beast along the lines explicitly laid down by Tournefort in his listing of the aims of natural history—to verify previous descriptions vis-à-vis the natural (*le naturel*). The anatomy of the remora seemed all the more necessary given its attributed wondrous capacities.

The comparison of specific plants and animals with the literary corpus by which they had previously become known in Europe was on occasion done in a particularly meticulous way. Plumier’s astonishing manuscript drawings of an American crocodile, with which we shall deal further in chapter 3, offer a good example of how the naturalist nimbly scurried back and forth between the books of men and the book of nature. The drawings of the crocodile, a set of about twenty sheets, purportedly depicted the steps by which the friar dissected the creature. Despite (or precisely because of) its frequent presence in cabinets of curiosities and visual representations throughout the early modern period, the crocodile continued to carry a considerable symbolic significance by

¹⁰² BCMNHN MS 33 “Notes diverses,” unpaginated folio. Jean-Baptiste Du Tertre, *Histoire générale des Antilles habitées par les Français* (Paris: chez Thomas lolly, 1667), vol. 2, 222–23.

the turn of the eighteenth century among naturalists and curious people.¹⁰³ Only fifteen years before Plumier was examining the entrails of an specimen in Martinique, Nehemiah Grew (1641-1712), the pioneer of vegetable anatomy, produced a richly illustrated catalog of the “natural and artificial rarities belonging to the Royal Society and preserved in Gresham College,” London. Among oddities such as the skull of a hippopotamus, a fragment of rhinoceros skin, numerous shells, and several tortoise carapaces (the selection is interesting when compared to Plumier’s own objects of interest in his corpus), the collection comprised three stuffed crocodiles, the windpipe of a fourth, and the skeleton of a fifth. The latter was described in detail and pictured on a double-page copperplate (fig. 1.4). A similarly lavish catalog on the Parisian cabinet at the library Saint-Geneviève, about half a mile from the Jardin du roi, appeared soon after. Its author, Père Claude du Molinet (1620-1687), the keeper of the collection, described and depicted a “petit crocodile” among the “most singular animals.” He noted that the creature is “currently well-known in France, due to the quantity brought from Egypt and other places”—one had been famously kept at Versailles in the previous years. Du Molinet also confirmed information that had been circulating about the beast for a long time, such as that it only moved the upper jaw—an idea that Plumier was to analyze in detail in his anatomical drawings and a letter printed in the *Journal de Trévoux*.¹⁰⁴

Plumier’s own anatomical drawings of the crocodile were filled with textual notes and frequent references to one author in particular, the Danish scholar Ole Borch (1626-1690). Also know by the Latinized version Olaus Borrichius, Borch epitomized the figure of the early modern polyhistor: educated in medicine and physician of Frederik II and Christian V of Denmark, he held the first chair of chemistry at the University of Copenhagen, of which he would later become the rector, and also taught philology, poetry, and botany. He is especially known in our times for his works on chemistry, for his mentoring of the famous anatomist and geologist Nicolas Steno (1638-1686), and for his six-year journey through Europe (1660-66), in which he met personalities like Comenius in Amsterdam, Boyle in London, Melchisédech Thévenot in Paris, and Queen Christina of Sweden in Rome. In his notes and drawings on the American crocodile,

¹⁰³ Spencer J. Weinreich, “Thinking with Crocodiles: An Iconic Animal at the Intersection of Early-Modern Religion and Natural Philosophy,” *Early Science and Medicine* 20 (2015), 209-40.

¹⁰⁴ Nehemiah Grew, *Musaeum Regalis Societatis. Or A Catalogue & Description of the Natural and Artificial Rarities Belonging to the Royal Society* (London: printed by W. Rawlins, for the Author, 1681), 41-5, pl. 4; Claude du Molinet, *Le cabinet de la bibliothèque de Sainte Genevieve* (Paris: chez Antoine Dezallier, 1692), 199-200, pl. 41; Plumier, “Reponse du R. P. Plumier à diverses questions d’un Curieux sur le Crocodile, sur le Colubri, & sur la Tortuë,” *Mémoires de Trévoux* 4 (1703), 165-75.

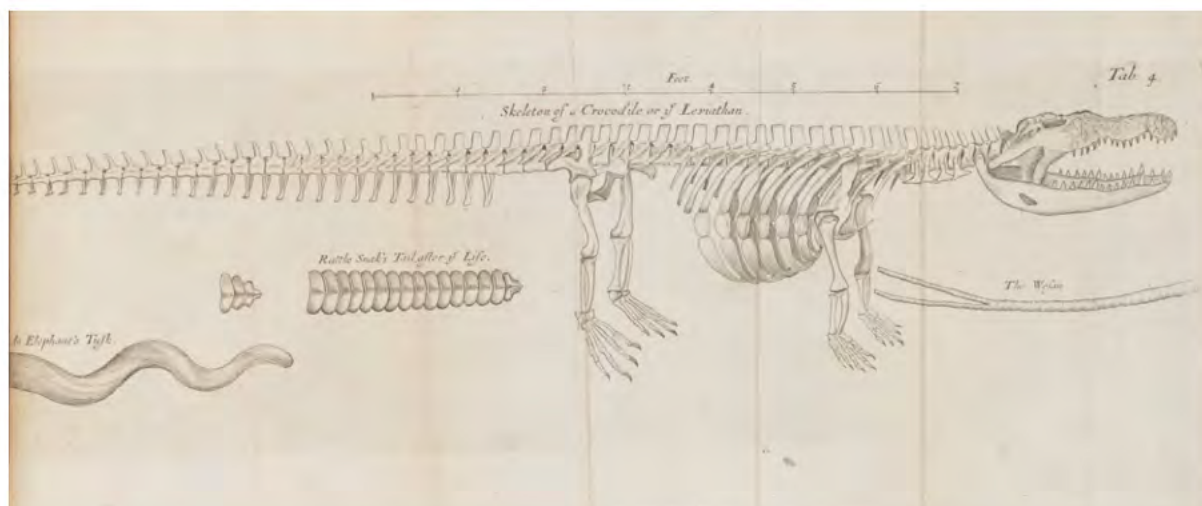


Fig. 1.4. Skeleton of a crocodile, one of the “natural and artificial rarities belonging to the Royal Society” in London, from Nehemiah Grew’s *Musaeum Regalis Societatis*. (Florida State University Libraries, Tallahassee.) (right) “Petit crocodile,” one of the “most singular animals” in the cabinet of the Bibliothèque Sainte-Geneviève, curated by Claude du Molinet. (Bibliothèque nationale de France, Paris.) During his journeys on the Caribbean islands, much of Plumier’s attention went to those natural phenomena, such as the crocodile, that most captivated his contemporaries.

Plumier referred to one of Borch’s publications, the *Hermetis, Aegyptiorum, et chemicorum sapientia vindicata* (The wisdom of Hermes, the Egyptians, and the chemists vindicated). Published in 1674, the book was a passionate defense of the enduring Paracelsian chemical and medical tradition, which extended its roots as far as ancient Egypt and the mythical figure of Hermes Trimegistus.¹⁰⁵ The *Hermetis sapientia* was an endorsement of experimental chemistry and, at the same time, its supposed millenary and Hermetic genealogy—two non-conflicting aspects of Borch’s intellectual project. Borch’s treatise epitomizes, in this sense, the fluid interconnections between natural philosophy, experimentalism, and erudition in late seventeenth-century Europe.

The use that Plumier made of Borch’s book, however, did not regard the Hermetic tradition: his references across the drawings were limited to the tenth chapter, “De Aristotele” (On Aristotle), discussing the Stagirite’s history of animals: Borch devoted about fifteen pages to the Egyptian crocodile (the best known typology at the time) and its anatomy.¹⁰⁶ The Minim friar connected very specific parts of the anatomy of the beast to Borch’s text.¹⁰⁷ In a leaf devoted to the thoracic cage he remarked that he could not find the “bony tuber” described by the Danish scholar. In another sheet the symbol “+” sent the reader from the main text, dealing with the spinal column of the crocodile, to a small box in the corner in which Plumier remarked the implausibility of one of Borch’s hypotheses on the growth of the animal based on his own observations of the vertebrae. Another symbol “+” connected the pictures of the two kidneys in one of the drawings presenting the animal lying on its back to a marginal note speaking for the image: “brownish red and made of a very tender vermiform substance. . . . I think this is what Olaus Borrichius calls *rennes*. Page. 276.” Finally, one of the numbers spread across the drawing of the beast’s mouth referred a part in the inside of the jaws to a marginal note

¹⁰⁵ Ole Borch, *Hermetis, Aegyptiorum, et chemicorum sapientia ab Hermanni Conringii animadversionibus vindicata* (Copenhagen: sumptibus Petri Hauboldi, 1674). On the author, see H. D. Schepelern’s introduction to *Olai Borrichii Itinerarium 1660-1665: The Journal of the Danish polyhistor Ole Borch* (Copenhagen: The Danish Society of Language and Literature, 1983), vol. 1, i-xlvi, and Toshihiro Yamada, “Hooke-Steno relations reconsidered: Reassessing the roles of Ole Borch and Robert Boyle,” in *The Revolution in Geology from the Renaissance to the Enlightenment*, ed. Gary D. Rosenberg, Memoir 203 (Boulder, CO: The Geological Society of America, 2009), 107-126. On his endorsement of the Paracelsian tradition in chemistry, see Ferdinando Abbri, “Alchemy and Chemistry: Chemical Discourses in the Seventeenth Century,” *Early Science and Medicine* 5, no. 2 (2000), 214-226; Nancy G. Siraisi, *History, Medicine, and the Traditions of Renaissance Learning* (Ann Arbor: The University of Michigan Press, 2007), chap. 7: “Beyond Europe,” 225-60.

¹⁰⁶ Borch, *Hermetis sapientia*, 235-78 (esp. 268-78 on the crocodile).

¹⁰⁷ Plumier also referred to Borch’s pages on the anatomy of the crocodile in one of his letters to Baulot in La Rochelle: MMC MS 867, fol. 148^{r-v}, subsequently published in the *Journal de Trévoux* (1704), 164-74.

identifying it as a “scutiform cartilage. This is perhaps what Borrichius calls epiglottis, libro hermetis sapientia pag. 275, numero IV.”¹⁰⁸

Firsthand observation was, therefore, not in contradiction to an erudite work in embracing the rich textual tradition which Plumier and his contemporaries inherited and in which they had been trained. This corpus of natural historical texts and images circulated and was transmitted in sometimes convoluted ways. Take the example of the *Bois de couleuvre* or *Lignum colubrinum* (perhaps our snakeroot): Plumier described it and pictured it twice in his *Description des plantes de l'Amérique*. He gave to this plant the name *Arum hederaceum, amplius foliis perforatis* (climber with wide pierced leaves), and identified it with the plants described by three other authors: Jean-Baptiste du Tertre's *bois de couleuvre* (in the second volume of his *Histoire générale des Antilles* [1657], devoted to natural history, “traité 3. chap. 3. parag. 13”); Gaspard Bauhin's *Clematis Malabarensis, foliis vitis, colore dracunculi* (in his *Pinax theatri botanici* [1623]), and the *lignum colubrinum primum* by “Christophorus Acosta,” to whose work Plumier referred only as “Lugd. lib. 18. cap. 140.”¹⁰⁹ His use of this latter work illustrates well the extent to which the study of nature—even as practiced by a scholar as well traveled as the Minim friar—relied on bookish practices. Cristóvão da Costa (ca. 1525-1593) was a Portuguese physician and naval surgeon who published a treatise in Spanish in 1578 on Asian plants, the *Tractado de las drogas, y medicinas de las Indias orientales, con sus plantas debuxadas al bino por Christoval Acosta medico y cirujano que las vio ocularmente* (Treatise of the drugs and medicines of the East Indies, with the plants drawn from life by Cristóvão da Costa, physician and surgeon who saw them “ocularly”). Cristóvão da Costa's treatise drew extensively from a previous one: the *Colóquios dos simples e drogas e cousas mediçinaes da India* (1563) by the Portuguese Jewish physician Garcia da Orta (1500-1568). The *Tractado* was the object of several editions, translations, and adaptations over the following century (e.g., one of the most used versions was the Latin translation by Clusius, who published it under the title “Aromatum et medicamentorum in Orientali India nascentium historia” as the ninth book of his *Exoticorum liber decem*, printed at Plantin's Leiden workshop in 1605).¹¹⁰

¹⁰⁸ BCMNHN MS 30, fol. 18, 20, 23, 25.

¹⁰⁹ Plumier, *Description*, 40-1 and plates 56-7.

¹¹⁰ Cristóvão da Costa, *Tractado de las drogas, y medicinas de las Indias orientales, con sus plantas debuxadas al bino por Christoval Acosta medico y cirujano que las vio ocularmente* (Burgos: por Martín de Victoria, 1578), and Garcia da Orta, *Colóquios dos simples e drogas e cousas mediçinaes da India* (Goa: por Ioannes de Endem, 1563). The bibliography on Garcia da Orta is vast: among the works I found most useful, see C. R. Boxer's classic *Two Pioneers of Tropical Medicine: Garcia d'Orta and Nicolás Monardes* (London: Wellcome Historical Medical Library, 1963), as well as the recent articles by Juan Pimentel and Isabel Soler: “Painting Naked Truth: The

However, Plumier’s mysterious quotation of Cristóvão da Costa (“Lugd. lib. 18. cap. 140”) does not correspond to any of the works mentioned. On the contrary, Plumier probably used, not a direct translation or edition of Cristóvão da Costa’s treatise, but a completely different work: the *Historia generalis plantarum* in two volumes by the French botanist and physician Jacques Dalechamps (1513-1588), also known as the Lyon herbal. Plumier knew and admired the work of Dalechamps enough to honor him with the genus *Dalechampia* in his *Nova genera*. Dalechamps’s *Historia* was published for the first time in 1586 in Lyon (“Lugd.[uni]”) and was often referred to as *Historia plantarum Lugdunensis* because a part of it addressed the flora around that city. The book, actually one of the largest herbals to date, compiled and abridged both textual information and images from previous botanical treatises like Pierandrea Mattioli’s commentaries on Dioscorides or André Thevet’s natural history of the Americas. The eighteenth book mentioned by Plumier dealt with foreign plants (“plantis peregrinis”) and chapter 140 with the *lignum colubrinum*, where Dalechamps copied the woodcuts and written descriptions of the snakeroot in Cristóvão da Costa’s *Tractado* (fig. 1.5).¹¹¹

In other words, Plumier pictured and renamed a species of snakeroot in his *Description*, but not because it was an unknown species at the time. Quite the contrary, he was publishing his drawings of the plant precisely because images and descriptions of it had been circulating extensively through book after book since the sixteenth century—not to mention that Cristóvão da Costa’s figure of the snakeroot had been recycled and copied widely by scholars like Daléchamps. There was quite a lot at stake in Plumier’s deceptively neutral gesture of giving a new image and a new name to the snakeroot, while listing the authors who had hitherto described and named it. To begin with, because this is a case in point of how Plumier and his contemporaries pondered the novelty of the New World’s nature against the background of the Old one and its bookish tradition. But also because, in a way, he was casting doubt on previous descriptions by scholars who either were not travelers themselves or else whose images could be branded as doubtful precisely because they had been reprinted and recycled a good number of times. But, at the very same time, Plumier was here attempting to assert his own authority as a firsthand observer through the very same printed medium. Even for a generation of

Colóquios of Garcia da Orta (1563)” *Journal of Early Modern History* 18 (2014), 101-20 and “Garcia de Orta: notas sobre las fronteras de la ciencia renacentista,” in *Traducción y representaciones del conflicto desde España y América. Una perspectiva interdisciplinar* (Salamanca: Ediciones Universidad de Salamanca, 2015), 90-105.

¹¹¹ Costa, *Tractado*, 337-42, and Jacques Daléchamps, *Historia generalis plantarum* (Lyon: apud Guglielmum Rovillum, 1586), 1749-922 (for the *lignum colubrinum*, 1911-2).



Fig. 1.5. (top) Plates of the *Lignum colubrinum* from Plumier's *Description des plantes de l'Amérique*. (Peter H. Raven Library, Missouri Botanical Gardens, St. Louis.) (bottom left) Woodcut of the *Lignum colubrinum* from Da Costa's *Tractado de las drogas*, in which the plant is called "palo de culebra." (Biblioteca nacional de Portugal.) (bottom right) Woodcuts of the same plant in Daléchamps's *Historia generalis plantarum*. Daléchamps translated Da Costa's work into Latin, and reused the original woodcuts in Da Costa's. (Real Jardín Botánico, Madrid.) The reemployment of images from one book to another was very common in the period, so much so that Plumier paid particular attention to those plants and animals that were well-known in the literature, but whose exact description was not assured precisely because information on them had been circulating from book to book.

naturalists as convinced as Plumier and his contemporaries were of the need to depart from the literary corpus as the only means to found a sound knowledge of nature, print remained not only the unavoidable reference (as we have been seeing in this chapter), but also the main arena for establishing one’s scholarly authority (a question further explored in chapter 5)—an authority they based, paradoxically, on their direct experience with the reality they spoke for and about.

Plumier’s minutely built bridges between authors and the world before his eyes is symptomatic of the work of the traveling naturalist in France around 1700. For all the discredit cast upon textual learning and the triumphantly announced empirical approach to nature, observation was primarily an operation of comparison and verification between the sphere of learning and realm of the natural world: both Perrault and Tournefort suggested it, sometimes explicitly, in their expositions about how natural pursuits should be carried out. Plumier’s drawings reflect in their own materiality this interlocking of erudite and observational practices.

The sources of Plumier’s visual natural history of the Americas

Like most scholars, Plumier started not from his sole observations and thoughts, but from that of others. Some of the stunning material practices by which Plumier received, appropriated, and made use of other naturalist’s written and iconographic world (such as copying, abridging, collating, and excerpting from both texts and images) will be dealt with in the last section of chapter 3. What should retain our attention in this section is the role that books (and especially some specific illustrated printed works on the nature of the Americas) played in the work of late seventeenth-century naturalists and in Plumier’s iconographic enterprise in particular.

When considering the erudite component of natural history at the turn of the eighteenth century, a further element of comparison between Plumier and antiquarians emerges: the library as a space of knowledge in the Parisian scene.¹¹² The Minim friar, for all his passionate wonderings across islands and seas, remained a man of books. Besides, the time he spent traveling though the West Indies amounted to seven years in total: for the rest, Plumier resided (at least from 1689) in the convent of the Minims at Place

¹¹² For libraries as spaces of knowledge-making in the early modern period, see Anthony Grafton, “Libraries and Lecture Halls,” in Park and Daston, *Early Modern Science*, 238-50. Lorraine Daston has recently relocated this question (“*Pave* stereotypes, the library has never ceased to be a site of scientific knowledge, alongside the laboratory and the observatory—often literally alongside, as architectural plans of research institutions from the seventeenth century to the present reveal”) within a broader perspective on the memory-keeping practices within the natural sciences: Daston, “Sciences of the Archive,” 162.

Royale in Paris.¹¹³ The Parisian congregation, founded around 1606 in the heart of the city, was a salient hub in the intellectual cartography of the city, not only because of the figures of Mersenne and, to a lesser degree, those of Nicéron or Plumier himself, but also because of its library. The seventeenth century and the first decades of the eighteenth century witnessed the height of ecclesiastical libraries, whatever their size.¹¹⁴ Of the book collection of the Minims at Place Royale, in particular, the French author Germain Brice (ca. 1653-1727) said that it was “not large, but was composed of excellent books,” besides “optical pieces invented by Father Jean-François Nicéron”—a usual situation in the Old Regime period, when libraries were spaces that welcomed not only manuscripts and prints, but also natural specimens, artifacts, and scientific instruments. More importantly, they were sites of scholarly exchange and knowledge production—and, particularly in the case of religious congregations, of collaborative work (fig. 1.6). The polymath Samuel Hartlib, for instance, envied Marin Mersenne’s adscription to a religious congregation, because “the whole Cloister [was] maintaining the charges”—in other words, assisting him with his research. It is difficult to know if Plumier benefited from any assistance by fellow friars in his erudite work, but he likely read, wrote, drew, and painted (alone or not) in his cell or the well-provisioned library of the convent.¹¹⁵

Brice’s estimation, however, seems to have belittled the size of the Minims’ library, which reached its apogee in the seventeenth century with around 15,000 to 20,000 volumes, maintained until soon after the Revolution; the average in the capital’s large libraries stood at the time at around 10,000 volumes.¹¹⁶ But in early modern libraries, especially when they were part of religious congregations, books were everywhere, from the monks’ cells to those spaces properly called “library,” far from our modern conception of a single space exclusively devoted to the storage of books. In the case of

¹¹³ According to the registers of the convent’s chapter, Plumier officially became a member of the community of Place Royale on May 15, 1689, by direct order of the superior general of the Minims. Two days after, another order by the superior general was read before the chapter of the Parisian convent according to which Plumier was sent to the West Indies on the orders of the French king: AN LL 1566, “Registre capitulaire des Minimes de la Place royale,” fol. 23^v-24^r.

¹¹⁴ Claude Jolly, “Unité et diversité des collections religieuses,” in *Histoire des bibliothèques françaises*, ed. Claude Jolly (Paris: Promodis and Éditions du Cercle de la Librairie, 1988), 11-28.

¹¹⁵ Germain Brice, *Description nouvelle de la ville de Paris, ou recherche curieuse des choses les plus singulieres & les plus remarquables qui se trouvent à present dans cette grande ville* (Paris: chez Nicolas Le Gras, Nicolas Le Clerc, and Barthelemy Girin, 1698), 336: “La Bibliothèque de cette Maison n’est pas nombreuse, mais cependant elle est composée d’excellens livres; on y montre quelques pieces d’optique de l’invention du Père Jean François Nicéron Parisien.” Samuel Hartlib, *Ephemerides* (1639), Hartlib Papers 30/4/7A.

¹¹⁶ Jolly, “Unité et diversité,” and Krakovitch, “La vie intellectuelle,” 23-175. Estimates vary greatly (from 8,000 in 1725 to 24,000 around the same time), but most authors conclude that the dimensions of the library were considerable for the time.



Fig. 1.6. Minim friars busy at work in the library of their convent in Marseille: one studies a globe, another measures distances on a map with a compass, and the rest peruse books or write. Unlike the Maurists, the Minims did not develop sustained forms of collective scholarly work: the library remained a central space in the life of the congregation nonetheless. Libraries and the work with books were equally central to the work of naturalists as inclined towards travel and firsthand observation as Plumier. (Bibliothèque municipale de Marseille.)

the convent at Place Royale, the library consisted of three galleries or corridors distributed through the convent: next to the cloister, next to the infirmary, and above Saint-Francis's chapel. The library became, in any case, one of the cornerstones of the community's identity (it kept, among other things, Mersenne's rich correspondence with personalities of the early seventeenth-century European Republic of Letters).

Plumier gathered a fine collection of books: a good number of the extant volumes bearing Plumier's name by his own hand include the formula "ad usum" (e.g., "ad usum F. Caroli Plumier Minimus Botan. Reg.").¹¹⁷ It is difficult to be sure, but those books may well be of his own, despite his membership to a religious community—they sometimes indicate that they belonged to the friar by "superiorum permissu," by permission of his superiors.¹¹⁸ What is clear is that these books passed to the convent's library at some point, probably after the Minim's death: Plumier's inscribed name has usually been crossed out from the title pages and the convent ("ex bibliotheca minimorum parisiensi") was identified instead.¹¹⁹

Reconstructing Plumier's library is an impossible task, although I have been able to identify a dozen volumes through libraries in Paris and Madrid bearing the friar's signature in their title pages.¹²⁰ Another interesting way of tracing Plumier's textual and iconographic influences can be found in the frequent references he makes to authors in his manuscript and printed materials. References to authorities in the manuscripts and printed books by Plumier adopted several of the usual forms for the early modern period. Most of the time, these consisted of citations within the text, on the images or in their margins, and usually they included leads to both the works and the passages that were used. Of these modes of reference to authorities, two deserve particular attention: those on the images, whether engravings in his books or drawings on loose sheets, as

¹¹⁷ For a survey of the books owned by Plumier and bearing his signature as a mark of property, see appendix 3, pp. 426-7. The "avertissement" to the 1722 *Catalogue alphabétique pour la bibliothèque des RR.PP. Minimes de la Place Royale* noted, in its fourth point, that there were in the catalogue some entries indicating the author and the title of the codex in question, but not the signature because "étant à des Religieux qui en ont l'usage, les ont destinez pour la Bibliotheque." Maz. MS 4147, fol. 1v.

¹¹⁸ P. J. S. Whitmore remarked upon the fact that Minims, frequently transferred from one house to another, seemed to have been taking with them books from the convents' libraries, which brought the Provincial of Lorraine to order, in 1693, an inventory of the library to search for books missing or belonging to other convents. Whitmore also states that "there is evidence to show that these men were allowed to possess books of their own, although he does not provide us with this evidence. P. J. S. Whitmore, *The Order of Minims in Seventeenth-Century France* (The Hague: Martinus Nijhoff, 1967), 122.

¹¹⁹ One example is Plumier's copy of Agostino Scilla, *La vana speculazione disingannata dal senso* (1670), in BHMV BH MED 2584.

¹²⁰ See below, pp. 426-7.

they have been analyzed above, and those in the form of a list.¹²¹ Only on one occasion references to authors in Plumier’s work took the form of a list of authorities, which appeared in the front matter of his 1693 *Description des plantes de l’Amérique*. Later books (namely the *Traité des fougères* and the *Nova genera*) did not include a list as such at the beginning of the volume, although it was not uncommon for books of botany at the time. Tournefort, for instance, added an impressive list of about ninety entries in the front matter of his *Éléments de botanique* (1694) with mostly modern authors (from Leonhart Fuchs to Plumier himself), but he gave to it the form of a list of abbreviations.¹²² In the case of the Minim friar, the list comprised in the *Description* (“Auteurs citez dans ce volume,” or “Authors quoted in this volume”), Plumier inventoried eleven books or parts of books.¹²³ Only the name of the authors and the title of the works were listed, with no indication to the editions or the passages used—books, chapters, or sections were marked when only those parts, and not the entire volume, were employed.

As Ann Blair has indicated in reference to compilations and repositories in the early modern period, these sorts of lists of authorities “were not finding devices but a form of advertisement for the quality of the work.”¹²⁴ Likewise, Plumier’s list of “cited authors” in the front matter of the *Description* constituted a visible, public display of the location he intended to occupy in the scholarly tradition on the natural history of the Americas—in line with the names of hitherto unknown botanical genera that he dedicated to past and present naturalists and which is described in chapter 4. The eleven works cited in the paratext of the *Description* dealt, entirely or in part, with the flora on the other shore of the Atlantic and were authored by modern scholars from the sixteenth century to his own time.¹²⁵ The large majority of them, moreover, were illustrated accounts, the only exception being works on botanical classification. Plumier’s enumeration of authorities

¹²¹ On lists of authorities in early modern reference genres, see Ann Blair, *Too Much to Know: Managing Scholarly Information before the Modern Age* (New Haven, CT: Yale University Press, 2010), 133-5.

¹²² Tournefort, *Éléments*, sig. [e5^v-e7^v]: “Explication des noms abregez des auteurs citez dans ce livre.”

¹²³ Plumier, *Description*, sig. [a4^v].

¹²⁴ Blair, *Too Much to Know*, 134.

¹²⁵ Plumier, *Description*, sig. [a4^v]: “Autheurs citez dans ce volume. / Gonzales Oviedo, della naturale & generale Historia d’elle Indie. Lib. VIII. / Nardus Antonius Reclus, ex Francisco Hernandes, rerum medicarum novae Hispaniae. / Carolus Clusius. Historia plantarum Exoticarum. / Guillelmus Piso. Historia naturalis Brasiliae. Lib. IV. / Georgius Marcgravius. Historia rerum naturalium Brasiliae. Lib. I. II. III. / Le Reverend Pere Jean Baptiste du Tertre de l’Ordre des FF. Prescheurs. Histoire generale des Antilles Tome II. / Christophorus Acosta. ex Hist. Lugd. Lib. XVIII. / G. Bauhinus. pinax Theatri Botanici. / Breynius. Centuria prima plantarum exoticarum. / Paulus Hermanus. paradisi Batavi prodromus. / Mentzelius. Pugillus rariorum plantarum.”

can serve as a useful guide to explore the contours of the visual culture of the American natural world inherited by European scholars in the late seventeenth century.

The Renaissance classics: Oviedo, Hernández, Clusius, Da Costa

Four of the works listed by Plumier were by sixteenth-century authors and well-established classics of the natural history of the Americas during the late seventeenth century. Probably one of the most canonical was the *Historia general y natural de las Indias* (General and Natural History of the Indies) by the Spanish notary Gonzalo Fernández de Oviedo y Valdés (1478-1557).¹²⁶ The book had a complex editorial life: *De la natural hystoria de las Indias* (later known as *Sumario*) was printed in 1526 in Toledo by Ramón de Petras. Oviedo seemingly conceived the *Historia general de las Indias* as a spin-off of the *Sumario*, and its first part was printed in Seville in 1535; a new edition of the same appeared in Salamanca in 1547.¹²⁷ Both the *Sumario* and the first part of the *Historia* enjoyed a considerable editorial success. Oviedo planned two more parts to the work but, due to various misfortunes and despite his multiple attempts, their publication did not come to fruition until three centuries after his death.¹²⁸ Although a French translation by Jean Poleur appeared in Paris in 1555, Plumier seems to be quoting an Italian translation (“Gonzales de Oviedo, della naturale & generale Historia delle Indie. Lib. VIII”), most likely the one included in the third part of the famous collection by Giambattista Ramusio, *Delle Navigationi et viaggi* (1556), and preceded by Oviedo’s own *Sumario*.¹²⁹

¹²⁶ On Fernández de Oviedo, see Antonello Gerbi, *La natura delle Indie Nove. Da Cristoforo Colombo a Gonzalo Fernández de Oviedo* (Milan: Riccardo Ricciardi Editore, 1975), 165-561; Jesús Carrillo Castillo, “Naming Difference: The Politics of Naming in Fernández de Oviedo’s *Historia general y natural de las Indias*,” *Science in Context* 16, no. 4 (2003), 489-504; Carrillo Castillo, *Naturaleza e imperio. La representación del mundo natural en la “Historia general y natural de las Indias” de Gonzalo Fernández de Oviedo* (Madrid: Doce Calles, 2005); Carrillo Castillo, “The Eyes of the New Pliny: The Use of Images in Gonzalo Fernández de Oviedo’s *Historia general y natural de las Indias*,” in *The Art of Natural History: Illustrated Treatises and Botanical Paintings, 1400-1850*, ed. Therese O’Malley and Amy R. W. Meyers (Washington, D.C.: National Gallery of Art, 2008), 108-25; Kathleen Ann Myers, *Fernández de Oviedo’s Chronicle of America: A New History for a New World* (Austin: University of Texas Press, 2007); Alexandre Coello de la Rosa, *Historia y ficción: La escritura de la “Historia general y natural de las Indias” de Gonzalo Fernández de Oviedo y Valdés (1578[sic]-1557)* (Valencia: Publicacions de la Universitat de Valencia, 2012).

¹²⁷ *La Historia general de las Indias con privilegio real* [Seville: Juan Cromberger, 1535], and *Coronica de las Indias. La Historia general de las Indias agora nuevamente impressa corregida y emendada. Y con la Conquista del Perú* [Salamanca: Juan de Junta, 1547]. On the printing history of the *Historia general y natural de las Indias*: Carrillo Castillo, *Naturaleza e Imperio*, 107-42.

¹²⁸ *Historia general y natural de las Indias, islas y tierra firme del mar océano, por el capitán Gonzalo Fernández de Oviedo y Valdés, primer cronista del Nuevo Mundo*, ed. José Amador de los Ríos, 4 vols. (Madrid: Imprenta de la Real Academia de la Historia, 1851-55). Only one book of the second part, the twentieth, was eventually printed in Valladolid by Francisco Fernández de Córdoba in 1557.

¹²⁹ Giambattista Ramusio, *Delle Navigationi et viaggi* (Venice: nella stamperia de Giunti, 1556): it included the Italian translation of both *Sumario* (“Sommario della naturale, et generale historia dell’indie occidentali,” 37-60) and *Historia* (“Della naturale, et generale historia dell’indie à tempi nostril ritrovate,” 61-186).

Oviedo’s *Historia* is one of the very first accounts offering a general description—historical both in its civil and natural sense—of the New World. In his list of authorities, Plumier specifically referred to the eighth book, devoted to fruit trees.¹³⁰

As noted by Jesús Carrillo Castillo, the woodcuts of the *Historia general y natural de las Indias* had the lure of novelty: the book was the first illustrated natural history ever printed in Spain, and probably the first set of images printed in Europe explicitly devoted to the American flora and fauna.¹³¹ Ramusio’s edition, however, also readapted the images, and “whereas Oviedo’s pictures were conceived as a schematic visual support of a vivid verbal description . . . the illustrations of the Italian translation represented an American landscape where the Indians . . . were operating with the object or species described.”¹³² Through reeditions, copies, and adaptations such as Ramusio’s, Oviedo’s woodcuts of the New World became canonical visions of the plants and animals they represented through most of the early modern period: they had an enduring influence on how the European public was to think about American nature and what they were to expect from it. It is not a surprise, for instance, that Plumier’s most accomplished set of drawings, a series of more than two dozen exquisitely drawn and colored images probably addressed to a selected courtly audience, depicted fruit plants that were found in Oviedo’s *Historia* (fig. 1.7), such as the pineapple and the sugar-apple tree. Like many Renaissance authoritative (illustrated) accounts of the New World’s nature, Oviedo’s largely dictated, well into the late seventeenth century, European readers’ expectations of American flora and fauna.

Plumier listed three other sixteenth-century illustrated works which still influenced the visual representation of American plants in the late seventeenth century. One was Cristóvão da Costa’s abovementioned *Tractado de las drogas, y medicinas de las Indias orientales* (1578), probably in Jacques Daléchamps’s version in his *Historia generalis plantarum* (1586), which copied Cristóvão da Costa’s text and images on East Indian plants in some parts

¹³⁰ In Ramusio’s translation, pp. 113-20 (“dove si tratta de gli alberi fruttiferi”). There were at least eight other books on the flora and fauna of the Americas: the seventh book was about agriculture; the ninth, about wild trees (“alberi selvaggi”); the tenth, about simples and medicinal plants; the eleventh, about plants brought to Hispaniola from Spain, and the twelfth to the fifteenth, about the animals of the island (terrestrial, aquatic, birds, and insects respectively).

¹³¹ On the images of the *Historia general y natural de las Indias*, see José Pardo Tomás, “Le immagini delle piante americane nell’opera di Gonzalo Fernández de Oviedo (1478-1557),” in *Natura-cultura: l’interpretazione del mondo fisico nei testi e nelle immagini*, ed. Giuseppe Olmi, Lucia Tongiorgi-Tomasi, and Attilio Zanca (Florence: Leo S. Olschki, 2000), 133-51; Jesús Carrillo Castillo, “Taming the Visible: Word and Image in Oviedo’s *Historia General y Natural de las Indias*,” *Viator* 31 (2000), 399-431; Carrillo Castillo, *Naturaleza e imperio*, 243-334, and Myer’s *Oviedo’s Chronicle*, 63-81.

¹³² Carrillo Castillo, “Taming the visible,” 403.

Fig. 1.7. Woodcuts from Oviedo's *Historia general y natural de las indias*. The images in the *Historia* were among the very first printed visual representations of the American flora, fauna, and peoples. They had an enduring impact on European imagination and expectations well into Plumier's time. The pineapple and the canoe made of one-piece tree trunks, for instance, became recurrent themes: they can actually be found in a collection of luxurious images that Plumier probably made for the eyes of courtly partons (see fig. 2.4). (Peter H. Raven Library, Missouri Botanical Gardens, St. Louis.)



of book XVIII—Plumier quoted specifically the chapter 140 on the “palo de culebra” analyzed above. The other were the materials collected in New Spain during the 1570s by the Spanish physician Francisco Hernández (1514-1587). Sent to the Americas as *Protomedico Mayor de las Indias* by Philip II of Spain, Hernández compiled a massive amount of textual and graphic material on the nature of the New World, and on the flora in particular. Once back in Europe, Hernández’s papers were eventually deposited in the library of the palace of El Escorial, where they perished in a fire a century after their production, in 1671; before that, several copies were made and traveled through the continent, and some editions of the text and images went into print. Plumier used and listed the famous one by the Neapolitan physician Nardo Antonio Recchi (1540-1595): “Nardus Antonius Rechus, ex Francisco Hernandes, rerum medicarum novae Hispaniae.” Recchi’s was surely neither the only nor the first selective edition of Hernández’s materials, but it certainly was the most diffused. Having succeeded Hernández as Philip II’s personal physician, Recchi was charged with a crucial task for every naturalist, one often forgotten: paperwork. At the end of his life, Recchi’s copies and excerpts from Hernández’s textual and graphic materials (including about six hundred illustrations) ended up in his native Naples, where they later passed into the hands of Prince Federico Cesi, the founder of the *Accademia dei Lincei*. The Linceans

envisaged a publication, almost as ill-fated as Hernández’s papers themselves: when the definitive edition came out in 1651, most of those initially involved in the edition had died, including Cesi.¹³³

What Plumier had in front of his eyes, probably in the library of his convent, was the Linceans’ edition of Recchi’s copies of Hernández papers, published as *Rerum medicarum Novae Hispaniae Thesaurus*, and better known as the “Tesoro Messicano.”¹³⁴ Plumier’s corpus recalls Hernández’s materials in that it also instances the fragile materiality of paper stuff, and the convoluted story of their production and transmission. This is perhaps the reason why the Minim friar referred sparingly to the descriptions and depictions in the Mexican Treasury, while acknowledging the celebrity of Hernández in the late seventeenth century and that of his recently lost papers of the name, *Hernandia*, of one of the botanical genera of the West Indies.

The last Renaissance authority listed by Plumier was Carolus Clusius, or Charles de l’Écluse, a renowned naturalist who was the prefect of the University of Leiden’s botanical garden. The friar listed a “*Historia plantarum Exoticarum*,” in reference to his *Rariorum plantarum historia* (1601) or the *Exoticorum libri decem* (1605)—probably both, for these two well-sold volumes, printed in Plantin’s office, were important sources of information on plants still two centuries after their publication.¹³⁵ More important, both were richly illustrated. Clusius was one of those scholars doggedly holding that sound opinions in matters of (overseas) natural history needed to be based on firsthand observation—a stance easier to state than to bring into actual practice. Nonetheless, if

¹³³ Raquel Álvarez Peláez, *La conquista de la naturaleza americana* (Madrid: Consejo Superior de Investigaciones Científicas, 1993), 101-23; Jesús Bustamante García, “La empresa naturalista de Felipe II y la primera expedición científica en suelo americano: la creación del modelo expedicionario renacentista,” in *Felipe II (1527-1598). Europa y la Monarquía Católica*, ed. José Martínez Millán (Madrid: Parteluz, 1998), 39-59; David Freedberg, *The Eye of the Lynx: Galileo, His Friends, and the Beginnings of Modern Natural History* (Chicago: The University of Chicago Press, 2002), esp. 245-74; José Ramón Marcaida López, *Arte y ciencia en el Barroco español* (Madrid: Marcial Pons, 2014), 142-70.

¹³⁴ *Rerum medicarum Novae Hispaniae Thesaurus, seu plantarum, animalium, mineralium Mexicanorum historia ex Francisci Hernandez novi orbis Medici Primarii relationibus in ipsa Mexicana urbe conscriptis a Nardo Antonio Reccho Monte Corvinate Cath. Maest. Medico et Neap. Regni Archiatro Generali Jussu Philippi II Hisp. Ind. etc. Regis collecta ac in ordinem digesta a Ioannae Terrentio Lynceo Constantinse Germano Pho. ac Medico notis illustrate* (Rome: ex Typographeio Vitalis Mascardi, 1651).

¹³⁵ Carolus Clusius, *Rariorum plantarum historia* (Antwerp: Officina Plantiniana, 1601) and *Exoticorum libri decem: quibus animalium, plantarum, aromatarum, aliorumque peregrinorum fructuum historiae describuntur* (Leiden: Officina Plantiniana, 1605). On Clusius, see the indispensable work by Florike Egmond, especially her *The World of Carolus Clusius: Natural History in the Making, 1550-1610* (London: Pickering & Chatto, 2010). Although here Egmond pays little attention to the printing history of these two books, she minutely traces their sources through Clusius’s widely spread correspondence. For an analysis of the pictures in the *Exoticorum*, see Sachiko Kusakawa, “Uses of Pictures in Printed Books: The Case of Clusius’s *Exoticorum Libri Decem*,” in *Carolus Clusius: Towards a Cultural History of a Renaissance Naturalist*, ed. Florike Egmond, Paul Hoftijzer, Robert Visser (Amsterdam: Edita, 2008), 221-46. See also, in the same volume, the important chapter by Peter Mason, “*Americana* in the *Exoticorum libri decem* of Charles de l’Écluse,” 195-219.

Clusius never set foot in the Americas himself, the Americas came to him: he was conveniently exposed to an intense circulation of *exotica*, and he and his richly illustrated books benefited from the consolidation of both the Dutch commercial expansion and printing trade.¹³⁶ Although the availability of visual and textual information on overseas flora and fauna grew apace during the near century that separated Clusius from Plumier, and although (the author's claims for unmediated observation notwithstanding) the images in both the *Exoticorum* and the *Rariorum* owed a great deal to Plantin's printing practices,¹³⁷ Clusius's volumes (and images in particular) were a constant reference in late seventeenth-century naturalists' work for naming and establishing equivalences between unfamiliar specimens and genera.

The seventeenth-century traveling naturalists: Piso, Marcgraf, Du Tertre

In his enumeration of authorities included among the front matter of the *Description*, Plumier also listed two seventeenth-century, lavishly illustrated works on American nature whose images weighed heavily on the image that European naturalists (and audiences by and large) had of the flora and fauna of the New World. "Guillelmus Piso. Historia naturalis Brasiliae. Lib. IV" and "Georgius Marcgravius. Historia rerum naturalium Brasiliae. Lib. I. II. III." were actually two parts of the same editorial enterprise, the *Historia naturalis Brasiliae*, or the "Natural History of Brasil." Published simultaneously in Leiden and Amsterdam in 1648, the book was practically made from two different works: the first, "De medicina Brasiliensi" (On Brazilian medicine), was written by Willem Piso (1611-1678), a physician from Leiden; the second part, the one specifically mentioned by Plumier in his list, was the "Historiae Rerum naturalium Brasiliae" (Histories of natural things of Brazil), authored by Georg Marcgraf (1610-44), an astronomer of the Dutch West Indies Company.¹³⁸ Both authors coincided for several years in Dutch Brasil, mostly Recife, as part of the scholarly entourage of Johan Maurits

¹³⁶ Mason, "Americana in the *Exoticorum*."

¹³⁷ Kusakawa, "Clusius's *Exoticorum*."

¹³⁸ Marcgraf and Piso, *Historia naturalis Brasiliae*. On Marcgraf, see P. J. P. Whitehead, "The biography of Georg Marcgraf (1610-1643/4) by his brother Christian, translated by James Petiver," *Journal of the Society for the Bibliography of Natural History* 9, no. 3 (1979), 301-14; J. D. North, "Georg Markgraf, an Astronomer in the New World," and P. J. P. Whitehead, "Georg Markgraf and Brazilian Zoology," in *Johan Maurits van Nassau-Siegen, 1604-1678: A Humanist Prince in Europe and Brazil*, ed. E. van den Boogart (The Hague: The Johan Maurits van Nassau Stichting, 1979), 394-471. See also, in the same volume, F. Guerra, "Medicine in Dutch Brazil," 472-93, for the context of Piso's text on tropical medicine. For an editorial history of the *Historia naturalis Brasiliae*, see the recent contribution by Neil Safier: "Beyond Brazilian Nature: The Editorial Itineraries of Marcgraf and Piso's *Historia naturalis Brasiliae*," in *The Legacy of Dutch Brazil*, ed. Michiel van Groesen (New York: Cambridge University Press, 2014), 168-86.

(1604-1679), at the time Earl of Nassau-Siegen and governor of the Dutch possessions in Brazil from 1636 to 1644. Piso, however, was the privileged personal physician of Johan Maurits, whom he accompanied back to Europe at the end of the governor’s mandate; Marcgraf, on the other hand, was sent by the Company to Angola, where he died shortly after his arrival.

Marcgraf’s papers became coveted fodder for publication: his cartographic observations in Brazil were at the origin of a series of maps published in 1647 by Caspar Barlaeus, and his notes on the flora and fauna of the region passed to the hands of Joannes de Laet (1581-1649), a polymath with a particular interest in the Americas. De Laet was one of the directors of the West Indies Company, and as such, he capitalized on the Dutch circulation of information on, and artifacts from, the opposite shore of the Atlantic, on which he never set foot. He edited, extended, and completed Marcgraf’s notes on Brazilian flora and fauna: the result was the eight books published by Piso as the second part of the *Historia naturalis Brasiliae* in 1648, four years after the death of Marcgraf. Unsurprisingly the volume was printed under Johan Maurits’s “auspices and favor” (*auspicio et beneficio*): the governor’s name was (apart from of the printers) the only to appear on the title page.¹³⁹ The *Historia naturalis Brasiliae* can thus be seen as the work of three authors (the exact contribution of de Laet is unknown, but considered to be substantial), all of them linked to the university of Leiden, where the study of the natural world still orbited around the figure and work of Clusius: Piso and de Laet studied at that university (where the latter had actually been a disciple of Clusius), and Marcgraf spent a year there before moving to Brasil.¹⁴⁰

The first part of the *Historia naturalis Brasiliae*, on Brazilian medicine and by Piso, was organized into four books covering the environment of the regions in northern Brazil under Dutch control at that time (“De Aëre, Aquis, & Locis”: on the airs, waters, and topography), the regional endemic diseases, the native venoms and its antidotes and (in the fourth book, the one quoted by Plumier in his lists of authorities) the properties

¹³⁹ As noted on the contents page of the *Historia naturalis Brasiliae*: “Ioannes de Laet, Antwerpianus, in ordinem digessit & annotationes addidit, & varia ab Auctore ommissa suplevit & illustravit.” On de Laet, see for instance Erik Jorink, “Noah’s Ark Restored (and Wrecked): Dutch Collectors, Natural History, and the Problem of Biblical Exegesis,” in *Silent Messengers: The Circulation of Material Objects of Knowledge in the Early Modern Low Countries*, ed. Sven Dupré and Christoph Lüthy (Berlin: Lit, 2011), 153-84. The contribution of Johan Maurits is indicated on the title page of the *Historia naturalis Brasiliae*: “auspicio et beneficio Illustris. I. Mauritii Com. Nassau, illus. provincie et maris summi praefecti adornata.”

¹⁴⁰ Júnia Ferreira Furtado, “Tropical Empiricism: Making Medical Knowledge in Colonial Brazil,” in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (London: Routledge, 2008), 127-51, esp. 132-8.

attributed by the indigenous populations to the simples of the area. The “Histories of the natural things of Brazil” by Marcgraf, the second part of the volume, was organized into eight books: the first three were those also quoted by Plumier, and they treated the vegetable world; the other five were, respectively, about fishes, birds, quadrupeds and snakes, insects, and “the Region itself, & its inhabitants,” to which a supplementary text on the Tapuia and Chilean peoples was added.

All these texts (but particularly Marcgraf’s) were interspersed with handsomely made woodcuts: out of the four hundred pages of the book, more than three hundred included engravings of different sizes on plants and animals (even some few on indigenous populations), probably resulting from the drawings and paintings made by artists in Johan Maurits’s entourage, like Albert Eckhout (ca. 1607-1665).¹⁴¹ Most of the plates were reemployed in another book published ten years later by Piso, *De Indiae utriusque re naturali et medica*—unlike the *Historia*, printed with the author’s name on the title page. This book was composed of three groups of texts: the first, by Piso himself, encompassed six chapters drawing from, and developing, both parts of the *Historia naturalis Brasiliae*; the second, attributed to Marcgraf, consisted of two chapters on the topography and meteorology of Brazil (including observations on a solar eclipse) and his previous text on the language and customs of indigenous peoples; the third group gathered texts ascribed to Jacob de Bondt, or Bontius (1592-1631), on different medical, naturalistic, and even anatomical observations in the Dutch East Indies. A surviving copy of *De Indiae utriusque re naturali et medica*, now in Madrid, bears the ex libris of Plumier.¹⁴²

Although Plumier only mentioned Marcgraf’s contribution to the *Historia naturalis Brasiliae* (those treating the flora), both his and Piso’s writings in the volume were assiduous references in the friar’s books and manuscripts. In actual fact, European knowledge on a good number of American plants was based on the descriptions and figures of the *Historia naturalis Brasiliae* until well into the eighteenth century, even though

¹⁴¹ P. J. P. Whitehead identified the extant sources of the engravings in the *Historia naturalis Brasiliae* and their current location in the Biblioteka Jagiellonska in Cracow (*Libri picturati* A 32-38). See P. J. P. Whitehead, “The Original Drawings for the *Historia naturalis Brasiliae* of Piso and Marcgrave (1648),” *Journal of the Society for the Bibliography of Natural History* 7, no. 4 (1976), 409-422, and the third part of van den Boogart, *Johan Maurits*, 269-538, esp. R. Joppien, “The Dutch Vision of Brazil: Johan Maurits and his Artists,” 297-376.

¹⁴² *Gulielmi Pisonis medici Amstelaedamensis De indiae utriusque re naturali et medica libri quatuordecim. Quorum contenta pagina sequens exhibet* (Amsterdam: apud Ludovicum et Danielem Elzeverios, 1658). Plumier’s copy is in the Real Biblioteca, Palacio Real, Madrid, shelfmarked VIII/15228.

the work was circumscribed to the Brazilian flora and fauna.¹⁴³ Both earned a place in Plumier’s curious hall of fame (his dedications of botanical genera of 1703) with the *Marcgravia* and the *Pisonia*; more important, Plumier relied heavily on the two Dutchmen’s work and images, collating and verifying them against his own observations. Some of his manuscripts were explicitly comments on their written and iconographic work,¹⁴⁴ and both his manuscripts and his *Description* make continuous comparisons with the notes and images of Marcgraf and Piso. For instance, Plumier’s *Phaseolus siliquis latis, hispidis, & rugosis, fructu nigro*, described and figured in his *Description*, was noted to be one of the plants in Marcgraf’s (“c’est le *Mucuna des Brasiliens* de G. Marcgrave liv. I. ch. 10.”), and the friar’s images indeed owed a good deal to those by the latter and Piso, if only in the choice of the parts of the plant to be depicted—Plumier also linked that plant to one of the species in Clusius’s *Exoticorum* (fig. 1.8).¹⁴⁵ The text and especially the images of Marcgraf’s and Piso’s *Historia naturalis Brasiliae* are perhaps the best example of the weight that books and scribal and reading practices—involving both written and visual materials—had in Plumier’s natural historical research, including his field and iconographic work. As will be further evinced in chapter 3, Plumier read in detail the words and woodcuts by the two Dutchmen, copying them by hand, correcting, abridging, and excerpting from them as both an exercise of memory, training in drawing, and form of information management.

Among the bookish authorities listed at the beginning of the *Description*, the only dealing entirely with the West Indian flora and fauna was the work of the French

¹⁴³ Neil Safier, *Measuring the New World: Enlightenment Science and South America* (Chicago: The University of Chicago Press, 2008), 220-1, 230.

¹⁴⁴ For instance, BCMNHN MS 35 “De naturalibus Antillarum, autore patre Carolo Plumier, Ordinis Minimorum provinciae. Tomus primus,” in which he lists plants and descriptions from the *Historia naturalis Brasiliae*. Plumier opens this volume with an “Anotatio”: “Georgius Marcgravius et Guillelmus Piso, unus botanicus, alter uero medicus insignes de plantis et animalibus brasiliensibus historiam naturalem ediderunt. Georgius Marcgravius icones et descriptiones tantum protulit. Piso uero ipsarum facultates in lucem edidit. Piso de centum quadraginta plantis in suo quarto libro disseruit quas omnes nominibus suis insigniuit. Marcgravius uero de ducentis et octoginta nouem. Inter quas sexaginta quatuor innominateae existunt. Harum multas in insulis antillanis reperi, quibus nomina sua adscripsi, et has in synonymis secundum, earum ordinem recensui, uti reperiuntur in libris Lugduni Batauorum et Amstelodami impressis apud Franciscum Hackium et Ludouicum Elzeuirium anno 1648. Annotando scilicet Librum, caput et paginam in quibus reperiuntur. E. C. Eam quam libro primo, capite uigesimo quinto pagina quinquagesima quarta in ordine primam, innominatam dicit, ego eam conuoluulum pentaphyllum hirsutum flore albo appellauit, sic adscribendo.” Plumier also referred to them in the preface to his *Solum, salum, coelum Americanum* (BCMNHN MS 23, fol. 3): “Pisonis, Marcgrauii, multorumque numquam satis laudandorum qui de mirabilibus americanis curiose docteque pertraherunt, scripta lectitando, permulta propter eorum incuriosas delineationes non agnosce.” See appendix 2, pp. 424-6.

¹⁴⁵ Plumier, *Description*, 92-3; Marcgraf, “Historiae Rerum naturalium Brasiliae,” 19 (I quote Marcgraf’s part of the *Historia naturalis Brasiliae* and not the entire volume because the pagination changes); Clusius, *Exoticorum libri decem*, 68 (quoted by Plumier as “le *phaseolus Nigritarum, phaseole des Nègres*, de Clusius dans son liv. 3 des plantes exotiques chap. II [read: 11]”).



blackfriar Jean-Baptiste Du Tertre (1610-1687), né Jacques. As Marcgraf and Piso (or Plumier and Tournefort), Du Tertre largely drew his legitimacy from his being a traveler in the places he wrote about (“this History is sincere & veritable . . . [for] I am ocular witness of most of what it contains, & the rest is based in originals and trustworthy documents”).¹⁴⁶ Having seemingly served in the Dutch navy and army before entering the Dominican novitiate, Du Tertre was sent to the West Indies around 1640 as apostolic missionary of his order, with the vicissitudes typical of such journeys (he was once captured by the English and kept prisoner in Plymouth for six weeks).¹⁴⁷ He returned twice to the French “Ant-Isles” during the 1640s and 1650s. In 1654, Du Tertre published a bulky “general history” of the French West Indian islands, mainly Saint-Christophe (Saint Kitts), Martinique, and Guadeloupe. The first two volumes of his more famous *Histoire générales des Antilles habitées par les François* (General history of the West Indies inhabited by the French [1667-1671]) appeared in Paris over a decade later (and two other volumes appeared soon afterwards).¹⁴⁸ For the writing of the *Histoire des*

¹⁴⁶ Jean-Baptiste Du Tertre, *Histoire generale des Antilles habitées par les François*, vol. 1 (Paris: chez Thomas Jolly, 1667), sig. [a3^v]: “Monseigneur, vous seres persuadé que cette Histoire est sincere & veritable, quand vous sçauvez que je suis témoin oculaire de la plus grande partie des choses qu’elle contient, & que le reste est fondé sur des originaux & des pieces digne [sic] de foy.”

¹⁴⁷ Du Tertre, *Histoire des Antilles*, 506.

¹⁴⁸ *Histoire générale des isles de S. Christophe, de la Guadeloupe, de la Martinique et autres dans l’Amérique* (Paris: chez Jacques Langlois et Emmanuel Langlois, 1654), and Du Tertre, *Histoire des Antilles*. We do not know



Fig. 1.8. (*opposite left*) Woodcut of the *Mucuna des Brasiliens* in Marcgraf's and Piso's *Historia naturalis brasiliae*. (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.) (*opposite right*) Clusius's *Phaseolus Nigritarum* (Biblioteca del Real Jardín Botánico, Madrid.) (*left*) *Phaseolus siliquis latis, hispida, & rugosis, fructu nigro* in Plumier's *Description*. (Bibliothèque nationale de France, Paris.) Plumier related his *Phaseolus* to the species described and pictured in Marcgraf and Clusius. This is a good example of the practices of comparison, verification, and correspondence between observation and bookishness that underpinned natural history at the time.

Antilles, Du Tertre drew from his personal experience on the islands, manuscript documents, and printed accounts. His understanding of historical sources went along the lines described above for antiquarianism and natural history, and the debates over the value of firsthand observation and source criticism resound on Du Tertre's pages.¹⁴⁹ For the first volume, on the history of the French colonial establishment on the islands, Du Tertre derived information from “Concessions, Letters Patent, *Lettres de Cachet*, Commissions from the King, deliberations of the [French West India?] Company, & a quantity of other pieces that I have considered as the solid foundation on which I could ground my History”; the soundness of the sources used for the second volume, on the natural history of the islands, was less clearly stated, even if it was “enriched with several beautiful Figures, which are the most consistent with the things they represent of all those hitherto made.”¹⁵⁰

much about Du Tertre's life; one of the few biographical notes I could find is in [L. G. Michaud,] *Biographie universelle ancienne et moderne* (Paris: L. G. Michaud, 1815), vol. 12, 399-401.

¹⁴⁹ Du Tertre, *Histoire des Antilles*, sig. [a6^r]: “Toutes les choses que contiennent ces deux Livres se rapportent à celles dont i'ay esté témoin oculaire, & qui n'ont point d'autre garand que ma foy & mon honneur, ou aux originaux & pieces autentiques qui m'ont esté communiqués qui se cautionnent d'elle-mesme, ou aux memoires que i'ay recueillis de plusieurs anciens habitans du país, & bien que ie ne me fasse pas absolument le garand de celle-ci comme des autres, ie puis assurer que i'y eu un soin particulier de rejeter tout ce qui m'a paru douteux, & de n'avancer que ce qui me semble le plus probable.”

¹⁵⁰ Du Tertre, *Histoire des Antilles*, sig. [a5^v-a6^r]: “Je n'ay pû me dispenser de mettre dans le premier Volume plusieurs Concessions, Lettres Patentes, Lettres de Cachet, Commission du Roy, deliberations de

And indeed, the two volumes (but especially the one on natural history) included a fair number of copperplate engravings: some few were landscape views, around half a dozen were maps of the region (some of which were rescued from Du Tertre's previous book), half a dozen others were plates presenting various plants and animals, and about seven pictured scenes of West Indian economic and social life (e.g., an "indigoterie" or indigo manufacturing, a "sucrerie" or sugar refinery, the sea turtle fishery, and so forth). Perhaps because these were among the very few printed descriptions and depictions of the flora and fauna of the French West Indies, the text and engravings of Du Tertre's second volume of the *Histoire des Antilles* became a recurring reference for comparison not only in Plumier's botanical books, but also in his manuscript catalogs and lists, written descriptions, sketches, and drawings of Caribbean plants and animals.¹⁵¹ Along with the *Historia naturalis Brasiliae*, Du Tertre's engravings and description were perhaps the printed materials with which Plumier engaged more immediately for a minute correlation between the world read and the world seen. As an example other than the case of the remora analyzed above, the friar often wrote down the names given by Du Tertre to vegetable and animal specimens he had before his eyes, or found in other books—for example, in a set of notes and images he excerpted from Marcgraf and Piso (Plumier's "reading notebooks"), where a good number of the drawings referred to Du Tertre's nomenclature (thus the Dutch *Ambaiba* was the "bois de Trompette du pere du Tertre," and the *Mundubi* equated to the "Pistache du pere du Tertre").¹⁵²

The systematizers: Bauhin, Hermann, Mentzel

A last group of authorities in the list of the *Description de plantes de l'Amérique*—and in Plumier's printed and manuscript corpus by and large—were works not on the natural history of the Americas, but treatises of a more generalist scope and, significantly enough, devoid of images: these were Gaspard Bauhin's *Pinax* [*Pinax*] *Theatri Botanici* (1623), Christian Mentzel's "Pugillus rariorum plantarum," included in his own *Pinax*—

la Compagnie, & quantité d'autres pieces que j'ay considerées comme le fondement solide, sur lequel ie devois appuyer mon Histoire. . . . Le second Volume est l'Histoire naturelle . . . [et] je l'ay aussi enrichie de plusieurs belles Figures, qui sont les plus conformes aux choses qu'elle representent, que toutes celles qui se sont faites jusques à present."

¹⁵¹ There was also Charles Rochefort's *Histoire naturelle et morale des îles Antilles de l'Amérique* (Rotterdam: chez Arnoud Leers, 1658), exquisitely illustrated with half-page copperplates. However, Rochefort's account was heavily criticized by Du Tertre and never mentioned, to the best of my knowledge, by Plumier. Furthermore, some of Du Tertre's images of plants and animals bear a certain resemblance with those in Rochefort's volume. We lack sufficient research on any of these two editorial projects.

¹⁵² BMM MS 913, "Icones plantarum," fol. 24 and 160. Plumier's fascinating "reading notebooks," with abridged manuscript copies of images and texts in printed books, are further analyzed in chapter 3.

also called *Index nominum plantarum universalis* (1682)—, and Paul Hermann’s *Paradisi Batavi Prodromus*, printed with his *Schola botanica* (1689).¹⁵³ Building up on Conrad Gessner’s work (whose *Pinax Phytton*, or “Catalog of plants in Latin, Greek, German, and French” was published in 1542) and his own *Phytopinax* (1596), Bauhin’s *Pinax* was to become a landmark in the study of plants through the entire early modern period.¹⁵⁴ More importantly, Bauhin paved the way for taxonomical works to come; significantly, Bauhin’s *Pinax* was presented in the title as an “Index of the books by Theophrastus, Dioscorides, Pliny, and those written by Botanists since the Origins; proposing with method, depending on their genus and their species, about 6,000 names of Plants presented in these books with their Synonyms and their Differences.”¹⁵⁵ As stressed in the title (and further analyzed below in chapter 4), Bauhin’s *Pinax* advanced an approach to the world of plants that came to structure the classification of nature for most of the early modern period. Two points need to be stressed. First, this was not a classification of plants known as much as a nomenclature or catalog of all the names so far given by botanists to those hitherto known—some 6,000 at that point. Second, Bauhin offered synonyms: he correlated the different names that different authors had given to (what Bauhin considered to be) the same plants.¹⁵⁶ What we would now call natural

¹⁵³ Gaspard Bauhin, Πίναξ [Pinax] *Teatri Botanici Caspari Bauhini Basileens. Archiatri & Professoris Ordin. sive Index in Theophrasti Dioscoridis Plinii et Botanicorum qui à seculo scripserunt opera: Plantarum circiter ex millium ab ipsis exhibitarum nomina cum earundem synonymiis & differentiis* (Basel: suptibus & typis Ludovici Regis, 1623), mentioned by Plumier as “G. Bauhinus. pinax Theatri Botanici”; Paul Hermann, *Schola botanica, sive Catalogus plantarum, quas ab aliquot annis in Horto Regio Parisiensi studiosis indigitavit vir clarissimus Joseph Pitton Tournefort, D.M., ut et Paul Hermannii P.P. Paradisi Batavi Prodromus in quo plantae rariores omnes, in Batavorum Hortis hactenus cultae, & plurimam partem à nemine antea descriptae recensentur* (Amsterdam: apud Henricum Wetstenium, 1689)—Plumier refers to the second part in particular, as “Paulus Hermanus. paradisi Batavi prodromus,” and not to be confused with Hermann’s subsequent and better known *Paradisus Batavus: continens plus centum plantas affabrè aere incisas & descriptionibus illustratas* (Leiden: apud Abrahamum Elzevier, 1698)—, and Christian Mentzel, “Pugillus rariorum plantarum,” in his Πίναξ Βοτανώνυμος Πολύγλωσσος Κατολικός [Pinax Botanonymos Polyglottos Katholikos] *Index nominum plantarum universalis* (Berlin: Officina Rungiana, 1682), listed in the Description as “Mentzelius. Pugillus rariorum plantarum.” Although it might seem only a part of Mentzel’s *Index*, the “Pugillus” actually constituted the main body of the book. Hermann’s “Paradisi Batavi,” on the other hand, was one of the two books (together with the “Schola Botanica” properly speaking) included in his volume, from pages 301 to 386.

¹⁵⁴ Conrad Gessner, *Catalogus plantarum Latinè, Graecè, Germanicè, & Gallicè* (Zurich: apud Christoph. Froschouerum, 1542), and Gaspard Bauhin, ΦΙΤΟΠΙΝΑΞ [Phytopinax] *seu enumeratio plantarum ab Herbarijs nostro seculo descriptarum, cum earum differentiis* (Basel: per Sebastianum Hericpetri [1596]). On the connections between Gessner’s and Bauhin’s works, see Philippe Selosse, “The underlying pattern of the Renaissance botanical genre *pinax*,” in *Opening Windows on Texts and Discourses of the Past*, ed. Janne Skaffari *et al.* (Amsterdam: John Benjamins Publishing Company, 2005), 161-78.

¹⁵⁵ I adapted the name from the translation by Selosse, “Underlying pattern,” 168.

¹⁵⁶ On Bauhin’s *Pinax*, I used the classic by Agnes Arber, *Herbals, Their Origin and Evolution: A Chapter in the History of Botany, 1470-1670* (Cambridge: at the University Press, 1912), esp. 94-6, 130-2, 139-40, 148-52, and the work by Brian W. Ogilvie: *The Science of Describing: Natural History in Renaissance Europe* (Chicago: The University of Chicago Press, 2006), esp. 210-5, and also his “Encyclopaedism in Renaissance Botany: From *Historia* to *Pinax*,” in *Premodern Encyclopedic Texts*, ed. Peter Binkley (Leiden: Brill, 1997), 87-100.

classification or taxonomy was, in seventeenth-century Western Europe, mainly a work with books, authors, and names (and crucially so, even for Plumier's iconographic work, as we will see in chapter 4).

With his "Universal polyglot botanical dictionary" (and note the "universal" and the "polyglot" here), Mentzel's ambition was to update Bauhin's catalog and broaden its scope as far as languages were concerned. Printed in Berlin in 1682, Mentzel's was a gargantuan enterprise—one, however, he had seen fit to impose on his adolescent son so as to have him learn botany. Mentzel faced the challenge of knowing how many plants were actually already known by compiling an alphabetical list of every name that every plant had ever received in virtually every language known so far. True, the book was ambitiously cosmopolitan: it encompassed plant names from not only European, but also non-European languages, such as Native American languages—he mentions "Brazilian, Virginian, and Mexican." After a frontispiece elegantly framed by human allegories of the four continents, the title page listed a long enumeration of languages and dialects ranging from Venetian to Javanese.¹⁵⁷ As Alix Cooper has shown, Mentzel saw his *Index* as a sort of double translation: from the non-European world to the European one, and from the world of popular, indigenous, and vernacular languages to that (in Latin and Greek) of learned scholarship.¹⁵⁸ Yet despite Mentzel's "awareness of globality," the production of his book was extremely localized: he drew those names from the books at the Great Elector's library in Berlin. Hermann, too, was largely following on Bauhin's footsteps with his "Paradisi Batavi," an eighty-page alphabetical list of "exotic plants observed in Dutch gardens." These pages, at the origins of Hermann's more famous *Paradisus Batavus*

¹⁵⁷ I used the copy in the John Carter Brown Library (not all copies included this frontispiece), 1-SIZE J682 .M549i. The impressive list appears as follows: "EUROPAEORUM Latinâ sive vetere Romanâ, Graecâ antiquâ, Italicâ cum suis, Hetruriâe, Istriae, Venetorum, Forojuliensium, nec non insularum adjacentum Malthae, Cretae vel Candiae, Lesbi, &c. Dialectis, Hispanicâ, Lusitanicâ & in ea regnorum Cataloniae, Valentiae, &c. Gallicâ vetere & neotericâ cum suis, Burgundiae, Narbonae, Parisiensium, &c. idiomatibus. Anglicâ, Scoticâ & Irlandicâ. it: Danicâ, Germanicâ cum suis, Silesiorum, Marchicorum, Pomeranorum, Borussorum &c. sermonum proprietatibus. Belgicâ cum sua Brabanticâ. Bohemicâ, Polonicâ, Lituanicâ, Vinidicâ, Rutenicâ, Wallachicâ olim Dacicâ, Hungaricâ, Sclavonicâ, Croaticâ. &c. / ASIATICORUM, Hebraeâ, Chaldaicâ, Syriacâ, Arabicâ, Turcicâ cum sua Tripolitana, &c. Tartaricâ, Persicâ, Malabaricâ, Bramanicâ olim Brachmanicâ, prophetarum, magorûmq[ue], veterum, Zeilanicâ sive Cingalicâ, Javanicâ, Bengalicâ, Sinicâ, Japonicâ, Malaicâ, Coreicâ. &c. / AFRICANORUM Aegyptiacâ, Aethiopicâ, Mauritanicâ sive Barbaricâ & Tunensium, cum poenorum antiqua, Canaricâ & Madagascaricâ. / AMERICANORUM, Brasilianâ, Virginianâ, Mexicanâ & adjacentium populorum aliorûmq[ue] in insulis, & continente solo, hinc inde habitantium, quorum Sermonum monima non omnibus, sed quibusdam tantùm Plantis, quotquot apud Auctores reperta fuerunt, sparsim adposita sunt."

¹⁵⁸ Alix Cooper, "Latin Words, Vernacular Worlds: Language, Nature, and the 'Indigenous' in Early Modern Europe," *East Asian Science, Technology, and Medicine* 26 (2007), 17-59.

(1698), the “Dutch Paradise,” also draw some correspondence between different denominations given to the same plants.¹⁵⁹

The systematizers mentioned in Plumier’s list of authorities hint at a problem that was pervasive and that we will encounter again in the following chapters (especially when tackling the seriality of Plumier’s drawings): namely that, before taxonomy as we know it existed, naturalists were not so much worried about arranging plants and animals into groups as they were about puzzling out how many distinct species there were and, above all, how many were actually already known and had already been described by previous authors.

Although Plumier’s list of “Authors quoted in this volume” aimed at enumerating the works quoted in the friar’s first book on American botany, it actually provides us with a helpful guide to the bookish tradition on which European natural history of the New World relied at the turn of the eighteenth century. The Renaissance classics by Oviedo, Hernández, Clusius, and Cristóvão da Costa, the seventeenth-century illustrated volumes by Piso, Marcgraf, and Du Tertre, and the works on botanical systems by Bauhin, Hermann, and Mentzel constituted the bookish horizon in relation to which Plumier’s work took shape. It is delicate to assess how much of Plumier’s iconographic corpus was actually made in the field, or even in the West Indies, and how much in the library or cells of his Parisian convent, or onboard a ship. But it seems reasonable to believe that, even for a traveler and firsthand observer like the Minim friar, the library never ceased to be a central space in the production of knowledge on overseas natures, in one way or another. Plumier’s papers and printed volumes offer a good insight into the way in which fieldwork, direct observation, and visual representation were practices closely related, in the work of late-seventeenth-century naturalists, with practices such as poking around in books. However dramatically practitioners portrayed the mythical and long-lasting turn from the “little books of men” to the “great Book of Nature,” the commerce with classics was central to the making of natural history. Texts and images, printed books and manuscript papers did not need to provide the actual sources for Plumier’s images for playing an important role in what and how was represented in them. Seen in this light, the friar’s iconographic corpus invites us to reassess the contours of firsthand observation by contextualizing it within a broader history of the place that

¹⁵⁹ Hermann, *Paradisus Batavus*.

information management had in the enterprise of natural historical knowledge: in other words, to nuance any intuitive distinction between the worlds of travel and the worlds of scholarship.

Conclusion

This chapter sought to address the place that visual representations played in the making of natural history in late seventeenth- and early eighteenth-century France. In doing so, it revealed the pressing epistemic uncertainties with which naturalists were coping at the time. They proudly proclaimed that these could only be waived by departing from the bookish tradition, a claim that was far from new in the world of scholarship. As Francis Bacon put it famously more than half a century earlier: “down with antiquities and citations or supporting testimonies from texts; down with debates and controversies and divergent opinions; down with everything philological.”¹⁶⁰ But for those among Plumier’s contemporaries who, like Perrault and Tournefort (and unlike Plumier himself), explicitly reflected upon these questions, the problem was one that affected the sources of their knowledge: it was the danger, in Perrault’s words, “of being misled by the testimonies [one] works with.” History, a knowledge based on a descriptive approach to particulars, required uncontroversial sources (“*tali prove*,” Coronelli said), namely the plants, animals, and antiquities themselves. Visual representation offered, for both antiquarians and naturalists, a valuable instrument for stockpiling such evidence by means devoid of interpretation and controversy.

Yet, as this chapter aimed at showing, the work of naturalists as concerned with the factual as Plumier and his contemporaries was not alien to bookish culture altogether. Their self-portrayal as intrepid travelers was not at odds with a rather sophisticated work with books. As a matter of fact, they lent credence to previous scholars: a much-needed intellectual certainty in matters of natural knowledge could only be attained by combining direct observation with the mastery of the literary corpus. The terms according to which late seventeenth-century advocates of firsthand observation engaged with printed words and figures were best articulated by Tournefort, for whom one of the principal aims of botany was to carry out the “critique of the authors that have written about these plants, & whose descriptions are not consistent with the natural.” Naturalists could only operate

¹⁶⁰ Francis Bacon, *Novum organum*, aphorism 3, quoted in, and translated by, Anthony Grafton, *Defenders of the Text: The Traditions of Scholarship in an Age of Science, 1450-1800* (Cambridge, MA: Harvard University Press, 1994 [1991]), 2.

usefully as observers by being fully aware of what was already known in the Western tradition. Scholars like Perrault, Dodart, Tournefort, or Plumier were far from pretending to rewrite natural knowledge from scratch. Even when aspiring to a history of natural particulars, they overtly reached, to use Dodart’s words, for “ancient and modern Authors . . . so as to confront their descriptions with ours.”

We need to understand Plumier’s iconographic archive of the West Indian nature within this intellectual context, one structured around practices of comparison, correspondence, and verification of the world of plants and animals with the world of books. In the corpus of the Minim friar, text and images were intertwined in various ways. In crafting a gargantuan collection of images resulting from his own firsthand observation on the islands, Plumier not only dialogued with the scholars of his own time, but also with the literary tradition that late seventeenth-century naturalists claimed to rebuke. Traveling with a view to observing with one’s own eyes—as well as crafting images for the sake of collecting sound sources for a historically oriented knowledge of nature—stood as modes of reading or at least of engaging with the printed world.

2. “Par les ordres du Roy”

The Culture of Scientific Royal Patronage in Louis XIV’s France

In September 1746, Carl von Linnaeus, long praised as the father of modern taxonomy, was replying to a letter of the Swedish Royal Academy of Sciences. The society that he had helped found was asking him to recommend a naturalist whom they wished to send to China on the boats of the national East India Company: they intended this to be the first of a series of scholars to be funded annually to botanize in the Far East. In his reply, Linnaeus praised the project of the Academy: it would allow Sweden “to shine brilliantly amongst all curious nations; we, who before have scarcely known how to tell the difference between fir and larch, shall now be able to teach foreigners to count the eggs in the polipy [*sic*].” Linnaeus’s patriotic pride was pleased not only by the prospect of Swedish scholars being able to instruct others on the intricacies of the sexual reproduction of polyps, but also by the Academy’s intention to make such an assignment on a regular basis: systematically sending a naturalist every year would allow Sweden to surpass exemplary precedents. The Prince of Botanists evoked a specific one: that of Louis XIV’s support to traveling naturalists like Joseph Pitton de Tournefort in the countries of the Eastern Mediterranean; Louis Feuillée (1660-1732) in South America; the brothers Alexandre (n.d.) and Jean-Baptiste Lignon (b. ca. 1667) in Guadeloupe; Joseph-Donat Surian (d. ca. 1691) in the West Indies; Joseph-François Lafiteau (1681-1746) in North America—and Charles Plumier.¹

In Linnaeus’s comparison is suggested a link between state and traveling naturalists that would endure and strengthen over time until the present day. Plumier has recurrently been considered to be part of a generation of French naturalists entrusted by the absolutist government of Louis XIV explicitly to collect information in the colonies and bring it back to France. This material, mostly on the flora and fauna of overseas territories and sometimes published in the metropolis, would have served the ambitions of the “Colbertian” state to gather and accumulate information of any kind on the

¹ Linnaeus to Pehr Elvius, Uppsala, September 23, 1746, in the Linnaean Correspondence digital project, <http://linnaeus.c18.net>, letter L0732. An English translation is available in Albert Alberg, *The Floral King: A Life of Linnaeus* (London: W. H. Allen & Co., 1888), 156-58.

territories under their sovereignty.² Plumier and his drawings and prints of West Indian plants and animals offer a privileged case study in this sense. His career was not that of a marginal individual with respect to this institutional scientific machinery: on the contrary, it contains all the elements to be interpreted as an integral part of it. Pensioned by the state and allowed to exhibit the sumptuous title of *botaniste du roi*, Plumier undertook three government-sponsored trips to the French West Indies; what is more, his two lavishly illustrated books on botany were printed at the king's expense and at the king's presses housed at the Louvre Palace. His books repeatedly presented themselves as the results of voyages undertaken "par les ordres du Roy"—by the orders of the king—which became a pervasive formula mushrooming in the accounts of scholars traveling under the aegis of the crown. These elements of a thriving career caused him to be described as an "agent and protégé" of that increasingly administrative and information-amassing monarchy of late seventeenth-century France.³ Hence naturalists like Plumier, traveling through the West Indies and the Levant, through South and North America, have been integrated into a narrative of a highly bureaucratized and centralized "scientific arm" of the *ancien régime*.⁴ They came to epitomize the place natural history has been attributed in the construction of the modern state: like Linnaeus, historians looked back and the cohort of botanists traveling under the aegis of the Sun King appeared as the forerunners of those grand expeditions of the second half of the eighteenth century in which "natural history became a powerful political tool of enlightened economic reform" and colonial control.⁵

Yet the myth of origins needs to resemble the present it serves rather than the past it evokes. In an effort to transcend individual experiences and draw large historical narratives, historians have sometimes placed Plumier and other late seventeenth-century traveling naturalists at the service of a successfully absolutist monarchy: the modernist reading of the political system under the reign of Louis XIV draws a picture of completeness of the government's monopoly of information management and knowledge control that seems closer to the ideal that the power may have aspired to than

² On the information system of the "Colbertian" state, see Jacob Soll, *The Information Master: Jean-Baptiste Colbert's Secret State Information System* (Ann Arbor: The University of Michigan Press, 2009).

³ James E. McClellan, *Colonialism and Science: Saint Domingue in the Old Regime* (Chicago: University of Chicago Press, 2010), 113.

⁴ James E. McClellan and François Regourd, "The Colonial Machine: French Science and Colonization in the Ancien Regime," *Osiris* 15 (2000), 31–50, and James E. McClellan and François Regourd, *The Colonial Machine: French Science and Overseas Expansion in the Old Regime* (Turnhout: Brepols, 2011).

⁵ Paula De Vos, "Natural History and the Pursuit of Empire in Eighteenth-Century Spain," *Eighteenth-Century Studies* 40, no. 2 (2007), 230.

to the reality it had to grapple with. This chapter follows the scarce remaining traces of this botanist’s relationship with his sponsoring individuals and institutions in order to interrogate the part that the visual materials resulting from his travels played in it. It will call attention to the dangers of a literal reading of the official rhetoric surrounding traveling naturalists: the title of royal botanist or the motto “on the orders of the King” invite an institutional interpretation that risks, however, dismembering the agency of both the scholars and the patrons involved in this sort of royal sponsorship. The following pages aim at recomposing this. That overseas scientific travels such as Plumier’s were sponsored by the government does not mean that traveling naturalists were obedient agents of a coherent sort of state, or that such kinds of scholarly enterprises were consciously integrated into a cohesive project of global expansion. The chapter shows the fragility of patronage bonds, and the crucially important mediating role that Plumier’s corpus of images, both as a discourse (on the Americas) and as an object (of collectors’ desire) played in ensuring a fairly stable royal support for his travels.

The career of the Minim friar and *botaniste du roi* Charles Plumier as a traveling naturalist sponsored by an undeniably developing state such as late seventeenth-century France poses the problem of how to integrate individual fortunes within a larger account of the equation of knowledge and empire in absolutist France. This is a major historical question, and it is partially echoed in the materials this and other somewhat nomadic scholars circulated—the journals they wrote, the specimens they shipped, the images they drew, the lists they compiled. Naturalists like Plumier had to move in, and negotiate with, both very different communities—from savants to patrons and ministers—and networks—from the urban dynamics of Paris to the trans-Atlantic imperial spaces. Some of his patrons were at the same time prominent officers of the navy administration and passionate collectors and amateurs of botany and art. Images like Plumier’s were at the very same time commodities in the market of luxury trade, objects of curiosity, works of art, part of the state machinery devoted to the glory of the king, descriptions of the natural world informed by concrete modes of inquiry, and pieces of the puzzle of nature in which scholars were attempting to find an order at that time. In late seventeenth-century France, the royal patronage of traveling naturalists was grounded on these different, though profoundly congruent, dimensions of natural history.

This chapter aims at analyzing the central role that Plumier’s corpus of images played in securing him royal patronage. Plumier was not originally engaged by the monarchy to produce his iconographic archive or to collect information on the colonies’

natural worlds in view of a use in terms of imperial control from a distance. His images, however, eventually showed a potential not only for aesthetic receptions among courtly audiences, but also to serve the glorification of the monarchy—which, somewhat fortuitously, allowed Plumier to secure royal patronage for his trans-Atlantic journeys.

The chapter proceeds in four parts. First, I will look at Plumier’s formative years at the French Minim convent of the Pincian Hill in Rome. These are meaningful for his later career for two reasons: first, by the late seventeenth century, the community of friars at that convent had reinforced their tight allegiance to the French king in the frame of the tense diplomatic relationships between the crown and the Holy See; second, they constituted an intellectual community which developed a particular blend of craftsmanship and natural inquiry, one that actually became pivotal in their negotiating patronage within transnational networks. Plumier’s first travel to the Caribbean in the company of a fellow botanist will be the object of the second section: their divergent paths embody the different ways in which each of them built his relationship to the state. The last two sections will deal with how Plumier secured royal largesse for his botanical research in the Caribbean by, first, establishing himself as a reliable go-between for the colonial and metropolitan authorities and, second, by effectively integrating networks of learned exchange in which the boundary between expertise and amateurship, between art and science, if any, was fluid.

Craftsmanship and royal patronage at the *Trinità dei Monti*

Before Plumier was entrusted by the French State with his first natural exploration of the Caribbean islands, he had been botanizing in Southern France for about six years, occupied with the observation and description of the flora of the region and with the ambition of composing a general catalog of plants. Although one of the friars of the Minim convent of Bormes, a Provençal town one hundred kilometers from Marseille, he was granted “permission to wander through the coasts of Provence, & the Mountains of the Alps in order to discover the most curious things regarding plants.”⁶ Yet botany was a new passion for the friar. Right before arriving in Bormes in 1681, Plumier had spent five years in the convent of his order in Rome: there, the study of plants came to hold

⁶ Charles Plumier, *Description des plantes de l’Amérique avec leurs figures* (Paris: de l’Imprimerie royale, 1693), sig. a3^r: “L’obeissance m’ayant rappellé dans ma Province, j’obtins de mes Superieurs la permission de parcourir les costes de Provence, & les Montagnes des Alpes, pour y decouvrir ce qu’il y a de plus curieux en matière de plantes.”



Fig. 2.1. “Piazza della Trinità de Monti,” etching by Israël Silvestre, ca. 1660. The French Minims at the Trinità were under the direct patronage of the French crown: the convent was part of France’s territorial pretensions over the papal city—just as much, actually as Silvestre’s print, which was part of a collection of plates on “French Rome.” (Fabien Silvestre.)

sway. However, like the large majority of his fellow Minim friars who indulged in intellectual endeavors, Plumier took his first steps in the world of scholarship through mathematics. At some point during his twenties, he left Marseille for the Minim community in Toulouse, where a distinguished French mathematician from the order, Father Emmanuel Maignan taught mathematics. Maignan had come to be a prominent scientific figure of his time, a renowned Catholic scholar whose work stood at the intersection of mathematics, physics and theology. His life’s work aimed at building up a critique of scholastic Aristotelism by offering an alternative to it: his ambitious program of natural philosophy attempted to reconcile theological knowledge and the culture of experimentalism spreading at that time among students of natural philosophy. Maignan was born in Toulouse, where he spent most of his life as professor of mathematics in the monastery of his order, except for nearly fifteen years, during which he lived in Rome. In 1636, he moved from Toulouse to the convent of *Trinità dei Monti*, a French community of Minim friars located at the very heart of the capital of Catholicism: there he taught mathematics and took up the direction of the *studium*, the college of the congregation. He soon became well integrated in the Roman clientele networks and scientific milieu: under the protection of Cardinal Bernardino Spada, an influential artistic patron and former papal nuncio in Paris, Maignan engaged among others in the debates and experiments on

the vacuum that took place in the Papal city around the 1640s. Appointed provincial of Aquitania in 1651, he returned as professor of mathematics to his old Toulouse convent, where Plumier went to meet him at the end of the 1660s.⁷

Plumier moved to Trinità dei Monti in 1676, perhaps encouraged by Maignan, who died that very year. The church of the Santissima Trinità dei Monti, at the top of the Pincian Hill and what came to be known as the Spanish Steps at Piazza Spagna, is nowadays one of the iconic images of Rome's urban landscape (fig. 2.1). Since long before the Spanish Steps were built in the 1720s, the convent of the Trinità had housed a small congregation of French friars whose constitution resulted from a peculiar game of allegiances: their almost mythical origins go back to the founder of the Minims himself, the Calabrian hermit Francis of Paola, who placed both the order and the Roman convent under the patronage of King Louis XII of France. A Catholic congregation in the heart of Rome, but under the direct protection of the kings of France, the history of the community of Trinità is marked by a tension that only aggravated over time.⁸ By the time Plumier arrived to the hillside, the long dispute for the control of the Pincio had just been closed in favor of the French due to the resolute actions of Louis XIV and the Minims' displayed loyalty to the Most Christian King. Located at the very heart of the capital of the Post-Tridentine Church, but placed under the protection and patronage of the increasing Gallican French crown, the Minim community of the Trinità epitomized the specificity of Plumier's career under the sponsorship of the French state.

Parallel to these developments (or perhaps as a direct consequence), the French Minim community in Rome became one of the most dynamic spaces of scholarship in the city during the second half of the seventeenth century—roughly the period in which both Maignan and Plumier sojourned at different moments. Their history has surely been

⁷ Antonella Romano, "Mathematics and Philosophy at Trinità dei Monti: Emmanuel Maignan and His Legacy between Rome and France," in *Conflicting Duties: Science, Medicine and Religion in Rome, 1550-1750*, ed. Maria Pia Donato and Jill Kraye, Warburg Institute Colloquia 15 (London: The Warburg Institute, 2009), 157–80, and Valérie Malabirade, "Les Minimes et la province d'Aquitaine sous l'Ancien Régime: Un cadre provincial pour un engagement intellectuel?" 2 vols. (PhD diss., Université Michel de Montaigne Bordeaux 3, 2013), 269–394.

⁸ An illustrative episode of this tension took place in 1620, when the Minims of the Trinità addressed a letter to Louis XIII signed in "Your house of the Trinitè du Mont in Rome . . . [by] Your subjects and prayers," the friars of the convent. The members of the community complained to their monarch about the attacks they were suffering from other Roman congregations because of their being "under the authority of our Kings and housing only their natural subjects," that is, Frenchmen. The friars turned the question in a very interesting way: the problem was not that these attacks, whatever they were, could undermine their "particular interest," but the "honor of Your Majesty and the French Nation, who has only this Convent in the whole of Italy, and perhaps in all the rest of the provinces outside France, with such prerogative." The letter requested Louis XIII to make his ambassador in Rome renew the zeal of his protection of the Minims, seemingly relaxed in the previous times. BIF MS fonds Godefroy 268, fol. 258.

overshadowed by better-studied centers of learning and research, such as the Jesuit *Collegio Romano*. The inclination towards scholarship of that community as a congregation of the order of Minims is difficult to explain in institutional terms, at least if compared with other Catholic orders in the early modern period, such as the Company of Jesus. In contrast to the Jesuits, the Minims did not count among their duties any kind of educational apostolate; directing its members rather towards a contemplative and penitential life, the order of St. Francis of Paola did not leave much place for learned concerns in its founding regulations.⁹ That being said, libraries happened to hold a central place within several Minim communities during the entire early modern period, and the Roman convent provides a good example: a contemporary of Plumier noted that the scholarly reputation of the community at the Trinità at the time was in good part due to its richly furnished collection of books.¹⁰

Scholarship might not have been part of their institutional and spiritual disposition, but their special situation (both geographical and political) in the middle of the tense Franco-papal relations surely helped strengthen the Pincian community as lively hub of intellectual exchange, particularly in the realm of exact and natural sciences. Naturally enough, they established themselves as a human hinge between Rome and Paris. The circulations between the Trinità and the Minim convent of Place Royale in Paris, where Mersenne and Plumier himself spent most of their lives, appear to have been frequent and dynamic. The Roman convent became a place where French scholars of the order met and spent some time: Maignan stayed there for more than a decade; Plumier made it his home between 1676 and 1681; the mathematician and artist Jean-François Nicéron, close to Mersenne and a renowned expert on anamorphic optics and *trompe-l'œil* art—his *Perspective curieuse* appeared in 1638—stayed for a short time in Rome with Maignan.¹¹

⁹ Pascal Dubourg Glatigny and Antonella Romano, “La Trinité-des-Monts dans la ‘République romaine des sciences et des arts,’” *Mélanges de l’École française de Rome. Italie et Méditerranée* 117, no. 1 (2005), 17–20.

¹⁰ This is the abbé Carlo Bartolomeo Piazza (1632-1713) in his *Euseuologio romano* (Rome: per Domenico Antonio Ercole, 1698), book XIII, chap. 22, quoted in Dubourg Glatigny and Romano, “La Trinité-des-Monts,” 22–23.

¹¹ Jean-François Nicéron, *La perspective curieuse, ou magie artificielle des effect merveilleux de l’optique, par la vision directe; la catoptrique, par la reflexion des miroirs plats, cylindriques & coniques; la dioptrique, par la refraction des cristaux* (Paris: chez Pierre Billaine, 1648). Two other mathematicians and physicists of the order, Thomas Le Seur (1703-1770) and François Jacquier (1711-1788), sojourned in the Trinità during the second half of the eighteenth century. The two of them became particularly known in the scientific milieu of their time for their edition of Newton’s *Principia mathematica*, in which they clarified the work of the Englishman proposition by proposition and defended his physics against Cartesianism: *Isaaci Newtoni philosophiae naturalis principia, perpetuis commentariis illustrata communi studio PP. Thomae Le Seur et Francisci Jacquier*, 3 vols. (Geneva: typis Barillot et Fili, 1739-42). Later, Pope Benedict XIV charged them with the reform of Michelangelo’s decaying dome at the basilica of St. Peter. Jacquier was also the first holder of the chair of experimental physics in the university of La Sapienza, where a large audience attended the spectacular magnetic,

The lively intellectual atmosphere in the Roman congregation is partially echoed in the few comments by Plumier on his years in Rome. According to a chronicler writing at the beginning of the nineteenth century, Plumier lived there from September 2, 1676, to January 5, 1681, where he shared quarters for a year with another of Maignan's disciples (and his biographer) Jean Saguens (n.d.).¹² It was in Rome where Plumier turned towards botany from his early interest in mathematics and optics, which had originally led him to Toulouse and to the convent of Trinità itself.¹³ In the preface of his *Description des plantes de l'Amérique*, printed not long before his third journey to the Americas, Plumier attributed the origin of his fascination for the study of plants to his Roman years and to the "curious demonstrations that the Reverend Father Philippe Sergeant, very skilled Pharmacist, friar of our Order from the Province of France, & Monsieur François d'Onuphriis, Roman Physician, made in our Royal convent of the *Trinité du Mont* in Rome. I then rudely left the study of Mathematics, which constituted my main occupation until that moment, and I applied myself to Botany."¹⁴ Little is known about this Father Philippe Sergeant, but his "curious demonstrations" impressed Plumier enough for him to dedicate his master a new botanical genus of American plants. The description of the *Serjeana* in the *Nova plantarum americanarum genera* came with a short biographic note on his former teacher: "expert on botany, and skilled physician," Sergeant seemingly spent about twenty-five years in Rome and came to epitomize, like Maignan and Plumier, the intellectual dynamism of the axis between Rome and Paris.¹⁵

electrical, and pneumatic experiments he performed during his courses. On Le Seur and Jacquier, see J. B. Shank, *The Newton Wars & the Beginning of the French Enlightenment* (Chicago: The University of Chicago Press, 2008), 390–91, as well as Federica Favino, "Minimi in 'Sapienza': François Jacquier, Thomas Le Seur et il rinnovamento dell'insegnamento scientifico allo studium urbis," and Pascal Dubourg Glatigny and Marianne Le Blanc, "Architecture et expertise mathématique : la contribution des minimes Jacquier et Le Seur aux polémiques de 1742 sur la coupole de Saint-Pierre de Rome," in Dubourg Glatigny and Romano, "La Trinité-des-Monts," 189–218 and 159–87.

¹² Charles Martin, "Histoire du couvent royal des Minimes français de la très sainte Trinité sur le mont Pincius à Rome," quoted in Romano, "Mathematics and Philosophy," 176. Jean Saguens, *De vita, moribus, et scriptis r. Patris Emanuelis Maignani Tolosatis . . . eulogium* (Toulouse: n.p., 1687).

¹³ Laurent-Henri Vignaud, "Des mathématiques à la botanique. La conversion scientifique du père Charles Plumier durant son séjour à Rome (1676-1681)," in Dubourg Glatigny and Romano, "La Trinité-des-Monts," 131–57.

¹⁴ Plumier, *Description*, sig. a3^r: "Je dois la première inclination que j'ay eüe pour l'étude des plantes, aux curieuses demonstrations que le R. P. Philippe Sergeant, tres-habile Pharmacien, Religieux de nostre Ordre, de la Province de France, & M. François de Onuphriis Medecin Romain, firent dans nostre Couvent Royal de la Trinité du Mont à Rome. Je quittay deslors insensiblement l'étude des Mathematiques, qui avoient jusques à ce temps-là fait ma principale occupation, pour m'appliquer à la Botanique."

¹⁵ Charles Plumier, *Nova plantarum Americanarum genera* (Paris: apud Joannem Boudot, 1704), 34: "Reverendus Pater Philippus Sergeant Caletanus, Ordinis Minimorum Provinciae Franciae, Botanices peritus, Medicinae peritior, quam viginti quinque annorum decursu Romae tam foeliciter exercuit, ut parvis aequae ac magnis ob charitatem semper extiterit gratissimus. Tota lugens amisit Roma, tota exultans susceptit Lutetia."

As for the Neapolitan Paolo Boccone (1633-1704), he was one of the most distinguished naturalists in seventeenth-century Italy: one of the “herbalists” of the Grand Duke of Tuscany, Boccone traveled extensively throughout Europe, published a dozen books on natural history (he was particularly renowned for his works on coral), and entered the Cistercian order in 1682, about the same time when Plumier seemingly met him in Rome.

The sort of scholarly work developed by the members of the congregation at the Trinità features another specificity that helps us to understand Plumier’s drawings on West Indian plants and animals. The friars developed a tradition characterized by a permeability between scholarly endeavors and the networks of artistic patronage. The work of Jean-François Nicéron on catoptrics and dioptrics illustrates this bond between artistic skills and natural pursuits, on which Plumier’s career at the service of the French monarchy would be grounded. Another example is that of Emmanuel Maignan and his research in the field of optical theory and instrumental practice: Maignan was particularly interested in the theory of light, perspective, gnomonics (the science of sundials), and anamorphosis (the art of distorted projections and visual delusions). He produced stunning works that sought (and found) the delectation of both the learned and the curious. In 1648, Maignan published his *Perspectiva horaria*, a treatise on optics drawing from two practical experiences in this field carried out by him in the Trinità, and still extant today.¹⁶ The first was a sundial drawn in one of the corridors of the convent and indicating the hour in different parts of the world, including the Americas. The second was an anamorphosis, or delusive fresco, in which what at first sight seemed like the landscape of Calabria revealed itself, when looked at from an oblique angle, as the portrait of St. Francis of Paola, the founder of the order (fig. 2.2).¹⁷ These two pieces by Maignan instance the congruence of the delightful and the enlightening in works holding at the same time aesthetic and intellectual values without conflict. As Matthew L. Jones stressed apropos of Nicéron, “perspective and associated practices such as anamorphoses were understood as powerful techniques for instructing, intriguing, and delighting” in the late seventeenth century.¹⁸ As we will see more clearly in the case of Plumier, the boundary between craftsmanship and scholarship was fluid and permeable

¹⁶ Emmanuel Maignan, *Perspectiva horaria, sive de horographia gnomonica tum theoretica, tum practica libri quatuor* (Rome: typis, & expensis Philippi Rubei, 1648). See Romano, “Mathematics and Philosophy.”

¹⁷ Pascal Julien, “Anamorphoses et visions miraculeuses du père Maignan (1602-1676),” in Dubourg Glatigny and Romano, “La Trinité-des-Monts,” 45–71.

¹⁸ Matthew L. Jones, *The Good Life of the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue* (Chicago: The University of Chicago Press, 2006), 183.



Fig. 2.2. The elaboration of the anamorphic fresco of Saint Francis of Paola by means of distorted perspective, from Maignan's *Perspectiva horaria*. The anamorphosis was made by Maignan and probably Nicéron, both perhaps represented in this scene. The fresco can still be seen today in the convent of Trinità in Rome: while a front view of it presents what seems to be a Calabrese landscape, an oblique vantage point reveals this to be a portrait of the founder of the order of Minims, St. Francis of Paola. (Bibliothèque nationale de France, Paris.)

in the scientific work of the Minims; what is more, such works appeared to them as liable to be used for fostering a salutary curiosity among amateurs.

Both Maignan's anamorphosis and Plumier's drawings of America fauna and flora were composed of different layers: they constituted a way of expression of the scientific contributions of their authors, even of very concrete theoretical ideas: on catoptrics and dioptrics in the case of Maignan, on descriptive natural history in that of Plumier. At the same time, moreover, they called for aesthetic appreciations that allowed them to circulate beyond the borders (already fluid) of the most hermetic scholarly community, and thus enter the circuits of amateur patronage.

Surian and the first journey to the Americas: the erratic fates of natural history overseas

Sometime around 1687, six years after his return from Rome, Plumier, aged forty-one, was instructed for the first time to cross the Atlantic and to do so "on the orders of the King." In charge of this crown-sponsored project of natural exploration of the Caribbean basin was Intendant-General of the Galleys in Marseille Michel Bégon. Bégon was already by that time an influential patron, passionate for both the arts and natural knowledge, and he eventually came to be the most determining figure in Plumier's career as a crown's scholarly protégé. In the preface of his *Description*, Plumier tells us that Bégon, "so known by the scholars and who finds time, in spite of his important employments, to devote himself to the Study of the sciences, wished to satisfy the King's orders to find someone able to make the travel to our West Indies Isles (of which he had been Intendant) in order to research the rarest & most curious things Nature has

produced.” The man they found, however, happened not to be Plumier, but a physician and botanist from Marseille, as little known at the time as he is now, called Joseph-Donat Surian. It was presumably on the suggestion of Surian that Plumier was hired for the mission: the latter tells us that Bégon “proposed this journey to Monsieur Surian . . . & charged him to find someone able to help him in the execution of this design. Monsieur Surian proposed the task to me: I accepted with pleasure, & some time thereafter we undertook the journey on the orders of His Majesty.”¹⁹

Apart from a few lines in the preface of the *Description*, information on this voyage is scarce, with the exception of some administrative documents. On July 22, 1687, Secretary of State of the Navy Jean-Baptiste Colbert, Marquis de Seignelay—Colbert’s son and successor at the head of the French maritime forces—issued an order to give Plumier protection in the colonies. The document was addressed to the governor and lieutenant of the Isles of America, the count of Blenac, and to the intendant of the Windward Islands, Gabriel Dumaitz de Goimpy. It stated that the Minim friar was sent together with the physician Surian in order to “work on the properties of plants, seeds, oils, gums and essences, and to dry [*desseicher*] birds and fishes and other animals of that country.”²⁰ In fact, the exact same formula was used in the order issued for Surian.²¹ No mention

¹⁹ Plumier, *Description*, sig. [a3^{r-v}]: “M. Begon, si connu des savans, qui trouve au milieu de ses grands emplois des momens à donner à l’Etude des sciences, estoit pour lors Intendant des Galeres à Marseille. Il souhaitoit pour satisfaire aux ordres du Roy, de trouver quelqu’un qui peüst faire le voyage de nos Isles Antilles (où il avoit esté Intendant) pour y faire la recherche de tout ce que la Nature y produit de plus rare & de plus curieux. Il en fit la proposition à M. Surian, fort capable . . . & luy donna en mesme temps commission de chercher quelqu’un qui fust en état de l’ayder dans l’execution de ce dessein. M. Surian m’en fit la proposition: j’y donnay les mains avec plaisir, & nous entreprismes quelque temps après le voyage par les ordres de Sa Majesté.” On Surian I only found two brief biographical notes in nineteenth century works: Louis-Gabriel Michaud, ed., *Biographie universelle ancienne et moderne, ou Histoire par ordre alphabétique de tous les hommes qui se sont fait remarquer* . . . , vol. 44 (Paris: Michaud frères, 1826), 226; L. G., *Précis de l’histoire de la botanique pour servir de complément à l’étude du règne végétal* (Paris: Louis Guérin et Cie., 1871), 59. François Regourd wrote some interesting pages on Surian in his PhD dissertation, based mostly on the same sources I use here: Regourd, “Sciences et colonisation sous l’Ancien Régime. Le cas de la Guyanne et des Antilles françaises, XVII^e-XVIII^e siècles,” 4 vols. (PhD diss., Université Bordeaux III-Michel de Montaigne, 2000), 286-8.

²⁰ Royal Order of July 22, 1687, in ANOM Colonies E 337bis, fol. 95: “Sa Majesté envoyant aux Isles de l’Amérique le père Charles Plumier Religieux de l’ordre des Minimes pour y travailler avec le sieur Surian Medecin Botaniste pour y travailler a descouvrir les propriétés des plantes, grains, huilles, gommess et essences et a desseicher des oyseaux et des poissons et autres animaux de ce pays, elle mande, et ordonne au sieur Comte de Blenac Gouverneur et lieutenant general desdites isles, au sieur Du Mainz de Goimpy, et au Gouverneurs particuliers et autres Officiers desdites Isles de donner au Pere Charles Plumier tout le secours et toute la protection dont il aura besoin pour executer ce qui est en cela de ces intentions.”

²¹ Royal order of June 30, 1687, in ANOM Colonies B 13, fol. 25^r, quoted in Odile Krakovitch, “La vie intellectuelle dans les trois couvents minimes de la Place Royale, de Nigeon et de Vincennes,” *Bulletin de la Société de Paris et de l’Île-de-France* 109 (1982), 112: “De par le Roy, Sa Majesté envoyant aux isles de l’Amérique le sieur Surian, médecin botaniste avec un religieux de l’ordre des minimes pour y travailler à découvrir les propriétés des plantes, grains, huilles, gommess et essences, et à desseicher des oyseaux et des poissons et autres animaux de ce país, elle mande et ordonne . . .”

was made of Plumier's expertise as a draftsman and the formal object of the mission (at least as far as the official documentation reveals) was not to produce images of the American flora and fauna. Yet the Minim's artistic skills may have carried some weight in Surian's (or Bégon's) choosing him for the journey to the West Indies. To begin with, by the time the occasion presented itself to make the journey to the Americas in 1687, Plumier was already working on an illustrated catalog of plants while herborizing around Provence. Moreover, skilled artists had been hired in previous similar enterprises of natural history. The Jardin du roi in Paris, for instance, was the only garden in Europe at that time to fund a position for an artist: since 1666, the *peintre ordinaire du Roi pour la miniature* (king's ordinary painter for miniature) was charged with the only task of drawing the specimens kept at the institution.²² And, as mentioned above, Tournefort took good care to bring along, on his 1700 voyage to the Levant, not only a physician, but also an artist—no one less than Claude Aubriet, in fact: precisely the one appointed as *peintre ordinaire* at the Jardin the very same year he left for the Levant.

Whatever the reasons to engage Plumier in the expedition of 1687, it was Surian who was sent to the Americas by the French government. The story of how Surian came to enjoy—and ultimately to lose—the crown's support for his natural exploration of the West Indies is one that offers an exceptionally clear opportunity to counterbalance the self-serving myths of the monarchy. Surian's and Plumier's 1687 adventure, as all scholarly enterprises under the aegis of the king, were surrounded by a rhetoric according to which the initiative came from the French government. As Plumier put it in the preface of the *Description*, it was so as to "satisfy the King's orders" that Bégon organized that journey. And again, a few lines earlier, the Minim described his work as being that of "executing the project [*dessein*] the King has always had of enlarging the sciences during his Reign." This tone of scientific vassalage is recurrent in the travel accounts and scientific treatises resulting from such journeys (Tournefort's account of his travel to the Eastern Mediterranean, for example, was meaningfully entitled "Account of a journey to the Levant made on the orders of the king"). It is, in fact, pervasive to any form of scholarship under absolutist patronage. As argued by Louis Marin for Louis XIV's historiographer Paul Pellison or by Mario Biagioli for Galileo, becoming a legitimate author under the aegis of an absolutist prince entailed a certain self-effacement: the

²² Lucia Tongiorgi Tomasi, "Gardens of Knowledge and the *République des Gens de Lettres*," in *Baroque Garden Cultures: Emulation, Sublimation, Subversion*, ed. Michael Conan (Washington, DC: Dumbarton Oaks, 2005), 120-1.

scholar’s service to the monarch required presenting oneself as the ruler’s agent.²³ Similarly, crown-sponsored scholarly journeys were not the result of a state project of natural exploration of their overseas dominions and of advancement of knowledge in general, but rather punctually successful attempts to secure royal patronage for specific enterprises. The individuals engaged in them were not so much agents of the state as they were *bricoleurs*.

The king’s support to Surian’s undertaking, for instance, was an arduously acquired one. In a letter of June 1687 Secretary of State of the Navy Seignelay assured Bégon that

I have seen what you wrote to me about the physician botanist who offers to go to the Isles of America and I have presented it to the King. He has approved the proposition and is willing to accord him the 2,200 *livres* he asks for him and for a Minim friar who will be following him and to accept all the other propositions that you wrote me that he is asking; you can tell him to prepare to leave as soon as you let me know he is ready. I will make you be sent the necessary *sols* for these appointments. I send you, however, the order he is asking to receive all kinds of protection from the governments and intendants of the abovementioned isles.²⁴

Rather than learned agents hired by the crown to serve a state project of natural exploration of colonial territories, naturalists like Surian were seeking the support of the crown through brokers like Bégon. The sum of 2,200 *livres* that the government accepted to accord to Surian was not trivial (as a way of comparison, a *demonstrateur* or professor at the Jardin du roi like Tournefort earned 1,500 *livres* per year during the same period)²⁵ and raises the question of why the government accepted Surian’s proposal of an overseas natural historical trip.

²³ Louis Marin, “Le récit du roi ou comment écrire l’histoire,” in *Le portrait du roi* (Paris: Éditions de Minut, 1981), 49-107, and Mario Biagioli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: Chicago University Press, 1993), 127-33.

²⁴ Jean-Baptiste Colbert, Marquis de Seignelay, to Michel Bégon, Versailles, June 30, 1687, AN O¹ 61, fol. 466: “J’ay veu ce que vous m’écritez sur le medecin botaniste qui s’offre d’aller aux Isles de l’Amérique et j’en ay rendu compte a Sa Majesté. Elle a approuvé sa proposition, et elle a bien voulu luy accorder les deux mil deux cens livres qu’il demande pour luy et pour un religieux minime qui doit le suivre et a toutes les autres conditions que vous m’escrivez qu’il demande; vous pouvez luy dire de se preparer à partir et aussy tost que vous m’aurez fait sçavoir qu’il est prest. Je vous feray remettre le fonds necessaire pour ses appointements. Cependant je vous envoie l’ordre qu’il demande pour luy faire donner toute sorte de protection par les gouvernemens, et Intendants desdites Isles, &c.”

²⁵ AN O¹ 2124 “État du Jardin Royal, dépence [*sic*] fixe,” bundle 2 “Jardin des Plantes: arrêtés, lettres patentes, personnel, &c. 1635-1708,” pieces 11-20.

One can wonder about the reasons to choose Surian for such a mission: he was neither well known nor connected to any scholarly institution.²⁶ Surian's specific expertise was part of the answer. Plumier described Surian as a "very capable, not only in the knowledge of plants, but also in the secrets of chemistry."²⁷ Father Jean-Baptiste Labat, a French blackfriar and missionary in the West Indies (as well as a well-sold raconteur), also agreed on Surian's being knowledgeable in chemistry:

[Plumier] had, among others talents, a marvelous genius for Botany, & an admirable hand for picturing plants. He had been sent to the Isles some years before [June 1697] with another Provençal, Physician by profession. The Court, who was funding them, entrusted the Minim to make the figures of the plants in all their size & dried; & the Physician Chemist to extract the oils, the salts, the waters & other trifles that we used nowadays to shorten the life of men, on the pretext of preserving their health.²⁸

Despite Labat's usual exaggerations and open animosity, his and Plumier's noting the chemical knowledge of Surian is not to be taken lightly, for such expertise may not have been accidental for a botanical mission to the West Indies in those years. At the time of its unofficial foundation in 1666, the Royal Academy of Sciences in Paris had launched a (eventually failed) project for composing a new general natural history of plants. At the end of the seventeenth century, the need of such a work was especially felt among European naturalists, after the number of known plants had quadrupled since the middle of the sixteenth century and no general catalog succeeded in substituting Gaspard Bauhin's *Pinax*, published in 1623. During the 1670s, some of the members of the Academy worked on a botanical project with a particular emphasis unusual for the

²⁶ The biographical information on Surian is scarce and confused. For instance, he is usually said to have died in 1691; according to some some in Marseille, according to others in the West Indies. The most eccentric of the authors writing on Surian, Jean-Baptiste Labat (in his *Nouveau voyage aux isles de l'Amérique, contenant l'histoire naturelle de ces pays, l'origine, les mœurs, la religion & le gouvernement des habitans anciens & modernes*, vol. 4 (La Haye: Pierre Husson et al., 1724), 23-4), goes as far as claiming that he died unintentionally poisoning himself and his family with certain exotic herbs—although in July 1693, two years after Surian's presumed death and manslaughter, Bégon was informing one of his correspondents of the return of the physician to France: Bégon to Esprit Cabart de Villermont, Rochefort, Juin 21, 1693, in "Lettres de Michel Bégon," ed. Louis Delavaud and Charles Dangibeaud, vol. 1, *Archives historiques de la Saintonge et de l'Aunis* 47 (1925), 191.

²⁷ Plumier, *Description*, sig. [a3^v]: "M. Surian, fort capable, non seulement dans la connoissance des plantes, mais aussi dans les secrets de la chymie."

²⁸ Labat, *Nouveau voyage*, vol. 4, 20: "Le Pere Plumier . . . avoit entr'autres talens un genie merveilleux pour la Botanique, & une main admirable pour designer les plantes. Il avoit été envoyé aux Isles quelques années auparavant avec un autre Provençal Medecin de Profession & Chimiste. La Cour qui les entretenoit, avoit destine le Minime pour faire les figures des plantes entieres & dissequées; & le Medecin Chimiste, pour en tirer les huiles, les sels, les eaux, & autres minuties dont on se sert aujourd'hui pour abreger la vie des hommes, sous prétexte de leur conserver la santé."

period: they included the chemical analysis of plants as one of the crucial methods of inquiry. The chemical analysis, based on distillation, was supposed to introduce a causal element in the explanation of the botanical world, thus offering a philosophical approach in contrast to, or complementing, a historical one that consisted of collecting and describing the external appearance of the specimens. (It was within this last natural historical conception of botany that Tournefort’s system, based on particular external characteristics of plants, and Plumier’s iconographic archive developed.) As Alice Stroup has demonstrated, the chemical analysis of plants was a highly controversial aspect of the Academy’s natural history project, and its actual utility was contested by a good number of academicians (Perrault was among them).²⁹ Yet significant human and material resources were invested in that and the election of Surian for the 1687 mission—or rather the intendant’s and Seignelay’s accepting to fund the journey proposed by the physician—may have seemed in tune with the Academy’s undertakings. (After all, the official 1687 order charged him and Plumier to “work on the properties of plants, seeds, oils, gums, and essences.”) Surian’s proposed enterprise may have seemed all the more useful given that the Academy had from the outset disregarded the American flora, in spite of their claims to universality.

That notwithstanding, Surian’s mission became a disappointing enterprise in the eyes of the government after barely two years in the Caribbean. In January 1689, Seignelay wrote to Bégon on the subject of the “physician botanist” sent to the West Indies. The minister complained that his expenses were “too considerable” and, “since it is necessary to avoid in these times all those that are superficial,” ordered the intendant to make him return as soon as possible.³⁰ Surian had to return to France and traces of him become even scarcer thenceforth. On June 1693, Bégon wrote to a friend that

The sieur Surian, physician botanist, is back; I have sent him from Marseille to that country [Martinique] in 1688 on the orders of the King with father Plumier in order to examine the virtues of plants and the usage that we could make of them in medicine; he has worked on it with success and has brought several volumes of the memoires that he made, which I have

²⁹ On the failed project for the chemical analysis of plants in the Academy of Sciences, see L. G., *Histoire de la botanique*, 59; Yves Laissus, “Les Plantes du Roi. Notes sur un grand ouvrage de botanique préparé au XVII^e siècle par l’Académie royale des Sciences,” *Revue d’histoire des sciences et de leurs applications* 22, no. 3 (1969), 193–236, and Alice Stroup, *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-Century Parisian Royal Academy of Sciences* (Berkeley: University of California Press, 1990), 89–103.

³⁰ Seignelay to Bégon, Versailles, January 12, 1689, AN O¹ 69, fol. 25^v: “Vous envoyastez l’année dernière un medecin botaniste aux Isles de l’Amérique et comme la depence que cet homme fait est considerable, et qu’il est necessaire d’éviter en ce temps toutes celles qui sont superflues il faut que vous le fassiez revenir, et que vous luy en envoyez l’ordre par le premier vaisseau.”

only browsed, not having enough spare time to examine them in depth; he is resolute to put them in order when he will have a rest in his home, and to give them then to the public.³¹

Surian certainly sent to his protector some of the herbaria he composed in the Caribbean islands, to which Bégon was refereeing. Among the volumes in the library of Bégon in Rochefort, there were “6 volumes of dried plants from Europe and the Americas,” of which some were probably the collections constituted by Surian in the West Indies and sent to the Intendant shortly before his death.³² A portion of the collection of dried plants entered the herbarium of Sébastien Vaillant, of which the brothers Bernard and Joseph Jussieu, and later their nephew Antoine-Laurent, made a catalog.³³ Apart from this, little evidence of Surian’s work in the Americas exists today. In print, only two pamphlets were attributed to the physician: a six-page catalog of seeds of American plants was printed with Nicolas Leméry’s *Traité universel des drogues simples* (Paris, 1698)³⁴ and another catalog appeared in the second edition of Pierre Pomet’s *Droguier curieux, ou catalogue des drogues simples et composées* (Paris, 1709), published by the same editor as Leméry’s *Traité*.³⁵

³¹ Bégon to Cabart de Villermont, Rochefort, June 21, 1693, in Bégon, “Lettres,” vol. 1, 192: “Le sieur Surian, médecin botanique en est de retour [from Martinique]; je l’avois envoyé de Marseille en ce pais là en 1688 par ordre du Roy avec le P. Plumier pour examiner les vertus des plantes et l’usage qu’on en pourroit faire dans la médecine; il y a travaillé avec succès et a rapporté plusieurs volumes des mémoires qu’il a faits que j’ay seulement parcouru, n’ayant pas assés de loisir pour les examiner à fonds; il se propose de les mettre en ordre lorsqu’il sera en repos chés lui, et de les donner ensuite au public.”

³² Denis Roland, “L’intendant au jardin, Michel Bégon,” in *Le temps de Bégon* (Rochefort: CERMA, 2011), 32.

³³ Frans A. Stafleu and Richard S. Cowan, *Taxonomic literature. A selective guide to botanical publications and collections with dates, commentaries and types* (Utrecht and Antwerp/The Hague and Boston: Bohn, Scheltema & Holkema/dr. W. Junk b.v., Publishers, 1986), vol. 6, 94-95. The catalog by the Jussieus is BCMNH MS 779 “Catalogue des plantes sèches de Surian par Joseph de Jussieu,” composed of “Numeri plantarum herbarii Suriani, quales prius exstiterant et quales in herbario Vaillantii citantur” by Antoine-Laurent de Jussieu (fol. 1-5), “Catalogue des plantes ramassées par M. Surian dans les isles de l’Amérique” by Bernard de Jussieu (fol. 6-13) and “Nomina barbara herbarii Suriani” by Antoine-Laurent de Jussieu (fol. 14). Antoine-Laurent Jussieu also refers to Surian’s herbarium in MS 1204.

³⁴ “Insignium et rariorum plantarum semina, ex insulis americanis recenter allata, offeruntur & communicatur à Josepho Donato de Surian, Doctore Medico Massiliensi, nec-non Botanophylo, in America Professore, Regis Christianissimi mandato misso,” in Nicolas Leméry, *Traité universel des drogues simples, mises en ordre alphabétique* (Paris: chez Laurent d’Houry, 1698).

³⁵ “Catalogue des drogues & Medicaments des indes que m’a envoyé Monsieur Surian, Docteur en Medecine, & Professeur en Botanique, entretenu par Sa Majesté dans les Isles & Terres-fermes de l’Amérique, pour la découverte des facultez des Plantes & de tout ce qui regarde l’Histoire naturelle, où l’on verra quantité de Plantes rares, & plusieurs Semences, Racines, Ecorces, Gommés, Bois, Feuilles, Fleurs, Fruits, Sucs & autres singularitez concernant les Vegetaux, Minéraux, Animaux ou leurs parties,” in Pierre Pomet, *Droguier curieux ou catalogue des drogues simples et composées*, 2nd ed. (Paris: Laurent d’Houry, 1709), 67-72. See Stéphane Van Damme, *Paris, capitale philosophique, de la Fronde à la Révolution* (Paris: Odile Jacob, 2005), 110-6, where he connects scientific innovations (such as the information brought by Surian from the New World) and the Parisian market of books. On Pomet, see also Emma Spary, “Pierre Pomet’s Parisian Cabinet: Revisiting the Visible and the Invisible in Early Modern Collections,” in *From Private to Public*:

Surian’s failure to retain royal patronage hardly comes as a surprise given the conjuncture of war and economic decline of France at the end of the 1680s. The tension between the government’s ambitions and actual possibilities in funding scholarly enterprises, overseas or not, springs frequently from the official correspondence. In March 1700, for instance, Secretary of State of the Navy Pontchartrain wrote to the *échevins* and deputies of commerce of Marseille—the municipal magistrates in charge of the Chamber of Commerce—to ask them to give Tournefort up to 10,000 *livres* for his travel to the Levant. To the demand was added the promise of being reimbursed by the crown for what actually was a very considerable sum indeed (compare it to the 2,000 *livres* accorded to Surian in 1687). In July 1702, more than two years later, Pontchartrain was still repeating his promises of reimbursement. Some months later, the Chamber answered only to refuse yet another demand by the minister, this time regarding armament, by arguing that there were no funds in the *échelles*, the trading outposts of France across the Eastern Mediterranean. The reasons argued by the *échevins* are worth noting: the interruption of the commerce a year earlier due to the War of the Spanish Succession had cut the inputs and “if there were any funds in the *échelles*, they have been mostly spent by the orders that Your Highness has previously given us regarding Mr de Tournefort of the Academy of Sciences, the Emir and the Patriarch of the Maronites, and the *sieur* [Jean-Jacques Le Noir] Du Roule on the occasion of his journey to Ethiopia.”³⁶

Just like the 1700s, the 1680s were not times for “all those [expenses] that are superficial.” At this point, one may reasonably ask what happened to Plumier. The failure of Surian was surprisingly not that of the Minim friar. Just some months before his letter ordering the return of the “physician botanist,” the Secretary of the Navy wrote to Guy-Crescent Fagon, a professor of “plants and simples” at the Jardin Royal and a well-connected court physician (he would become the king’s “first physician” and *surintendant* of the Jardin only few years afterwards). Seignelay’s 1689 letter to Fagon was on the subject of Plumier and his work on the American isles:

Natural Collections and Museums, ed. Marco Beretta (Sagamore Beach, MA: Science History Publications, 2005), 59-80.

³⁶ Archives de la Chambre de Commerce de Marseille AA¹² (Pontchartrain to the Chamber of Commerce of Marseille, Versailles, 3 March 1700), AA¹³ (Pontchartrain to the Chamber, Versailles, 26 July 1702), and BB²⁹ fol. 39 (the Chamber to Pontchartrain, Marseille, 22 November 1702), copied in AN AJ¹⁵ 511, piece 386.

The King sent last year to the isles of America a physician from Marseilles and a Minim friar called Father Plumier so as to make an exact research on the plants of this country that are not in Europe; since the friar did not concurr with the physician, he has worked on his own and he has reported a collection [*recueil*] of what he has done on the island of Martinique. Since I would be very pleased to be informed about the merit of this work and to know if it is worth to continue it, I ordered him to present it to you, and I beg you . . . to examine it and, once you have seen it, to make me know your thoughts, and what you think that should be done therewith.³⁷

In contrast to Surian, who was asked to return to France in the middle of his first expedition, Plumier not only kept the favor of the crown's highest officers, but he secured royal economic support for three more expeditions to the West Indies: in 1689, in 1694, and in 1704, when he died shortly before the scheduled embarking on what would have been his fourth journey. As the passionate and successful chronicler of quarrels and defects that he was, Father Labat also noted the discord of Surian and Plumier and reported that

dissension appeared between the Minim & him [Surian], & forced them to separate. They returned to France after eighteen or twenty months of work, loaded with seeds, leaves, roots, salts, oils, & other trinkets, & quantity of complaints the one against the other. . . . It seems that the Minim was righter than the Physician, or that he was more listened, since the former was dismissed, & the Minim was sent back to the Isles; to work again.³⁸

Labat was right: Plumier's work during that 1687 botanical journey to the West Indies held the attention of high officers of the crown like Bégon and Seignelay and, after the death of the latter in 1690, that of his successor, Louis Phélypeaux de Pontchartrain. On May 18, 1689, less than two years after his first voyage, a new order was issued from

³⁷ Seignelay to Guy-Crescent Fagon, Versailles, October 12, 1688, in AN Marine B² 66, fol. 252: "Le Roy envoia l'année derniere aux isles de l'amerique un Medecin de Marseille et un Religieux minime nommé le Pere Plumier pour faire une recherche exacte des plantes de ce pays qui ne sont point en Europe, ce Religieux n'ayant pu s'accorder avec ce medecin a travaillé en son particulier et il a rapporté un recueil de ce qu'il a fait dans l'Isle de la martinique, comme je serois bien aise d'estre informé du merite de cet ouvrage et de ce sçavoir sil est a propos de le continuer je luy aye ordonné de vous le faire voir, et je vous prie de luy donner quelque heure de vos . . . pour l'examiner, et apres que vous l'aurez veu vous me ferez plaisir de me faire sçavoir ce que vous en pensez, et ce que vous croirez quil serai à propos de faire sur ce sujet."

³⁸ Labat, *Nouveau voyage*, vol. 4, 23: "la discorde se mit entre le Minime & lui [Surian], & les obligeat de se separer. Ils revinrent en France après dixhuit ou vingt mois de travail, chargez de grains, de feüilles, de racines, de sels, d'huiles, & d'autres babioles, & de quantité de plaintes l'un contre l'autre. Il y a apparence que le Minime avoit plus de raison que le Medecin, ou qu'il fut mieux écouté, puisque celui-cy fut congedié, & que le Minime fut renvoyé aux Isles; pour travailler de nouveau."

Versailles in favor of the Minim: it entitled him to embark once more towards the American islands in order to “continue the collection [*recueil*] that he began on seeds, plants and trees of the abovementioned islands and to compose [a new] one on fishes, birds, and other animals of that country.”³⁹

That famous *recueil*, Plumier’s collection of drawings on West Indian plants and animals, earned the friar not only another state-sponsored journey to the Caribbean islands, but also a pension and a prize as grandiose as ambiguous in its actual implications: the right to call himself *botaniste du roi*, the king’s botanist.⁴⁰ The pompous title, however, did not corresponded to a permanent position in the way that *bibliothécaire du roi*, for instance, referred to a fixed employment (that of *maître de la Librairie* and *garde de la Bibliothèque du roi*). It seems rather an informal appellation that Plumier began using tentatively, with the crown’s acquiescence, after he was accorded a royal pension. The friar did not identify himself as *botaniste du roi* on the title page *Description des plantes de l’Amérique* in 1693 (where the author was only referred to as simply a “religieux minime”), but the large majority of the plates in the book were signed “Fr.C.P.m.b.r.d.,” or “Fr. C. Plumier Minimus Botanicus Regius delineavit”: “brother Charles Plumier, Minim friar and Royal Botanist, drew it.”⁴¹ Ten years later, on the title page of his *Filicetum americanum* (1703), Plumier was identified as “Minim of the province of France, and Botanist of the King” (*ordinis minimorum in provincia Francia & botanico regio*), whereas in the *Nova plantarum americanarum genera* (1703), the clarification *apud Insulas Americanas* (“in the American isles”) was added to the epithet. The French translation of the *Filicetum*, published in 1705, retained this form: “par le R. P. Charles Plumier, Minime de la province de France, & Botaniste du Roy dans les Isles de l’Amérique.”

The appellation of *botaniste du roi* appears rarely among other French authors (fig. 2.3). Before Plumier, only Jean Robin (1550-1629) and his son Vespasian (1579-1622) used a similar designation (*botanicorum regionum*) in their *Enchiridion isagogicum* (1623).

³⁹ ANOM Colonies B¹⁴ F^o, fol. 95^{r-v}: “Sa Majesté envoyant aux Isles de l’Amérique le Père Charles Plumier Religieux de l’ordre des Minimes pour continuer le recueil qu’il a commencé des graines, plantes et arbres desdites isles et en composer un des poissons, oyseaux et autres animaux de ce pays, Elle mande et ordonne au Sr Comte de Blenac gouverneur et lieutenant général desdites Isles, au Sr Dumaitz de Goimpy Intendant, aux Gouverneurs et autres officiers d’icelles de donner audit Père Plumier tous les secours et la protection dont il aura besoin pour executer ce qui est en cela de ses intentions.”

⁴⁰ This bears comparison with André Thevet’s title as *cosmographe du roi* a century earlier. According to Frank Lestringant, “la fonction ne semble pas avoir existé en France avant lui. Peut-être l’a-t-il lui même créée sur les modèles espagnol et portugais. Les attributions en sont vagues, les rémunérations incertaines.” Frank Lestringant, *L’atelier du cosmographe, ou l’image du monde à la Renaissance* (Paris: Albin Michel, 1991), 21.

⁴¹ On Plumier’s signing his plates and drawings, see below, chap. 4.

Fig. 2.3. French naturalists including the title of “Botaniste du roy” or similar in the their publications.

<i>Naturalist</i>	<i>Publication</i>
Jean (1550-1629) and Vespasien Robin (1579-1622)	<i>Enchiridion isagogicum ad facilem notitiam stirpium tam indigenarum quam exoticarum hae coluntur in horto D.D. Joannis et Vespasiani Robin, botanicorum regiorum</i> (Paris: Pierre de Bresche, 1623)
Charles Plumier (1646-1704)	<i>Filicetum americanum seu filicium, polypodiorum, adiantorum, &c., in America nascentium icones. Auctore P. Carolo Plumier, ordinis minimorum in provincia Franciae & botanico regio</i> (Paris: Imprimerie royale, 1703). <i>Nova plantarum americanarum genera, authore P. Carolo Plumier ordinis Minimorum in Provincia Franciae, & apud Isulas Americanas Botanico Regio</i> (Paris: Jean Boudot, 1703). <i>Traité des fougères de l'Amérique, par le R. P. Charles Plumier, Minime de la Province de France, & Botaniste du Roy dans les Isles de l'Amérique</i> (Paris: Imprimerie Royale, 1705)
Louis Feuillée (1660-1732)	<i>Journal des observations physiques, mathématiques, et botaniques faites par ordre du Roy sur les Côtes Orientales de l'Amérique Meridionale, & dans les Indes Occidentales, depuis l'année 1707 jusques en 1712, par le R.P. Louis Feuillée, Religieux Minime, Mathematicien, Botaniste de Sa Majesté, & Correspondant de l'Académie Royale des Sciences</i> (Paris: Pierre Giffart, 1714).
Pierre Barrère (1690-1755)	<i>Essai sur l'histoire naturelle de la France equinoxiale, ou dénombrement des plantes, des animaux, & des minéraux, qui se trouvent à l'Isle de Cayenne, les Isles de Remire, sur les Côtes de la Mer, & dans le Continent de la Guyanne . . . par Pierre Barrère, correspondant de l'Académie Royale des Sciences, Docteur & Professeur Royal en Médecine à l'Université de Perpignan, Médecin de l'Hôpital Militaire de la même Ville, ci-devant Médecin Botaniste du Roi dans l'Isle de Cayenne</i> (Paris: Pierre Piget, 1741)
Sieur Andrieux (n.d.)	<i>Catalogue raisonné des plantes, arbres & arbustes don't on trouve des graines, des bulbes & du plant chez le sieur Andrieux, Marchand Grainier-Fleuriste & Botaniste du Roi</i> (Paris: Andrieux, 1771)
Jean-Baptiste de Monet, chevalier de Lamarck (1744-1829)	<i>Considérations en faveur du Chevalier de La Marck, ancien officier au regiment de Beanjolais, de l'Académie royale des Sciences, botaniste du Roi, attaché au cabinet d'histoire naturelle</i> (Paris: n.p., 1798).

Jean had previously called himself “arboriste, simpliste et botaniste du Roi,” perhaps because he was in charge of the Paris Faculty of Medicine’s gardens and, later, of the royal gardens—prior to the 1635 foundation of the definitive *Jardin royal des plantes medicinales* in the faubourg Saint-Victor, of which his son Vespasian was named first *sous-demonstrateur* and, like his father, *arboriste du roi*.⁴² Examples of similar (and similarly flexible) denominations are to be found in two of the English authors Plumier knew well: John Parkinson (1567-1650) and Robert Morison (1620-1683). In his *Theatrum Botanicum* (1640), Parkinson appeared on the title page as “Apothecary of London, and the Kings Herbalist.” In Morison’s *Plantarum umbelliferarum distribution nova* (1672), the author was

⁴² Philippe Tamizey de Larroquet, *Deux jardiniers émérites: Peiresc et Vespasien Robin* (Aix: V.-J. Remondet, 1896).

described as “*medico & professore Botanico Regio.*” Both Parkison and Morison were among the seventeenth-century botanists who influenced the work of Plumier enough for him to dedicate to each of them a genus of an American plant in his peculiar pantheon of botanists, his *Nova genera*: both the *Parkinsonia* and the *Morisonia* are still used in today’s nomenclature.⁴³

In the French context, the title of royal botanist and the socioprofessional identity it implied was original to Plumier. It seems reasonable to think that he used it on his own initiative as a denomination of prestige, with the consent of his patrons and borrowing from previous and contemporary institutional codes and affiliations. As *botaniste du roi*, Plumier did not only accentuate the social and cultural credit received from the crown through a royal pension and economic support, but also allowed him to circumnavigate an essential tension of his trajectory: the one resulting from his social condition as a member of a Catholic regular order while his professional status depended on the networks of patronage of Louis XIV’s monarchy. Such a tension becomes clearer in an episode recounted by Martin Lister during his time among the cream of Parisian society in 1698. Then, Lister met the Marquis de l’Hôpital who, besides an aristocrat, was a renowned mathematician and member of the Academy of Sciences. After “a long Conversation with him about Philosophy and Learning,” as well as noting with dismay that “the Wars had made [the French] altogether Strangers to what was being done in *England*,” Lister and l’Hôpital engaged in a discussion about the London Royal Society, to which Lister pertained, and its French counterpart.

[L’Hôpital] told me, it was not possible for [the Paris Academy of Sciences] to continue the Monthly Memoirs, as they had done for two years only, because they were but very few in number of that Society, and had very little Correspondence. Indeed, I did inquire once of some of that Body, why they did not take in more, since there were very many deserving Men in the City, as I instanc’d in *F. Plumier*. They owned he would be an Honour to the body; but they avoided to make a Precedent for the Admission of any friar whatsoever.⁴⁴

Indeed, Plumier was not a member of the Company, and neither was he affiliated to the Jardin du roi, the two Parisian hubs of natural historical research. This does not mean that the friar was alien to these spaces of intellectual sociability: we find him in both, as

⁴³ It may have become more common in the eighteenth century: Marie-Noëlle Bourguet, “La collecte du monde: voyage et histoire naturelle (fin XVII^e siècle-début XIX^e siècle),” in *Le Muséum au premier siècle de son histoire*, ed. Claude Blanckaert *et al.* (Paris: Muséum nationale d’histoire naturelle, 1997), 166.

⁴⁴ Martin Lister, *A Journey to Paris in the Year 1698* (London: printed for Jacob Tonson, 1699), 94-5.

well as in the meetings that botanists, physicians, and chemists held regularly in the Bibliothèque du roi on rue Vivienne.⁴⁵ The episode sheds light on the social and intellectual meanings of the curious epithet of *botaniste du roi*. Its use, as we have seen, was sporadic among other naturalists from the sixteenth to the nineteenth century, employed sustainably only by Plumier (and perhaps also by Louis Feuillée, his purported disciple and also a Minim friar). In a context in which the monarchy constituted an important (yet not the only) source of legitimation for natural history by means of the social legitimation of its practitioners, the title of *botaniste du roi* offered an alternative to institutional affiliations that were banned to Plumier for his belonging to the clergy. It bedecked the friar's pension with the socio-cognitive credit emanating from the royal power.

It is now time to explore more in depth the ways in which Plumier slipped into the web of state patronage. The explanation for his success in retaining the crown's support for his research lies in two aspects largely unrelated to natural history's purported utility for the state's imperial ambitions overseas. First, Plumier successfully presented himself as a reliable go-between to both the colonial and metropolitan authorities; second, he took pains in stressing the potential of his corpus of drawings on the West Indian flora and fauna (the *recueil* to which ministers and officers referred in their correspondence) for celebrating the king's glory.

Traveling naturalists and the Atlantic flow of political information

Plumier's first book appeared in 1693, one year before departing on the third journey to the West Indies. The *Description des plantes de l'Amérique* was printed at the Imprimerie royale, the royal printing house in the Louvre Palace. The costs of both printing and engraving were assumed by the crown; the Minim took care of acknowledging his debt in the preface:

If [the public] finds any pleasure in this work, they are obligated to the late Monseigneur de Seignelay, Minister and Secretary of State, and to Monseigneur de Pontchartrain, who has succeeded him. The former obtained for me the liberality of the King for providing for the

⁴⁵ These meetings are recounted in a letter from David Krieg to James Petiver, Paris, March 20, 1702 and Paris, July 11, 1701/2, in BL MS Sloane 4063, fol. 139. On Krieg, see below chap. 4.

expenses of my travels, and the latter had also the generosity of honoring me with the protection of His Majesty for the engraving, and for the printing of this volume.⁴⁶

In the case of Plumier, as well as in that of Surian or Tournefort, the patronage of the state to traveling naturalists passed through the hands of the Secretary of State of the Navy: Colbert de Seignelay and, after his early death in 1690, Louis Phélypeaux de Pontchartrain. During the reign of Louis XIV, the minister of the navy was one of the key figures of the French government, whose competences went far beyond the naval military forces. He was one of the five Secretaries of State together with those of War, Foreign Affairs, the King’s House and Protestant Affairs, and one of the seven “ministers” of State including also the Chancellor of France, in charge of the administration and justice, and the Controller-General of Finances. In 1669, the political reforms of the Great Colbert created the ministry of the navy almost *ex nihilo* by joining the offices of the Navy of the East (*Marine du Levant*) and that of the West (*Marine du Ponant*), which were hitherto under the control of the ministers of War and Foreign Affairs, respectively.⁴⁷ Colbert himself took up the newly created office and assumed responsibility over naval warfare and all things related to non-European affairs by and large, from the colonies and overseas dominions such as the Caribbean isles of Saint-Domingue and Martinique to the trading *échelles* across the Levant. Consuls and intendants were therefore under the orders of the Secretary of the Navy and were usually members of the naval administration themselves. Besides the military forces at sea, the navy was responsible for colonial civil aspects as well: intendants of the West Indies, like Michel Bégon for instance, were also in charge of police, justice, and finances.

The navy, the civil life in the colonies, the commerce and, in general, the entire projection of France outside Europe fell under the responsibility of Secretaries of State like Colbert, his son Seignelay from 1683, and the two Pontchartrains (father and son) after him. That included traveling naturalists financed by royal funds: indeed, nomadic scholars like Plumier often corresponded with high officers to account for their activities overseas. Michel Bégon was among such figures as naval intendant in Marseille and later in Rochefort.

⁴⁶ Plumier, *Description*, sig. [a4^r]: “Il me reste à avertir le public, que s’il tire quelque plaisir de ce travail, il en a l’obligation à feu Monseigneur de Seignelay, Ministre & Secrétaire d’Estat, & à Monseigneur de Pontchartrain, qui luy a succédé. Le premier m’obtint de la libéralité du Roy, de fournir aux frais de mes voyages, & le second a eû la bonté de m’honorer aussi de sa protection auprès de Sa Majesté, pour la graveure, & pour l’impression de ce premier volume.”

⁴⁷ Thierry Sarmant and Mathieu Stoll, *Régner et gouverner: Louis XIV et ses ministres* (Paris: Perrin, 2010), 220–7.

Another unavoidable figure grew stronger during the reign of Louis XIV in the overseeing of natural explorations overseas: the King's First Physician Guy-Crescent Fagon, who would become head of the Jardin du roi from the beginning of the eighteenth century. The correspondence of several French traveling naturalists reveals the central role that Fagon played in the circulation of natural information between the colonies and the metropolis. Take the case of the unfortunate Augustin Lippi, the Parisian physician who joined the calamitous diplomatic mission of Lenoir du Roule to the *Negus* of Abyssinia. Before their adventure was brought to a dramatic end, Lippi had maintained a frequent correspondence with Fagon: though the shipments were always addressed to Minister Pontchartrain, it was actually the First Physician to whom he regularly sent catalogs, dried specimens, and abundant notes and drawings. Though the correspondence of Plumier is not conserved, the fluidity of communication between traveling naturalists and officers of the state seems to have been one of the bases of royal support, as suggested by the submissive tone in which Lippi opened one of his letters to Fagon: "traveling at the Prince's expense and doing so under your celebrated auspices, not having kept you briefed of my progresses for such a long time is only worth of an ungrateful and negligent person."⁴⁸

In his journey to the Levant, Tournefort also maintained a regular epistolary exchange with the *superintendant* of the Jardin du roi—collected afterwards under the name of "botanical diaries" (*journaux de botanique*)—and sent him catalogs of plants and dried specimens through the consuls and the royal officers at the different *échelles*.⁴⁹ But the influential academician and professor at the Jardin du roi had, in contrast to the young and less influential Lippi, two correspondents: whereas he informed Fagon with a certain regularity about his botanical work, it was to Pontchartrain that he reported on general aspects of the countries he was visiting. The two volumes of his *Voyage au Levant*, published in 1717 after the death of the author, were in fact a selection of his correspondence with the secretary of State; this correspondence was aimed since the beginning at offering a *relation*, or travel account. As he noted in the preface to these two printed volumes, the task with which he had been charged by Pontchartrain was to "make observations not only on the Natural History, and on the Ancient & Modern

⁴⁸ BCMNHN MS 1299 "Description des plantes observées en Égypte par M. Lippi, depuis le 22^e du moi d'avril jusqu'au 18^e juillet de 1704, avant son depart du Caire pour l'Éthiopie," fol. 4: "Monsieur, Voyager aux depens du Prince, le faire sous vos illustres auspices, et tarder si longtemps a vous informer de ce qui se passe, c'est être ingrat ou negligent."

⁴⁹ BCMNHN MS 998 "Journal de botanique du Levant, par Tournefort."

Geography; but also on what regards the Commerce, the Religion & the Customs of the different peoples who live there.”⁵⁰ Whether sought or not by the “post-Colbertian” French state, information on overseas territories was duly circulated by traveling naturalists. The Secretary of State of the Navy was well-placed for collecting information through wandering scholars: since 1669, the responsibility of the navy had fallen on the same person who was in charge of the King’s House (*Secrétaire d’État de la Maison du Roi*), an office responsible for Paris and its region as well as those institutions surrounding the monarch. Among such institutions were the academies, the Jardin du roi and the Imprimerie royale. Colbert, Seignelay and Pontchartrain were at once in charge of the navy and the western colonies on the one hand, and the official learned societies and the royal press in Paris on the other.

Plumier profited from both a very delicate political situation in the Caribbean basin and his own status as traveler in the area in order to present himself as a useful messenger and intermediary to both the representatives of the crown in the West Indies and the high officers in the metropolis, who held in their hands the royal liberality for scholarly undertakings.⁵¹ In other words, the friar attempted to present himself not only as a scholar whose engaging iconographic work on “our Islands”’s nature could contribute to the king’s glory, but also as a valuable go-between. This appears more clearly in the exchanges between colonial officers on the subject of Plumier. On June 3, 1690, for instance, the governor of Tortuga Island and Saint-Domingue, Pierre-Paul Tarin de Cussy (g. 1684-1701) wrote to Seignelay about some delicate information he was sending to France for him:

Though this report goes in the frigate *Seignelay* . . . I dread including in it some articles of consequence, fearing that the ship could meet enemies. . . . And since I entirely trust Reverend Father Plumier, who is taking this ship in order to inform Your Grace of the travel you ordered him to undertake on this coast [*en cette côte*], where he has applied himself with all the possible zeal and assiduity so as not to become unworthy of the choice that Your Grace made for the discovery of several most curious things of which I hope you will

⁵⁰ Joseph Pitton de Tournefort, *Relation d’un voyage au Levant, fait par ordre du Roy* (Paris: de l’Imprimerie royale, 1717), vol. 1, 1-2: “Monseigneur le Comte de Pontchartrain Secrétaire d’Etat . . . proposa à Sa Majesté sur la fin de l’année 1699 d’envoyer dans les pays étrangers des personnes capables d’y faire des observations non seulement sur l’Histoire naturelle, & sur la Geographie ancienne & moderne; mais encore sur ce qui regarde le Commerce, la Religion & les Moeurs des differens peuples qui les habitent.”

⁵¹ Philippe Hrodej, “Saint-Domingue en 1690. Les observations du père Plumier, botaniste provençal,” *Revue française d’histoire d’outre-mer* 84, no. 317 (1997), 93–117.

be satisfied, I begged him to have the honor of informing you, Monseigneur, of what I refrained myself from writing down.⁵²

The role of Plumier as messenger of the governor of Saint-Domingue to Seignelay has to be read in light of the very tense political situation of the French islands in the Caribbean basin at that time, as well as the critical isolation of the French position in that area. In September 1688, a few months after Plumier left Marseille for his first journey to the West Indies, Louis XIV launched an attack across the Rhine: what was meant to be a brief intervention unexpectedly became the Nine Years War, in which the French king eventually had to oppose a wide European coalition, the League of Augsburg, led by William III, king of England and Stadtholder of the United Provinces, and allied with Savoy and the Habsburgs rulers of Spain and the Holy Roman Empire. Mainly a European conflict, hostilities broke out nevertheless in the Caribbean, where the French positions had to struggle with an everyday hostility with the Dutch, the Spanish and, especially, the English. Though economically and territorially important, the French dominions in the West Indies were demographically weak: James Pritchard has pointed out that France had neither the strength nor the will to oppose its opponents overseas, hence their limited assistance to the American colonies during the first years of the war.⁵³

It is at this point that Plumier came in: in that June 1690, when Governor de Cussy was writing to the minister, the friar was returning to France from his second journey to the West Indies. Together with the message of the governor, he was bringing to Seignelay a report written by himself on the “present state of the island of Saint-Domingue,” signed October 1690.⁵⁴ The report went along the lines of the governor’s letters: to convince Seignelay and the metropolitan government by and large of the need to defend the Caribbean dominions against the Anglo-Dutch and Spanish forces. In part because of the economic exhaustion of France, military assistance from the metropolis was but hoped for during the first half of the conflict. In January 1691, few months after

⁵² ANOM C^{9A} 2, Pierre-Paul Tarin Cussy to Seignelay, Le Cap, June 3, 1690, fol. 81^r-82^v, quoted in Krakovitch, “La vie intellectuelle,” 103: “Bien que ce mémoire passe dans la frégate le *Seignelay* . . . j’ay cependant apprehendé d’y insérer quelqu’articles de consequences, de crainte que ce vaisseau ne fit rencontre de quelques vaisseaux ennemis; . . . et comme j’ay une entière confiance au R. Père Plumier qui passe dans ce vaisseau pour aller rendre compte à Votre Grandeur du voyage que vous lui avez ordonné de faire en cette coste où il s’est appliqué avec tout le zele et assidüité possible pour ne pas se rendre indigne du choix que Votre Grandeur en a fait pour la découverte de plusieurs choses des plus curieuses dont j’espère qu’elle sera satisfaite, je l’ay supplié de se donner l’honneur de vous informer, Monseigneur, de ce que je me suis abstenu de vous écrire.”

⁵³ James Pritchard, *In Search of Empire: The French in the Americas, 1670-1730* (Cambridge: Cambridge University Press, 2004), 301-57.

⁵⁴ ANOM F³ 92, fol. 27-, quoted in Hrodej, “Saint-Domingue en 1690,” 106-14.

his sending both a letter and the trustworthy father Plumier to Seignelay, Governor de Cussy, several of his officers, and around five thousand men were killed at the hands of a small Spanish naval force marching over Cap-François. Only from the middle of that year, with Pontchartrain as minister of the navy after Seignelay’s death, were the first significant defense forces sent to the islands, and a reversal of the situation in favor of the French began to take place from 1693 onwards.⁵⁵

Besides his own report to Seignelay, Plumier addressed a similar letter to Intendant-General of the Navy François Usson de Bonrepas, also dated October 8, 1690. Plumier continued to offer his services as a go-between between the colonial and the metropolitan governments during his third expedition, the longest one—the official order was issued in September 1694, and he probably did not return until 1697.⁵⁶ Plumier shipped another report to the navy minister in August 1697, with the war almost finished: this time, the *Minim* chronicled the sacking of Cartagena by the French navy under the command of the French privateer Jean-Bernard Desjean, baron de Pointis.⁵⁷ A few days later, Secretary of State Pontchartrain received this very same document through Bégon: with the report by Plumier in his hands, along with another one by François de Galifet, the king’s lieutenant on the island of Saint-Domingue, the minister took measures against corrupt officers who were involved in the raid and pocketed some of the profits that were supposed to go to the royal funds.⁵⁸

The friar took good care to make himself relevant to high figures of the government, like the minister of the navy through a frequent, probably unsolicited, correspondence. His reports on the situation of the island, like that on the sacking of Cartagena, were not the only means to achieve this. He meant his very drawings on plants, insects, birds, and fishes of the West Indies to circulate among colonial administrators and metropolitan high officers of the crown. Take the case of one volume of manuscript drawings and descriptions by Plumier. Significantly enough, this document ended up in the *Bibliothèque nationale de France* and not, like his main corpus, in the *Muséum national d’histoire*

⁵⁵ Pritchard, *In Search of Empire*, 315.

⁵⁶ As noted by Hrodej, “Saint-Domingue en 1690,” 105, this is suggested in some of his manuscripts, dating his work on the islands from 1689—the beginning of his second journey—to 1697: BCMNHN MS 1 “*Filicetum americanum, seu historia filicum in insulis americanis nascentium . . . ab anno 1689 usque ad annum 1697,*” and MS 2-7 “*Botanicum americanum, seu historia plantarum in americanis insulis nascentium . . . ab anno 1689 usque ad annum 1697.*”

⁵⁷ ANOM C^o 3, fol. 404-408, quoted in Krakovitch, “La vie intellectuelle,” 116–17.

⁵⁸ SHDR 1 E 40, fol. 171-6.



Fig. 2.4. Drawings from the collection “Plantes de la Martinique et de la Guadeloupe” by Plumier, dated 1688. Unlike most of Plumier’s folders, this volume is today not at the Muséum national d’histoire naturelle, but at the Bibliothèque nationale de France; this may indicate that it was not part of the corpus left by the Minim friar in his cell after his death, and that its finely colored drawings had a different life than the rest of his papers—perhaps they were in one of his patron’s collections. (*above*) Map of the royal fort in Martinique. (*opposite left*) “Young black in a canoe made from a single tree trunk.” (*opposite right*) Plant and fruit of the pineapple. (Bibliothèque nationale de France, Paris.)

naturelle. It is composed of thirty to forty carefully finished and exquisitely colored manuscript images (fig. 2.4).⁵⁹ Most of the drawings picture beautifully exotic plants with fruits: the pineapple, the manioc, the sugar-apple, the papaya, the passionflower or the cacao—no ferns this time. Another part is composed of maps of settlements in the West Indies, particularly ones of military interest: the fort and the Saint-Pierre port in Martinique, the eight districts of the Capesterre on the same island and a view of the topography of the island of Grenada from the sea. A third group consists of luxurious images depicting natives of the West Indies in a variety of exotic attitudes: a “reddened” (*rocoué*) Caribbean man with his arc, a Caribbean woman, also reddened, “magnificently arrayed and holding a parrot and a basket,” a “black boy in a canoe made of a single tree trunk,” and a “mulatto slave smoking tobacco.”

⁵⁹ BNF Est. JD-18-Fol “Plantes de la Martinique et de la Guadeloupe. Avec des plans et des figures de sauvages de ces pays dessinés, coloriés et décrits par le Père Plumier,” 1668.



Figure a figure d'un homme d'un des Indes du Nord
 qui conduit le canot sur son pays.



Ananas
 arborum fructus factus
 et generis fructus piniflorum

These pictures are not so much about what they represented as about the function they fulfilled back in Europe. They had lives of their own. To start with, they exhibited Plumier's artistic skills and stood as an act of discovery in itself: while producing the exoticism of what was represented, these images constructed their author's persona as a discoverer, and unequalled communicator, of that novelty.⁶⁰ Furthermore, the naturalist-turned-draftsman probably aimed at a very specific audience with these stunning handmade depictions. In these exquisite handmade drawings, patrons like Seignelay or Pontchartrain were presented the nature and peoples of the (or what they thought were *their*) American islands, as well as monuments (such as the "Plan du fort royal de l'isle de la Martinique), that both substantiated and nourished French imperial desire. But it was also Plumier's own work in the West Indies that was showcased in these images, as well as his capacity to represent the glory of the king through the virtually untapped islands' nature. The drawings of this collection substantially differ from Plumier's working images, not only because they are handsomely finished, but also because of their small number. When compared to the hundreds of drawings of shells, fishes, and ferns, the collection at the Bibliothèque nationale reveals itself as a selection of topics particularly liable to attract the attention and interest of ministers and courtesans, something more difficult to attain with the two hundred engravings on seven types of ferns composing his *Traité des fougères*. It is meaningful also that they did not end up in the Muséum national d'histoire naturelle as the large majority of his corpus: they might have been separated from the entire corpus during the late eighteenth and nineteenth centuries, when Plumier's archive was the object of several reorganizations; but this might also be a sign that they became part of the king's collection at the Bibliothèque du roi during the friar's lifetime. Be that as it may, their goal was clear: just as his reports and letters fashioned the friar as a trustworthy informant of things overseas, these images presented their author as an efficient crafter of pictorial commemorations of France's imagination and ambitions overseas. The audiences of such two different sorts of documents were the same: the metropolitan authorities responsible for the colonies who were, at the very same time, a fundamental cog in the wheel of royal liberality.

⁶⁰ On the (visual) representation of the exotic "Other," and especially the American "Other," during the early modern period, the work of Peter Mason is indispensable: *Deconstructing America: Representations of the Other* (London: Routledge, 1990); "From Presentation to Representation: *Americana* in Europe," *Journal of the History of Collections* 6, no. 1 (1994), 1-20; *Infelicities: Representations of the Exotic* (Baltimore, MD: Johns Hopkins University, 1998), and *The Lives of Images* (New York: Reaktion Books, 2001).

The “inexhaustible curiosity” of a patronage broker

Probably the best example of the important role that Plumier’s *recueil* of drawings and prints on American plants and animals played in securing royal patronage for both his journeys and publications can be found in the figure of Michel Bégon. Bégon became without a doubt the most consequential of the friar’s protectors. His role in relation to Plumier’s work embodies the figure of the seventeenth-century collector, and announces that of the eighteenth-century *amateur*: a connoisseur coming from the royal administration who engaged occasionally in the production of various forms of artistic or scholarly production (the most common being the collection of curiosities, *naturalia* and *artificialia* alike) and engaged socially with artists and scholars, to whom he might serve as broker in the complex systems of preferment on which seventeenth-century cultural production largely rested. Bégon and his artistic, bibliophilic, and natural historical passions clearly highlight what has been hitherto implied here: first, that the boundaries between state and private patronage were delicate and unstable at the time; second, that the fact that Plumier’s natural historical research in the West Indies took mostly the form of images played a fundamental part in securing royal patronage.

Intendant Bégon probably first met Plumier in 1687 or shortly before in Marseille, in the context of Surian’s mission to the West Indies. One of the most influential naval officers during the reign of Louis XIV, Bégon was born in Blois, the scion of an ennobled family of finance and justice officers.⁶¹ Related to Colbert, who married his cousin, Bégon entered the naval administration relatively late, in 1677, with a rather secondary assignation in Toulon before being appointed *commissaire-général de la Marine* in Brest in 1680, and to the same position in Le Havre the following year. He was soon thereafter promoted to a more significant position as intendant of justice, finances, and police of the Isles of America. Having spent nearly two years and a half in the French West Indies, Bégon knew well where he was sending Plumier and Surian in 1687. Soon after the death of the Intendant, Father Théodore de Blois, the author of his eulogy, who had access to his private documents and correspondence, related the disgust of the intendant at being offered the West Indies assignment: “he felt an extreme disgust at the idea and tried to excuse himself . . . not believing himself able to resist the fatigues of a

⁶¹ Yvonne Bezard, *Fonctionnaires maritimes et coloniaux sous Louis XIV: les Bégons* (Paris: Albin Michel, 1932), 16–17.

travel of 20,000 *lieu*[e]s, nor the air of a clime that was called at the period the cemetery of Frenchmen.”⁶²

Once back in Europe in 1685, appointed to the intendancy of the Galleys in Marseille, his prestige grew: named honorary member of the Parliament of Provence, Bégon became Intendant of the Navy in Rochefort soon after the Minim departed for America. A few years later, he held this last office simultaneously with the civil administration of the circumscription or *généralité* of La Rochelle. Bégon lived in Rochefort for the remaining twenty-two years of his life and the destiny of this small city of the Atlantic coast would be closely linked to his years as its intendant. Hitherto Rochefort was but a colony that had emerged around the immense dockyard constructed at the will of the Grand Colbert: it was part of the Controller-General’s ambitious policy of naval reforms aiming at creating a first-power fleet able compete against the Dutch and English navies.⁶³ Upon his arrival, Bégon was determined to transform the colony into a proper city: he began by settling there and not in the more urbanized La Rochelle. He established his residency in the *Maison du roi*, a small palace in the very space of the arsenal, close to the magnificent building of the *Corderie royale*. Shortly after, he had his father’s library brought from Blois and enlarged it with the obsession of a bibliophile: Father de Blois estimates Bégon’s library at 6,800 items and an undated catalog—probably composed of an inventory drawn up after the intendant’s death—suggests a collection of around six thousand volumes.⁶⁴ Organized according to Gabriel Naudé’s *Advis pour dresser une bibliothèque* (1627), the library contained about five hundred books on natural history, medicine, geography, and to a lesser extent mathematics, physics, astronomy, and hydrography. Moreover, Bégon was subscribed to the *Journal des sçavans* and the *Mémoires de Trévoux*, but also to Bayle’s trendsetting *Nouvelles de la République des Lettres*. Passionate about travel and missionary literature, he possessed several volumes of the *Lettres édifiantes et curieuses* and other Jesuit works on the Chinese missions. The books on geography included luxurious editions of the atlases by Ortelius, Mercator, and Blaeu; among those on botany, there were the works of Tournefort—offered to the intendant

⁶² Manuscript eulogy by the Capuchin Théodore de Blois, quoted in Andrée Freiche, “Michel Bégon, Intendant de Louis XIV à Rochefort ville nouvelle du XVII^e siècle, 1688-1710” (PhD diss., École des Hautes Études en Sciences Sociales, 2004), 29–30.

⁶³ Freiche, “Michel Bégon”; Donald Pilgrim, “The Colbert-Seignelay Naval Reforms at the Beginning of the War of the League of Ausburg,” *French Historical Studies* 9, no. 2 (1975), 235–62.

⁶⁴ Théodore de Blois, *Histoire de Rochefort, contenant l’établissement de cette ville, de son port et arsenal de marine, et les antiquitez de son château* (Paris: chez Briasson, 1733), 86; MMC MS 425 “Catalogus Bibliothecae Begonianae secundum scientias et artes digestus.”

by the author himself, with whom he maintained a regular correspondence—and obviously those of Plumier.

Intendant Bégon was not only a learned bibliophile, but also a refined collector of objects other than books: he installed, next to the library in his residence of Rochefort, what he recurrently called “my cabinet of curiosities” (*mon cabinet aux curiosités*).⁶⁵ The intendant is a remarkable example of the often obsessive passion for curiosities that rose in seventeenth-century Europe. Without being particularly rich (he mostly owed his fortune to his income as a naval administrator), Bégon was probably among the most prominent collectors and amateurs of his time: “what is called curiosity is something inexhaustible,” he wrote to his friend Cabart de Villermont in 1694.⁶⁶ In 1688, he acquired the cabinet of a certain Provençal officer for 2,000 *livres*, and in the 1690s, he got his hands on no less than two of the most coveted artifacts of the late seventeenth century: two of Vincenzo Maria Coronelli’s celestial globes, for which he paid 1,100 *livres*.⁶⁷ In another letter to Cabart de Villermont concerning a certain investment in a mining company, the intendant complained about the costs of his passion: “I am very displeased that my affairs do not allow me to engage in the company that is being created for the Mines of the Pyrenees, but the passion, by which I have been swept away after some years, of books, medals, and curiosities . . . do not allow me to take part in any business at all.”⁶⁸

An excerpt of an inventory drawn up in 1699 reveals a vast and varied cabinet indeed: apart from a large gathering of medals, it encompassed antiquities (“Egyptian, Greek, and Roman divinities, urns . . . and a big stone decorated with hieroglyphs”); religious objects; arms (“a very tidy gun rack in which there are . . . offensive and defensive arms of all the nations of the world made by good masters”); American exotica

⁶⁵ Bégon to Cabart de Villermont, Rochefort, January 9, 1689, in Bégon, “Lettres,” vol. 1, 40. He attached to the letter a “Mémoire de curiosités qui me sont venues de Canada,” including a “prodigious castor tooth,” diamonds, and a specimen of a longnose gar.

⁶⁶ Bégon to Cabart de Villermont, Rochefort, January 31, 1694, in Bégon, “Lettres,” vol. 1, 218: “Je ne croyois pas qu’on pust me rien apporter de nouveau de ce pays-là [Canada], cependant comme ce qui s’appelle curiosité est inépuisable, on m’a apporté plusieurs choses très jolies et très curieuses que je n’avois point encore veües.”

⁶⁷ Antoine Schnapper, *Le géant, la licorne, la tulipe. Collections françaises au XVII^e siècle*, vol. 1: *Histoire et histoire naturelle* (Paris: Flammarion, 1988), 610-5. The quote of the globes is still conserved (BNF GE F, piece 13982: “Estimation des globes du Père Coronelli”). See Philippe Haudrère, “Esquisse de portrait intellectuel de Michel Bégon,” in *Le temps de Bégon* (Rochefort: CERMA, 2011), 15–26.

⁶⁸ Bégon to Cabart de Villermont, Rochefort, February 5, 1693, in Bégon, “Lettres,” vol. 1, 179-80: “Je suis bien fasché que mes affaires ne me promettent pas d’entrer dans la compagnie qui se forme pour les Mines des Pyrénées, mais la passion à laquelle je me suis laissé emporter depuis quelques années, des livres, des médailles, et des curiosités, jointe aux autres dépenses indispensables dont je suis chargé ne me permettent pas d’entrer dans aucune affaire quelle puisse estre.”

(“a large boat made of barks . . . used by the savages of Northern America, a boat of the Eskimos [and] a pirogue of the savages of Southern America”); scientific instruments (“the Globes of Father Coronelli and those of Mercator, spheres, burning mirrors, lamps, thermometers, barometers, watches, clocks, pendulums, and mathematical instruments”) and, in general, “several curiosities of different types, such as [a] Mummy, skeletons, hides of animals, shells, dried fishes, curious furniture of far-distant nations, tools and ornaments of the savages, pagodas, sepulchral lamps, porcelains and other works of China, Japan, and all the other nations of the world, of which there are exact inventories.”⁶⁹ The exact inventories are nowadays lost, but the excerpt illustrates well a collector equally passionate about history and natural history, especially when related to far-distant cultures. Bégon represents the well-studied compulsion of the early modern collector for profusion and the strange. In a letter in 1689 to his correspondent Villermont, Bégon proudly admitted that, “by dint of putting every day something new in my cabinet, I realize it begins to fill and that I have very beautiful things.”⁷⁰

His passion for exotica throws light on his support to traveling naturalists such as Surian and Plumier, but especially the latter: his collections reveal that the intendant was particularly fond of botany and the visual arts. His passion for plants, particularly those from far-distant places, led him to establish regular contact with a broad network of French naturalists of his time. He kept with Tournefort a lifelong correspondence—the eulogy for the botanist written by his Aixois friend P. J. B. Lauthier was published in the form of a letter to Bégon—and the botanist often sent to him books on natural history including his own. He had specimens of living plants shipped to him from the American dominions by sailors and administrators of the colonies; he attempted to acclimatize these plants, rather unsuccessfully, in a botanical garden he had installed next to his house in Rochefort and placed under the direction of the first physician of the arsenal hospital.⁷¹ The excerpt of the inventory of Bégon’s cabinet drawn up in 1699 reveals “6 volumes of dried plants from Europe and America”—Surian’s herbaria were likely among these—and a “*droguier* filled with all sorts of different stones, colors, salts, metals, gums, woods, roots, plants, fruits, and seeds, from the four parts of the world.”⁷²

⁶⁹ The inventory is reproduced by Georges Duplessis, *Un curieux du XVII^e siècle: Michel Bégon, intendant de La Rochelle* (Paris: Auguste Aubry, 1874), 7–11.

⁷⁰ Bégon to Cabart de Villermont, Rochefort, April 3, 1689, in Bégon, “Lettres,” vol. 1, 63: “A force de mettre tous les jours quelque chose de nouveau dans mon cabinet, je m’aperçois qu’il commence fort à se remplir, et que j’ay bien des choses fort belles.”

⁷¹ Freiche, “Michel Bégon,” 612.

⁷² Duplessis, *Michel Bégon*, 9.

The same inventory reflects how his passion for *naturalia* materialized in the accumulation not only of botanical and zoological specimens, but of books on natural history and images as well. Bégon was a fine, well-known connoisseur of visual arts: he owned “110 volumes of engravings on all sorts of subjects engraved by the best workers, and after the most excellent Painters,” to which were added a hundred maps of different regions and cities of France and abroad, a dozen other engraved urban views, half a hundred images of ships and naval themes, twenty other volumes of geographical maps, a hundred paintings among which originals from Raphael, Tintoretto, Van Dyck, and Le Brun, and hundreds of portraits: the inventory lists “30 volumes of collections [*recueils*] of portraits of illustrious people of this century and the previous ones, engraved by the most skilled engravers of Europe”; “52 portraits of illustrious people, by excellent painters,” and “32 family portraits,” but historian of collections Antoine Schnapper went up to 160 volumes of engravings organized by topic in 1710, plus sixty volumes of engraved portraits, i.e. around eight thousand engraved portraits.⁷³ It was the intendant who conceived and supported the project of the two folio volumes of *Les hommes illustres qui ont paru en France pendant ce siècle* (1696 and 1700) by the academician Charles Perrault (1628-1703), the author of famous tales like *Contes de ma mère l'Oye* and brother of the Claude who headed the enterprise on the natural history of animals at the Académie royale des sciences.⁷⁴ It was Bégon who conceived of *Les hommes illustres*, and it was also he who collected the three hundred portraits included in it, and hired and paid the engravers. Apart from his vast collection of portraits, paintings, and engravings, the intendant's love for both the visual arts and the worlds of scholarship were manifested together in precious pieces of his collection, such as the manuscript by Nicolas-Claude Fabri de Peiresc (1580-1637) on mathematics and with “figures of all the musical instruments that [Peiresc] found,” as well as the “4 volumes of birds and fishes painted from the life [*au naturel*] on paper and vellum [*vélins*]” and the “2 volumes of plants painted by [Nicolas] Robert and other good painters and illuminators,” very likely part of the collection of *vélins du Roi* of Gaston d'Orléans.⁷⁵

⁷³ Schnapper, *Le géant, la licorne et la tulipe*, 284 and 612-3.

⁷⁴ Charles Perrault, *Les hommes illustres qui ont paru en France pendant le XVII^e siècle*, 2nd ed., 2 vols. (Paris: Antoine Dezallier, 1701), préface: “Cet ouvrage est dû principalement à l'amour qu'une personne [in a footnote: “M. Bégon, Intendant de Justice & de Marine”] d'un merite singulier a pour la memoire de tous les grands hommes.

⁷⁵ On the illustrated manuscript by Peiresc, see the introduction by Louis Delavaud and Charles Dangibeaud to Bégon, “Lettres,” vol. 1, 80. The vélins are listed in the inventory, reproduced in Duplessis, *Michel Bégon*, 7.

Unsurprisingly, the intendant was an enthusiastic admirer of Plumier's iconographic work on the nature of the West Indies. The very year when the *Description des plantes de l'Amérique* was published, he procured himself a copy printed on luxury paper and had it colored for him (fig. 2.5).⁷⁶ In his correspondence with his friend Cabart de Villermont, the intendant regularly referred to the friar-botanist. In 1690, Bégon wrote that the Minim was himself engraving the plates of "his *Histoire naturelle des Antilles*," the first title of the *Description*. Five years later, he informed his friend about his concern for the naturalist. ("I wait with impatience for the news about the health of Father Plumier, the last I had not being good.") In 1701, he wrote to Cabart de Villermont about Plumier's preparation of a work on fishes and insects, as well as about the friar's translation of Perrault's *Éloges* (the volumes of *Les hommes illustres*) into Latin. The involvement of Plumier in the project of Perrault's *Éloges*—which was above all a project of Bégon—sustains the idea of his close attachment to the intendant, even though he would never finish the translation.⁷⁷

Bégon's relationship with Plumier was certainly that of a patron and a protégé, although it was also a kind of friendship that a scholar like the Minim could only establish with a connoisseur. Bégon sent Plumier books and articles that could interest him; the Minim, in turn, dispatched to him natural specimens.⁷⁸ In a letter to a physician of La Rochelle—a certain Baulot passionate about travels and far-distant natural curiosities—on the nature of the hummingbird ("a real bird, or a hybrid species between bird and flying insect"), Plumier referred him to "*le Cabinet de Mr l'Intendant*": "you will find there for sure [a specimen of hummingbird]. I remember having sent him from Martinique, on return from my first journey, a nest of this small but admirable birds, the eggs being inside, as well as the mother, but dead and stuffed."⁷⁹ Above all, Plumier kept the intendant carefully informed about the evolution of his own work: "I have finished my treatise on usual plants [*des usuelles*] *opus indictum ore alio*, and I am composing another

⁷⁶ Bégon to Cabart de Villermont, Rochefort, June 21, 1693, in Bégon, "Lettres," vol. 1, 191–92. This illuminated copy ended up in the Bibliothèque nationale de France through the crown's acquisition of Bégon's "Cabinet of Imprints" in 1770. BNF Est. YE-25-4 "Catalogue du Cabinet de Michel Bégon": the item is listed in the catalogue as M34.

⁷⁷ Bégon to Cabart de Villermont, Rochefort, November 7, 1690, in Bégon, "Lettres," vol. 1, 98. See also Bégon to Cabart de Villermont, Rochefort, June 12, 1695 and December 27, 1701, in Bégon, "Lettres," vol. 1, 256 and vol. 2, 101.

⁷⁸ E.g. Bégon to Cabart de Villermont, Rochefort, October 21, 1703, in Bégon, "Lettres," vol. 3, 18.

⁷⁹ MMC MS 867, fol. 149r: "Quant à la seconde question que vous me proposés, savoir si le *Colibri* est un véritable oiseau ou une espèce moyenne entre l'oiseau & l'insecte volant; vous avés bien de quoy vous en éclaircir dans le Cabinet de Mr l'Intendant. Vous y en trouverez assurément. Je me souviens de lui avoir apporté de la Martinique au retour de mon premier voyage, un nid de ces petits mais admirables oiseaux, les oeufs y estoient dedans et la mere aussi, mais morte et embaumée."



Fig. 2.5. One of the copperplates in a copy of Plumier’s *Description* that has been elegantly colored by hand. This may well be the copy of Michel Bégon, for he told one of his friends that he had the *Description* printed in fine paper and colored by hand. That this is Bégon’s copy seems all the more plausible since it is currently kept at the Bibliothèque nationale de France (unlike most of Plumier’s corpus) and we know that Bégon bequeathed a good part of his exceptionally rich collection of books and prints to the king. (Bibliothèque nationale de France, Paris.)

one, also very curious, which is a treatise of the *umbelliferae* like the fennel, the angelica, the masterwort, &c. . . . I have already more than a hundred drawn.” He duly complained about how the printing of his works forced him to stay in Paris (“I could have made the travel [to America] with Mr du Casse,” he writes in 1702, “I lose a very good opportunity”), or the fact that it was not proposed to him to make more travels (“I can hardly be upset because of that. I have a lot of work here [in Paris]”), and he kept the intendant informed about the news of the field (“You would be delighted to see the number and beauty of the drawings [Tournefort] has brought from his travel [to the Levant]. You will see all of them printed one day”).⁸⁰ Plumier dedicated to Bégon the

⁸⁰ MMC MS 656, fol. 110^r: “J’ay fini mon traité des usuelles opus indictum ore alio, et j’en fais un autre aussi très curieux, c’est un traité des umbellifères comme le fenouil, l’angelique, l’imperator, &c. . . . je n’ay deia plus de cent dessinées. . . . J’aurois esté en état de faire le voyage avec Mr du Casse, je perds une très belle occasion, mais à la bonne heure”; MS 867, fol. 147^v: “On ne me dit plus rien sur aucun voyage. Je n’en suis guère affligé. J’ay de la bonne besogne ici Dieu merci.”, and 150^r: “Vous seriez charmé de voir le nombre et la beauté des desseins qu’il a aportés, j’espère que vous verrez le tout un jour imprimé.”

only book he ever dedicated to anybody, his manual on turnery of 1701, and through the dedicatory epistle we know that the friar spent some time at the intendant's place in Rochefort, where he visited his "rich Cabinet of Medals" and his "rare Library," and they discussed books.⁸¹ Over the years, they exchanged specimens and volumes, as well as drawings. In 1702, the friar apologetically asked his protector

to have a sardine of Royan drawn for me, in its entire size and natural form [*dans toute sa grandeur et forme naturelle*], by one of your draftsmen. . . . I am thinking about a treatise on fishes . . . and would need for that to travel a little through the coasts of our seas in the West as well as in Provence, and it is because of this reason that I wished to spend a little summer with you in Rochefort and La Rochelle. As for the project I told you about of traveling for a second volume of the *Tour* [*L'art de tourner*], I was thinking to make it in times of peace . . . particularly to Nuremberg, in Germany, where I have been told that there are admirable turners. I would also like to see the cabinet of canon [Manfredo] Settala in Milan. I hope the Divine Providence will favor me of its Mercy. I still feel man enough, thank God. I will work as long as it will please Him to favor me with his Grace.⁸²

The fragment certainly points towards a patronage association: if we do not know the concrete ways in which Bégon supported the activity of the naturalist, the latter responded in any case like a protégé. Apart from the *Art de tourner*, the naturalist offered to Bégon what would turn out to be a more perennial tribute: the name of a genus of flowering plants discovered by him in the West Indies, and still known today as *Begonia*.⁸³

The intendant acted as a broker between the friar and the ministers of the navy (it was he, for instance, who sent to Versailles some of the reports of Plumier on the political situation of the French West Indies), profiting from his mediating position as administrator of the port through which the French ambitions in the Americas were

⁸¹ Charles Plumier, *L'art de tourner, ou de faire en perfection toutes sortes d'ouvrages au tour* (Lyon: chez Jean Certe, 1701), sig. [a2^r].

⁸² MMC MS 867, fol. 152: "Vous me pardonneriez bien la liberté que je prens de vous prier de me vouloir faire dessiner une sardine de Royan en toute sa grandeur et forme naturelle par quelques uns de vos dessineurs. . . . Je vous demande bien pardon de ma liberté, j'ay cru que vous auriez plaisir de me faire cette grace. Je medite un traité des poissons, c'est un ouvrage competent à un minime. J'ay besoin pour ce sujet de voyager un peu les costes de nos mers tant du Ponant que de Provence, c'est pour cela que je souhaitois particulièrement d'aller passer un petit esté avec vous à Rochefort et à La Rochelle, comme aussi pour mon traité des Coquillages pour en dissequer quelques uns vivans. Pour le dessein que je vous avois fait savoir d'aller voyager pour un second volume du tour, je suposois de le faire en temps de paix. . . . Je me flatte que si je faisois ce voyage je decouvrirois bien de belles choses sur cette matière particulièrement en Allemagne à Nuremberg où j'apprens qu'il y a des tourneurs admirables. Je voudrois bien voir aussi le Cabinet du Chanoine Settala à Milan, on m'a dit qu'il y a des pièces très ingénieuses. J'espère que la Divine Providence me favorisera de sa Misericorde. Je me sens encore bien homme Dieu mercy. Je travailleray tant qu'il luy plaira me favoriser de la grace."

⁸³ On Plumier's dedication of botanical genera names, see below, chap. 4.

Fig. 2.6. Bégon’s bookplate, composed of the family crest with the motto *Michaeli Begon et amicis*, “Michel Bégon and his friends.” Intendant Bégon’s “inexhaustible curiosity” led him to cultivate a polite “friendship” with naturalists and protégés like Tournefort or Plumier. The latter visited him and his exceptional collection of books, prints, medals, and paintings in Rochefort. (Hartfield House Library and Archives.)



operated.⁸⁴ Nonetheless, Bégon’s protection of Plumier was of a different kind than that the naturalist established with a Seignelay or a Pontchartrain. The figure of the intendant predates that of the eighteenth-century French amateur studied by Charlotte Guichard: “defined by the notion of taste, which includes a whole series of social and cultural practices . . . far beyond the simple collection” of works of art and curiosities of nature, “the French amateur therefore combined, in a very specific way, the figures of the patron and of the amateur in the English sense.”⁸⁵ Bégon’s “inexhaustible curiosity” sheds light on the mobile nature and plural lives of Plumier’s drawings and prints on the West Indian nature. Take the friar’s first book: the *Description* might well have been a substantive contribution to the field of natural history, but it was its iconographic materiality—the possibility for the volume and its images to work as a luxury commodity liable to enter the library and cabinet of a refined *curieux* like Bégon—that earned its author the sympathy of the intendant and its capacity to act for him as a broker of state patronage. It took Bégon but a few months to have a luxury and illuminated edition of the book printed exclusively for him. Through his work, both *utile et curieux*, Plumier

⁸⁴ On the role of brokers in patronage relationships in seventeenth-century France, see Sharon Kettering, *Patrons, Brokers, and Clients in Seventeenth-Century France* (New York: Oxford University Press, 1986). See also her “Brokerage at the Court of Louis XIV,” *The Historical Journal* 36, no. 1 (1993), 69-87.

⁸⁵ Charlotte Guichard, “Taste Communities: The Rise of the Amateur in Eighteenth-Century Paris,” *Eighteenth-Century Studies* 45, no. 4 (2012), 521-2. Guichard’s focus is on amateurs of art in mid- to late-eighteenth-century Paris. For a more thorough study of this question, see her *Les amateurs d’art à Paris au XVIII^e siècle* (Seysseil: Champ Vallon, 2008).

became for Bégon a “friend” not in the sense of a social equal, but within the ideals of the Republic of Letters: one of those naturalists with whom the intendant exchanged books, news, and specimens; who traveled to Rochefort to visit him, as well as his library and cabinet (fig. 2.6).

Conclusion

We cannot know whether Plumier’s choice of rendering his first 1687 natural historical research in the West Indies into a largely iconographic corpus—his *recueil*—was a deliberate choice to attract royal patronage. What now seems clear is that, over the years, this did become a consequential instrument for negotiating royal patronage through the curious Bégon and ministers like Seignelay and Pontchartrain: it was in order to “continue the *recueil* that he began on seeds, plants, and trees of the abovementioned islands and to compose [a new] one on fishes, birds, and other animals of that country” that Plumier was, unlike Surian, sent back to the American islands. It was this iconographic *recueil* that Secretary of State Seignelay asked Fagon examine and evaluate for him, and that ensured Bégon’s “inexhaustible curiosity” for the friar’s work. It was this *recueil*, in other words, that caught the interests of those high officers of the crown who had in their hands the power to bestow or not royal patronage upon scholars, and that won Plumier preferment in his career under the aegis of the crown.

The story of how ministers and intendants delighted in those drawings and of how these appeared to their eyes as far more likely to serve the glorification of the monarchy than, say, Surian’s catalog and chemical analyses of West Indian plants, allows us to draw a composite picture of royal patronage of traveling naturalists in Louis XIV’s France. It reveals the reliance of the genre of natural history on a specific sort of sociability and local relations of patronage. The idea of “a new sort of agent loyal only to the state,” created by Colbert as part of his political reforms in the late 1660s and aimed at substituting the fluid patronage relationships by permanent employees of the central administration, is certainly a tempting one to be applied to traveling naturalists. What is more, this idea supports a narrative of modernity that historians of early modern science and the state have sometimes found appealing so as to account for what has sometimes been seen as a new period of the history of science, one in which the emergence of state-funded institutions across Europe created a new form of control of the production and

circulation of knowledge by the political powers.⁸⁶ But a literal reading of the rhetoric around such enterprises—the title of *botaniste du roi* or the pervasive motto “on the orders of the king”—runs the risk of composing a portrait of Louis XIV’s state that is too close to the ideal to which the monarchy itself aspired. Official titles presented flexible, ad hoc personal rewards rather than fixed positions within a state-designed scientific establishment. In this sense, the case of Plumier poses a major historiographical problem concerning the absolutist state, namely how to combine satisfactorily the personal, collaborative picture we draw from micro-cases, like the one treated here, with the historical process of the building of the modern state in relation to science.

The part that Plumier’s drawings played in conferring a socioprofessional identity to their author substantiates the idea that institutional approaches block a fair understanding of the agency of traveling naturalists economically supported, in one way or another, by the French crown. The picture of an ever-growing state machinery, with respect to which scholars had but the choice between the service to it and disgrace, seems simplistic. As Margaret C. Jacob has noted, “it is not clear in 1700 what value, if any, the French crown put in overseas scientific explorations.”⁸⁷ The story told here brings us to conclude with Safier that “an approach that privileges institutional frameworks, national allegiances, and an overly constricting nexus between botany, science, and the state fails to account for a range of actors, physical factors, and sociocultural issues that had an equal if not more significant impact on the ultimate fate” of the work of traveling naturalists on the other coast of the Atlantic.⁸⁸

⁸⁶ Jacob Soll, “From Note-Taking to Data Banks: Personal and Institutional Information Management in Early Modern Europe,” *Intellectual History Review* 20, no. 3 (2010), 120–39.

⁸⁷ Margaret C. Jacob, “Science, Global Capitalism, and the State,” in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (New York: Routledge, 2008), 336.

⁸⁸ Neil Safier, “Fruitless Botany: Joseph Jussieu’s South American Odyssey,” in Delbourgo and Dew, *Science and Empire*, 206.

3. Observing and Reading “Quill in Hand”

Note-Taking in the Field and Beyond

On January 15, 1697, Father Plumier found himself 4,800 miles away from his native France, bowing over the seven-foot-long dead body of an American crocodile. The animal was captured on the marshy banks of a freshwater lake nestling among foothills, probably by the young black slave whom the friar took the year before to help him with his work.¹ French colonists knew that lake after the Gallicized version of the aboriginal Taíno name: Miragoâne. The place was a half-day walk from the coastal town of Petit-Goave, north of the Tiburon Peninsula, in the western part of the island of Hispaniola. Founded by English pirates about four decades earlier, Petit-Goave was a port settlement lying by a deep bay, about forty miles from Cap François, the capital of the French colony of Saint-Domingue. Several months afterwards, with the signing of the Treaty of Ryswick in the far distant Old World, all those territories, already under the control of the French, were officially acknowledged under their rule. The animal under the eyes of Plumier was “6 [French] feet [*pieds*] and 4 inches [*pouces*]” long (around two meters). The friar not only dissected it, but took detailed notes: “one foot from the end of the muzzle A to the end of the occiput B. From the end of the occiput B, 8 inches minus 3 lines [*lignes*] to the scapulae C. From the scapulae C to the beginning of the tail D, 1 foot 7 inches $\frac{1}{2}$. From D to E, a bit more than 3 feet.”² The capital letters connect notes like these with certain parts of the astonishingly detailed pen-and-ink drawing that occupies most of the same loose sheet (fig. 3.1). This was the first of a group of twenty unbound pages on which the naturalist dissected, through images and text, an American crocodile.

The creature drawn and described on those twenty pages was not, however, the one studied that January 15, 1697, but a much smaller young crocodile “of 22 feet $\frac{1}{2}$ long and aged about 8 or 9 months.” Only the statement of the date and place in which Plumier

¹ In a letter to the Governor General of the Islands of America, the Count of Blenac, Plumier asked from him a written authorization to use the ships of the French navy “avec un jeune negre que j’ay pris pour m’ayder dans mon travail” (Charles Plumier to Charles de Courbon, Count of Blénac, Martinique, July 20, 1696, ANOM Colonies B^{8B} 2, fol. 32). Plumier’s young black slave is one of those fascinating, invisible figures who always had a hand (albeit a hidden one) in the making of knowledge. For two outstanding studies of these anonymous, invisible agents, see Steven Shapin, “The Invisible Technician,” *American Scientist* 77 (1989), 554-63, and Ann Blair, “Hidden Hands: Amanuenses and Authorship in Early Modern Europe,” A.S.W. Rosenbach Lectures in Bibliography, University of Pennsylvania Libraries, Philadelphia, PA, March 17, 18, 20, 2014, podcasts on <http://repository.upenn.edu/rosenbach/8/>.

² BCMNHN MS 30 “Tetrapodes dessinés par le Père Plumier, Minime,” fol. 11.



Fig. 3.1. (above) The first of a set of twenty drawings of a young American crocodile dissected and depicted by Plumier. Fig. 3.2. (opposite) Drawings of the crocodile reproducing different stages of its dissection: a “second appearance” of the animal after removing the pectoral muscles, a “third appearance” showing a first layer of organs, a heavily annotated study of its skull, and, lastly, the animal’s skeleton, feet in the floor and open-mouthed as it was when depicted alive. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

anatomized the larger Miragoâne beast, along with some measurements, remains in the first of the pictures that accompanied the dissection of the other younger specimen. We do not know from where this one came from, or where its guts scrutinized were by the friar-turned-anatomist. Yet the set of handmade drawings accompanied its dissection: if not in actuality, at least on paper, for the pictures follow the anatomical process by which the crocodile was uncovered, part by part and layer by layer. The first image presents the whole animal life-like: the feet on the floor, jaws and eyes opened. On the second, the beast has already become an object of scientific observation: although still unopened, it seems to lie in dorsal decubitus, as it would under the eyes of the anatomist. The following five pictures go deeply into its body: they are all views of the entire animal, still lying down in the same position, but successive anatomical layers are progressively laid bare with each new page: the skin, the muscles, the rib cage, a first group of organs, and finally the lasting organs, presenting the empty trunk of the beast. Another drawing sports what remained after removing all the layers: the exposed skeleton of the animal back to its feet, in the same, life-like position in which it was in the first of the drawings, when it was still dressing its own skin. The lot is completed by twelve other sheets, each depicting specific anatomical parts: the vertebrae, the eye, the bones of the legs, the lungs, the stomach, the heart, the skull. Abundant written commentaries escort virtually every drawing, orbiting around the pictured body of the animal (fig. 3.2).

Plumier's ink drawings of the crocodile are a splendid example of the friar's artistic competence, but also illustrate the naturalist's very act of observation in the field. Their naturalism, coupled with the fact that they depict an anatomic exercise, transmit such an immediacy that one is prompted to think about them solely in terms of representation from life. But we do not know whether or not these drawings, and the annotations that accompany them, were made in front of the creature while it was being dismantled. We do not know whether they were made on the banks of lake Miragoâne, sketched (partly or entirely) in front of the creature while tearing it apart, or in one of the communities he stayed while on the islands, or simply in his cell in Paris, or still on the deck of a ship on his way back home. Perhaps they were crafted at different moments and in all of these places: sometimes close, sometimes far from the object represented. Some sketches were perhaps taken in front of the animal and completed elsewhere in ink with the addition of the marginal notations and references. But scarce are the allusions to the exact circumstances in which Plumier's making of his drawings occurred. Their representational style—naturalistic and realistic rather than, say, diagrammatic—tells us

equally little about them.³ The irreducible doubt that hangs over the question of *ad vivum* production brings us to a dead end of historical discussion: simply acknowledging that naturalistic depiction is not an indisputable sign of firsthand observation does not give a sufficiently complex account of the role that depictions like these played in the making of natural knowledge at the turn of the eighteenth century.

What follows is an attempt to displace the discussion about pictures like these from the question of representation *ad vivum* to one about the logics of inscription. Wielding the quill and the scalpel equated to a form of argumentation about the natural world, one based on a *historia* of natural particulars that proceeded by means of fragmentation, recording, and accumulation. Moreover, if we are to understand this sort of depiction in terms of observational data, we need not only to consider verbal and graphic elements side by side, but also to relocate the question to a broader analysis on the part that manuscript practices of inscription at large played in the daily work of the early modern naturalist. This chapter is first concerned with the naturalist's very act of writing and drawing as two combined modes of observation recording. The purpose, however, is not to reconstruct the idyllic image of the naturalist in the field, patiently recording by skillful strokes of his pen whatever fell under his eyes, but rather to consider manuscript materials such as these for their own sake.⁴

Whereas chapter 4 looks at the copiousness of handmade visual materials as a form of accumulation central to the cultural place and intellectual project of natural history in seventeenth-century France, the present pages seek to understand the logics at play in the production of handmade drawings that were meant to fix observational data and to ensure their capacity to travel across the Atlantic Ocean. The romanticized idea of the traveling scholar writing and drawing from life in an exuberant field obscures the connections that existed between the practices that produced them and other forms of graphic and verbal inscription that sought to elaborate and stockpile memory. This being so, the specificity of field records, whether graphic or verbal, cannot be taken for granted. This chapter proposes to place side by side two scholarly practices that were

³ On the intellectual foundations sustaining the emergence of naturalism during the Renaissance, see David Summers, *The Judgment of Sense: Renaissance Naturalism and the Rise of Aesthetics* (Cambridge: Cambridge University Press, 1987).

⁴ My purpose in this chapter goes along the lines of Marie-Noëlle Bourguet's work on Humboldt's travel notebooks: "to look at travel notebooks for their own sake, as material objects, made of paper and cardboard, and meant to store observational data to insure their availability through time and space." Marie-Noëlle Bourguet, "A Portable World: The Notebooks of European Travellers (Eighteenth to Nineteenth Centuries)," *Intellectual History Review* 20, no. 3 (2010), 377-400.

largely mediated through paper and note-taking: observation and reading.⁵ Dissecting, fragmenting, scribbling, sketching: the personal confrontation with the natural world through the mediation of ink and paper was part of the intimate exercise of scientific attention and of the construction of the naturalist's self as a patient observer and meticulous note-taker. Like reading, observation was a physical activity. The practical impact of observation cum note-taking in the seventeenth and eighteenth centuries can be related, in this sense, to that of silent reading: both impose specific characteristics upon intellectual work, which becomes, in this case, an "act of individual intimacy."⁶

Both reading and observation are palpable practices. But in the case of early modern scholars at least, the two were largely carried out and mediated through textual and (especially in the case of Plumier) graphic inscriptions. For just as learned reading, natural historical observation was, after all, an inscriptional task. Note-taking stands at the junction between the history of reading and the history of scientific practices, and the former may indicate fertile paths for the latter. Ann Blair, for instance, has suggested three complementary directions for a history of scientific reading grounded on extant traces of note-taking: "the study of individual reading habits, of widely shared practices, and of the reception of particular works."⁷ In this chapter, I will attend to the second of Blair's points to explore how analogous problems arise in the history of field observation as have been remarked upon by the history of reading. Robert Darnton, for instance, has formulated some of these issues in a way that makes them easily applicable to scientific observation: he notes that by studying a form of inscription as commonplace books, "historians and literary scholars have come closer to understanding reading, both as a specific cultural practice and as a general way of construing the world. But it is a tricky business, especially when the researcher moves from questions about who readers were and what they read to the problems of how they made sense of books."⁸ Observing

⁵ For a sense of the practices of note-taking developed by scholars during the early modern period, see Ann Blair, "The Rise of Note-Taking in Early Modern Europe," *Intellectual History Review* 20, no. 3 (2010), 303-16.

⁶ Roger Chartier, "Les pratiques de l'écrit," in *Histoire de la vie privée*, ed. Philippe Ariès and Georges Duby, vol. 3, *De la Renaissance aux Lumières*, ed. Roger Chartier (Paris: Le Seuil, 1987), 126-7: "Pour ceux qui la peuvent pratiquer, la lecture en silence ouvre des horizons inédits. Tout d'abord, elle a radicalement transformé le travail intellectuel, devenu pour l'essentiel un acte d'intimité individuelle, une confrontation personnelle avec des textes toujours plus nombreux, une mise en mémoire et un croisement de références visuellement repérées dans les livres."

⁷ Ann Blair, "An Early Modernist's Perspective," in "Scientific Readers", special issue, *Isis* 95, no. 3 (2004), 421.

⁸ Robert Darnton, "Extraordinary Commonplaces," *The New York Review of Books*, December 21, 2000, <http://www.nybooks.com/articles/2000/12/21/extraordinary-commonplaces/>. On commonplace books

nature was not unlike reading in the sense that, as Roger Chartier also recalled apropos of the latter, both are a form of “appropriation that [are] not without rules or limits.”⁹

Through Plumier’s field records we can study how he made sense of the natural world that he encountered on the islands. The way in which he did so was deeply grounded in cultural practices of his time. I will first consider the anatomical method at the basis of drawings such as those of the crocodile (but not only): by looking at how dissection was carried out through paper reveals, I believe, how inscriptions worked as analytical tools in line with naturalist’s contemporary concerns for carrying out reliable and learned observations. I will then turn to consider some of Plumier’s manuscripts that were not fieldwork records but reading ones, and argue that naturalists’ observational practices of inscription need to be understood in a broader scribal culture.

To describe the inner parts

The examples of an anatomical approach to the study of animals are numerous among Plumier’s papers.¹⁰ With the subsequent rearranging of the friar’s loose papers into bound volumes at some point during the nineteenth century, the drawings of the crocodile were compiled along with anatomical studies of other five West Indian animals—a snake, a lizard (perhaps an iguana), a sea turtle, a tortoise, and a frog—under the label “Tétrapodes.”¹¹ Some red chalk and ink sketches suggest that he also dissected a porpoise (the one, Plumier wrote, one could find in Rondelet’s books: “Tursio Rondel. 474. Le Marsoin”), or was at least able to draw the skull and the bones of the fin.¹² A

in natural knowledge (and natural philosophy in particular), see Ann Blair, “Humanist Methods in Natural Philosophy: the Commonplace Book,” *Journal of the History of Ideas*, 53, no. 4 (1992), 541-55.

⁹ Roger Chartier, foreword to *Histoire de la lecture. Un bilan de recherche*, ed. Roger Chartier (Paris: Institut Mémoires de l’édition contemporaine and Maison des sciences de l’homme, 1995), 16. In 2004, Lorraine Daston urged historians of science to pay attention to “the implications of the history of scientific reading for other, more familiar forms of scientific practice, such as observation, but also for what might be called cognitive practices: economies of attention, arts of memory, the solidification and erosion of belief.” To a certain extent, I will be exploring in this chapter an idea that she formulated as follows: “ways of reading, absorbed at a young age and constantly practiced, may supply the templates for other ways of making sense of objects quite distinct from the manuscript or printed page.” Lorraine Daston, “Taking Note(s),” in “Scientific Readers,” special issue, *Isis* 95 (2004), 444.

¹⁰ Plumier’s corpus reflects well the interests of natural historians at the time, who tended to privilege the study of plants over that of animals. On the natural history of animals, see Laurent Pinon, *Livres de zoologie de la Renaissance: Une anthologie (1450-1700)* (Paris: Klincksieck, 2000) and, on exotic animals in particular, see Wilma George, “Sources and Background to Discoveries of New Animals in the Sixteenth and Seventeenth Centuries,” *History of Science* 18 (1980), 79-104; Peter Mason, *Before Disenchantment: Images of Exotic Animals and Plants in the Early Modern World* (New York: Reaktion Books, 2009).

¹¹ BCMNHN MS 30 “Tétrapodes dessinés par le Père Plumier Minime.” The term “tétrapodes,” designating four-legged animals and used to name the volumen with the drawings of the crocodilea, other four reptiles and a frog, did not appear in either French or English until the early nineteenth century.

¹² BCMNHN MS 31 “Poissons et coquilles dessinés par le père Plumier Minime,” fol. 10.

series of anatomical drawings of a pelican, too, illustrate this sort of “dissection through paper” (fig. 3.3).¹³ Probably an American Brown Pelican, for which the Caribbean basin is still today one of the main habitats, the animal was identified by Plumier as a “Grand Gosier à teste blanche et a col chastain”—in Latin *Onocrotalus Leucophaeus capite albo collo baetico* (Great pelican with white head and brown neck). In a neat, careful handwriting, running over a folio-sized page, the extant textual description narrates the morphology of the bird. Some lines give an idea of the size of the best: “more or less as big as a goose,” “its wings have around six feet of extension from one extreme to the other.” Several paragraphs describe its general features: “the eyes are quite large, slightly oblong, of a dark blue that is verging on slate-gray,” and “what makes this bird most significant is its large beak and a large membranous pouch [*falle*] from the end of the inner part of the beak to the middle of the neck, near to the chest.” Three further paragraphs describe in detail the beak and the pouch: their exact size, their colors and tonalities, their articulation to other anatomical parts, and so forth. Another nine sheets of drawings dismembered the animal. The pictures were made in ink, although the original lines in pencil can still be distinguished beneath: the position of one of the digits or “fingers” of the bird was corrected, and some pencil strokes highlighting the shadows and giving contrast to the plumage were never finally polished up with ink. The drawings may have been copies of original sketches never finished.

The series of drawings, however, reproduce the anatomical act, as in the case of the crocodile and the other “tétrapodes.” Two of the pages show the animal untouched by the scalpel, as if it were alive: one depicts its head and characteristically large beak, with a detail of its palmate foot, and the other presents a profile view of the entire bird. The rest of the folios focus, in contrast, on the anatomized beast: four pages were devoted to the skeleton and some selected bones; the other two to different views of organs like the larynx and the esophagus, the heart and the surrounding circulatory system, or the kidneys and the urethra. As with the drawings of the crocodile, letter references connect different parts of the drawings of the pelican with explanatory legends in the margins. In addition, pencil annotations specify the color of certain parts—the neck of the animal is labeled “white,” and its belly “dark gray.” Not only was the pelican dissected and drawn in a “fragmented” manner, but on occasion several views of the same object are depicted: the skull with the beak, for instance, is shown in a profile view (*cranium cum*

¹³ BCMNHN MS 27 “Zoographia [corrected as “Ornitographia”] americana, quadrupedia et volatilia continens.” The unpaginated set of images on the pelican are bound following fol. 91.

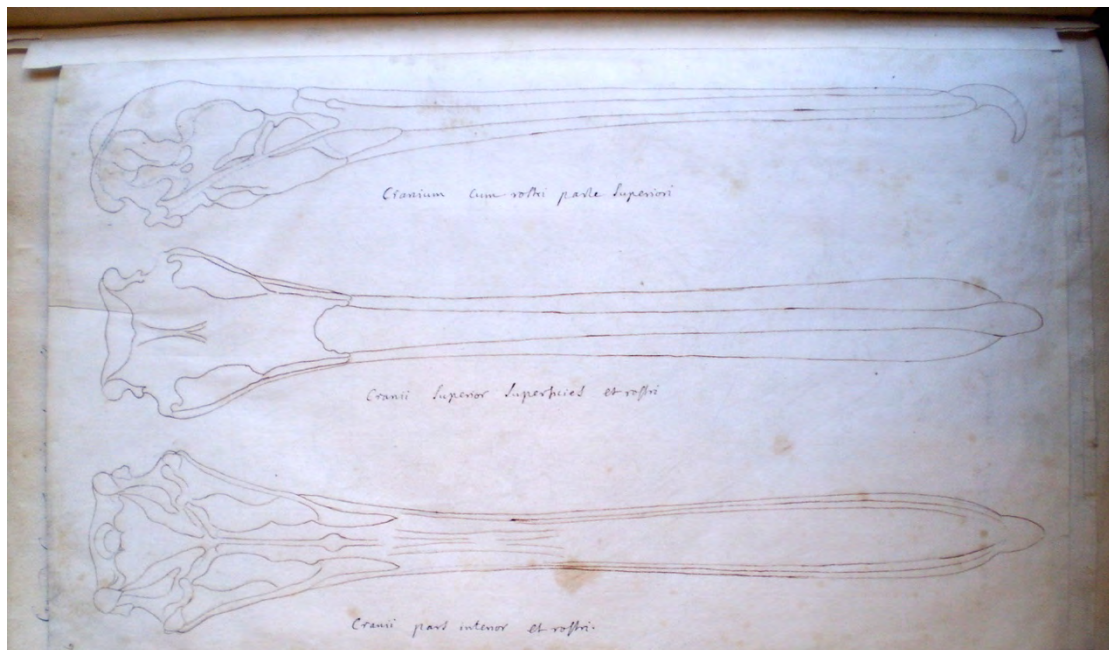
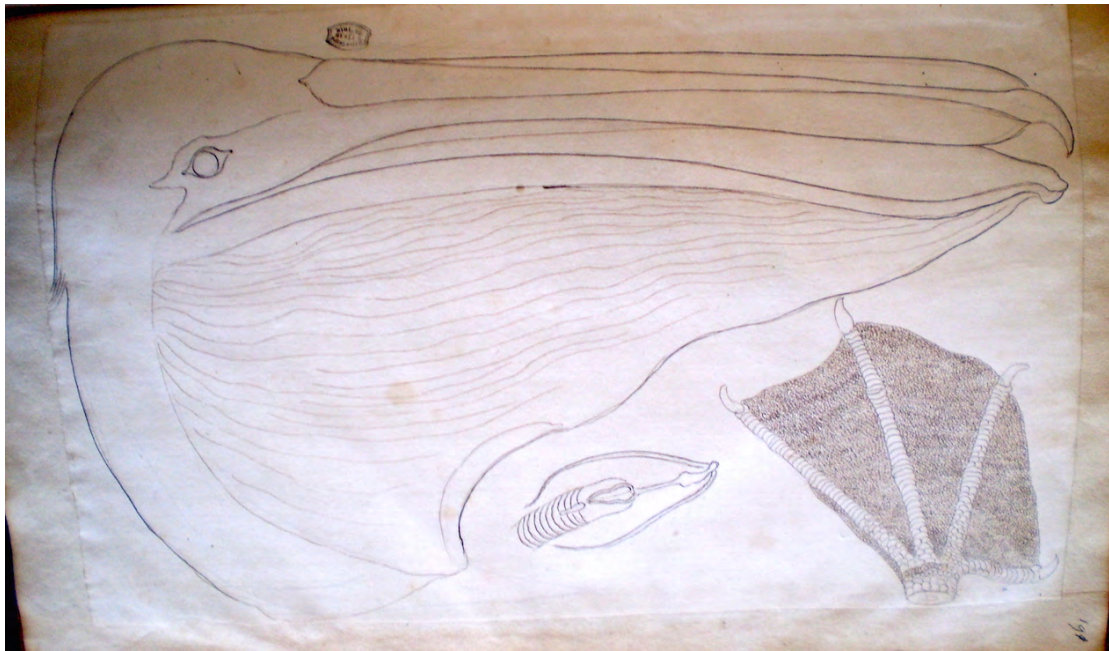


Fig. 3.3. Anatomical drawings of the pelican (“*Onocrotalus Leucophaus capile albo collo baetico*”) by Plumier. (*top*) Depiction of the pelican’s head, larynx, and palmate foot. (*bottom*) Three representations of the pelican’s skull from profile, above, and below. Plumier’s anatomical drawings follow the process of dissection as it was taught in the late seventeenth century, from the entire beast to the skeleton, proceeding first by layers, and then by parts. Plumier’s drawings reflect well an understanding of the history of animals as a chiefly anatomical enterprise, a conception prevalent at the time—as Cuvier would recall more than a century later. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)



Fig 3.4. Anatomical fugitive sheet from Juan Valverde de Amusco's *Vivae imageines partium corporis humani aeris formis expressae* (1566). The different anatomical layers are reproduced in print through superposed engravings. (Wellcome Library, London.)

rostri parte superiori), a view from above (*cranii superior superficies et rostri*), and one from below (*cranii pars interior et rostri*). The same visual strategy that consists of “turning” the object on its own axis is used for other unspecified bones or organs—the two sides and a cross-sectional perspective of lungs, for instance.

There is a striking symmetry between these examples of fragmentation through paperwork and devices such as anatomical fugitive sheets—a visual genre of considerable success during the Renaissance and well in to the seventeenth century in which layered, hinged flaps could be open to reveal successive layers of the human body (fig. 3.4).¹⁴ As suggested by Plumier’s studies on the pelican, the crocodile, and the other “tetrapod” creatures, the anatomical method permeated the late-seventeenth-century natural history of animals. Dissecting a beast before (and perhaps during) its registering on paper might have been seen as a preparation of the specimen prior to its observation and description. This was not limited to the study of animals. Rare plants, for instance, were not always found in the ideal conditions for their observation, as it happened to Plumier with a species of *Hemionitis*: the friar only encountered specimens of this plant in a very precise location of Tortuga Island, and their leaves, “all hooked towards the inside as the claws of a bird of prey, due to the drought, . . . [only] took back their natural greenness and size after I plunged them into water.”¹⁵

¹⁴ Andrea Carlino, *Paper Bodies: A Catalogue of Anatomical Fugitive Sheets, 1538-1687*, trans. Noga Arikha (London: Wellcome Institute for the History of Medicine, 1999).

¹⁵ This is the species he calls “*Hemionitis profundè lacinata, ad oras pulverulentao*” or, in French, the “*Hemionite fort découpé, bordée de poussière*”: “Je n’ay trouvé cette plante que dans un seul endroit de l’Isle de Tortüe. . . . Quand je la trouvay, ses feuilles étoient toutes recourbées en dedans comme les serres d’un oiseau de proye, à cause de la secheresse, mais elles repèrent bien-tost leur verdure & leur étenduë naturelle, dès que je les eü mises tremper dans de l’eau.” Plumier, *Description des plantes de l’Amérique avec leurs figures* (Paris: Imprimerie royale, 1693), 24.

Anatomy, however, was far from a simple preparatory step of observation during the decades around 1700. It rather occupied a central position in the study of animals, not only from an intellectual, but also from a social point of view. Anatomy was something of a rage at the time, a fashionable public spectacle well-extended among Parisian elites during the last third of the seventeenth century and well into the eighteenth century. One should remember *Le malade imaginaire*, first played in 1673, where Molière ridiculed the fashion of public dissections in a scene where the pedantic Thomas Diafoirus invites Angélique to an anatomical dissection—a “much more gallant” entertainment than, say, a theater play.¹⁶ Anatomy’s remarkable popularity was even more conspicuous when exotic animals (in the original sense of “foreign”) were involved.¹⁷ In 1681, Joseph-Guichard Duverney, one of the most brilliant anatomists of the century, performed the famous dissection of an elephant in Versailles with the noble assistance of courtiers and the monarch himself. This same Duverney was a member of the Paris Academy of Sciences and one of the anatomists in the circle of Claude Perrault. The work of Perrault’s group probably offers the best example of how animal dissections became a form of scientific display. Along with chemists and botanists, the anatomists were part of the section of “physiciens” or natural philosophers at the Academy (as opposed to the mathematicians).¹⁸ In 1671 and 1676 respectively, the Imprimerie royale issued the first two volumes of an ambitious editorial project that aimed at putting into print part of their work, the *Mémoires pour servir à l’histoire naturelle des animaux*.¹⁹ In line with the nature of the Academy and the Imprimerie royale, the purpose of these two

¹⁶ Molière, *Le malade imaginaire*, 2.5: “Thomas Diafoirus: Avec la permission aussi de Monsieur, je vous invite à venir voir l’un de ces jours, pour vous divertir, la dissection d’une femme, sur quoi je dois raisonner. / Toinette: Le divertissement sera agréable. Il y en a qui donnent la comédie à leur maîtresses; mais donner une dissection est quelque chose de plus galant.” On the range of anatomy outside the dissection room, see the beautiful pages in Rafael Mandressi, *Le regard de l’anatomiste. Dissections et invention du corps en Occident* (Paris: Le Seuil, 2003), 217-68.

¹⁷ Among all the French language dictionaries of the late seventeenth and early eighteenth century, only the Furetière, from its first 1690 edition onwards, included the adjective “exotique”: “Il ne se dit que dans le dogmatique, & signifie, Estranger” (Antoine Furetière, *Dictionnaire universel, contenant generalement tous les mots françois tant vieux que modernes, & les Termes de toutes les sciences et des arts* [The Hague: chez Arnout & Reinier Leers, 1690], sig. Hhhhh3^r). On the fashion of anatomical public spectacle in Louis XIV’s time, see Anita Guerrini, *The Courtiers’ Anatomists: Animals and Humans in Louis XIV’s Paris* (Chicago: The University of Chicago Press, 2015),

¹⁸ Alice Stroup, *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-Century Parisian Royal Academy of Sciences* (Berkeley: University of California Press, 1990).

¹⁹ These two volumes, however, reemployed descriptions and engravings already published in two shorter publications that preceded them: *Extrait d’une lettre écrite à Monsieur de La Chambre, qui contient les observations qui ont été faites sur un grand poisson dissequé dans la bibliothèque du roy, le vingt-quatrième juin 1667* [with *Observations qui ont été faites sur un lion dissequé dans la bibliothèque du roy, le vingt-huictième juin 1667. Tirées d’une lettre à Monsieur de La Chambre*] (Paris: chez Frédéric Léonard, 1667), and *Description anatomique d’un cameleon, d’un castor, d’un dromadaire, d’un ours, et d’une Gazelle* (Paris: chez Frédéric Léonard, 1669).



Fig. 3.5. Engravings of a chameleon and its anatomy in the first volume of the *Mémoires pour servir à l'histoire naturelle des animaux*, 1671. (Bibliothèque nationale de France, Paris.)

sumptuous *recueils d'images* (collections of engravings) closely related to the propagandistic agenda of the monarchy, as orchestrated by Colbert. These two volumes were first of all a very fine editorial achievement, objects to be seen by the refined and curious eyes of courtiers: richly bound in scarlet morocco, the 1671 volume alone included fourteen full-page intaglio engravings of animals like the lion or the chameleon (fig. 3.5), plus several exquisite vignettes, tailpieces, and Sebastian Leclerc's well-known frontispiece on Louis XIV's imaginary visit to the Academy.²⁰

Public performance, elite culture, and the exaltation of the monarchy were among the main reasons for the crown's support for the work of Perrault's group and to its consecration into print. Nevertheless, it is still a compelling example of the central role that anatomy, understood as a mode of inquiry, occupied in the natural history of animals. In the unsigned preface to the 1671 volume of the *Histoire des animaux*, Perrault (its actual author) assured his readers that

In this Collection we have focused specifically on the structure of Animals' parts, rather than on what regards their habits, their nourishment, the manner in which they are captured, their properties for Medicine, & for other usages that are attributed to them . . . our main

²⁰ Guerrini, *Courtiers' Anatomists*; Peter Sahlins, "The Royal Menageries of Louis XIV and the Civilizing Process Revisited," *French Historical Studies* 35, no. 2 (2012), 237-67.

purpose being to detail, & gather together all the remarks that we have made on the different particularities of the Animals’ insides. . . . But we have not dwelt very much upon things that do not directly belong to this Anatomical knowledge, because *there is but this exact Description of the Inner parts that is missing in Natural history.*²¹

One hundred years later, Georges Cuvier (1769-1832)—not only one of the greatest experts in animal anatomy of all times, but also a knowledgeable historian of his own discipline—looked back at Perrault’s and Plumier’s time and described it as one in which “it was believed that only its anatomy [that of the crocodile] would provide some new evidence.”²² Cuvier was writing about the crocodile in particular, but the remark could well serve to describe the natural history of animals by and large, as it was mostly practiced in Europe at Plumier’s time.

Plumier knew the work of Perrault’s circle well: he referred to it in a letter (eventually published in the *Journal de Trévoux*) to a Rochelais scholar on sea turtles’ inner ear, but protested about the relative rarity of the volumes of the *Histoire des animaux*. Being too large and too lavish to circulate widely among scholars, the Academy’s publications were distributed more as a form of royal presentation than as a commercial product—a complaint already made by Leibniz some years before.²³ Just as in Plumier’s loose sheets on the anatomy of the crocodile, the pelican, and a number of other West Indian beasts, the *Histoire des animaux* presented the dissected bodies of different, largely unrelated, but equally exotic animals side by side.

The Academy’s anatomists were not, however, the first to juxtapose in a single volume the anatomy of such a diverse fauna: a peculiar and poorly known work deserves to be mentioned here in this regard, even if Plumier never alluded to it or its author in his

²¹ [Claude Perrault, ed.], *Mémoires pour servir à l’histoire naturelle des animaux* (Paris: de l’Imprimerie royale, 1671), sig. [e^v]: “Dans ce Recueil on s’est particulièrement attaché à ce qui appartient à la structure des parties des Animaux, plutost qu’à ce qui regarde leurs mœurs, leur nourriture, la manière dont on les prend, leurs propriétés pour la Medecine, & pour les autres usages qu’on leur attribuë. . . . En effet, nostre principal dessein estant de rapporter, & d’amasser toutes les remarques que nous avans faites sur les différentes particularitez du dedans des Animaux. . . . Mais nous ne nous sommes pas beaucoup arretez aux choses qui n’appartiennent pas directement à cette connoissance Anatomique, parce qu’il n’y a gueres que cete exacte Description des parties Internes, qui manque à l’Histoire naturelle.” My emphasis.

²² Georges Cuvier, “Sur les différentes espèces de crocodiles vivans et sur leurs caractères distinctifs,” *Annales du Muséum national d’histoire naturelle, par les professeurs de cet établissement* 10 (1807), 79: “On crut que son anatomie pourroit seule offrir quelques faits nouveaux.”

²³ “Réponse du P. C. Plumier Minime, à une lettre de Mr Baulot écrite de la Rochelle,” in *Mémoires pour l’Histoire des Sciences & des beaux Arts* (Trévoux: de l’Imprimerie de S. A. S. à Trévoux, et se vendent à Paris, chez Jean Boudot, 1704), 112-128; Leibniz to Paul Pellison, Hanover, July 27, 1692, in *Oeuvres de Leibniz, publiées pour la première fois d’après les manuscrits originaux*, ed. Louis-Alexandre Foucher de Careil, vol. 1 (Paris: Librairie de Firmin Didot Frères, Fils et Cie., 1859), 309, and Alice Stroup, *Royal Funding of the Parisian Académie Royale des Sciences during the 1690s* (Philadelphia, PA: The American Philosophical Society, 1987), 4n16.

manuscript or printed texts. But the 1625 treatise on animal anatomy by the Frenchman Jean Germain (fl. 1620-1630) is remarkable in many respects, not the least of which is the author's belonging to the Order of Minims. We know very little about Germain.²⁴ He hailed from Provence, too, and a rare work on the properties of an Occitan town's mineral waters mentioned him as a distiller; he may have spent, however, a good part of his life in Italy—he even translated into Italian one of André Du Laurens's medical treatises.²⁵ In 1630, Germain published a bulky octavo manual on surgery, *La quint-essence de la chirurgie* (The quintessence of surgery), reprinted twice in the following decade and translated into Italian about forty years later.²⁶ With no images, the book was composed of two parts: the first described surgical treatments, from purges to the cure of ulcers and fractures; the second was an *antidotaire*, a collection of medical receipts. He dedicated the book to a Provençal nobleman (said to be a patron of the author and his family) and signed the dedication as pharmacist of the Minim convent in Avignon. Five years earlier, in the treatise on animal anatomy, Germain appeared as “surgeon-physician and, at the present time, Minim monk of the order of St. Francis of Paola” at the convent of Santa Maria della Stella in Naples.

Printed five years earlier than the surgery manual, Germain's treatise on the anatomy of animals was a much more original work, even if it was the object of only one edition. It had a significant title: “Brief and substantial treatise on the anatomical figures of the most principal terrestrial, aquatic, and flying animals, with the sympathy and correspondence that they have, in part or totally, with the human body, with the most curious and weighty mature and succinct discourses on their natural properties as hieroglyphs, and on their moralities.”²⁷ Like the title, the frontispiece summarized remarkably well the scope of the book: under the coat of arms of the order of Minims

²⁴ See P. J. S. Whitmore, *The Order of Minims in Seventeenth-Century France* (The Hague: Martinus Nijhoff, 1967), 228-9 for some few lines on Germain, almost the only to my knowledge.

²⁵ *Discorsi della conservatione della vista, delle malattie melanconiche, delli catarri, e della vecchiaia, composti in lingua francese dal sig. Andrea Lorenzo, medico fisico . . . Tradotti in lingua italiana, e commentati, da Fr. Gio. Germano* (Naples: per Lazzaro Scorigio, 1626 [1594]); Esprit Defournier, *Discours des admirables qualitez et vertus des eaux minerales retrouvées dans le terroir de la ville de Baignolz. Faict par Noble Esprit Defournier, conseiller & medecin du Roy, de la ville de Valréas. Et messieurs maistres Guillaume Beausain, & Jean Pellisier, docteurs en medecine de la Ville de Baignolz. Distillées par le Ministere de F. Jean Germain, religieux de l'ordre des Minimes* (Lyon: Louys Odin, 1636).

²⁶ Jean Germain, *La parfaite quint-essence de la chirurgie reduite en cinq parties. Avec un antidotaire ou description de plusieurs excellents remedes pour la guerison de diverses maladies* (Lyon: chez Simon Rigaud, 1630); reprinted in Paris by Pierre Billaine in 1638, and by Antoine de Sommerville in 1640. It was translated into Italian as *La quintessenza della chirurgia ridotta in cinque parti. Con un antidotario di varii rimedi, per diverse malattie*, trans. Giovanni Champround (Rome: per il Bernabo, 1674).

²⁷ Germain, *Breve e sostantiale trattato intorno alle figure anatomiche delli piu principali animali terrestri, aquatili, et volatili, con la simpatia et convenienza che hanno, o in parte, o in tutto, con il corpo humano con maturi et succinti discorsi dalle loro naturali proprietà di geroglifichi, et moralità più curiosi, cavati* (Naples: per Domenico Maccarino, 1625).



Fig. 3.6 Title page of Germain’s *Breve e sostantiale trattato*, 1625. We do not know if Plumier read this little, but richly illustrated volume on the anatomy of different animals, yet it is an interesting work for us not only due to the fact that it was authored by a fellow Minim friar, but also because it brought together anatomical depictions of different animals. (Bibliothèque interuniversitaire de Santé, Paris.)

bearing the motto “Charitas,” the skeletons of two terrestrial and two flying animals, together with those of a man and a woman (perhaps Adam and Eve), guarded the title (fig. 3.6). The work was dedicated to a member of the powerful Neapolitan family of the Pignatelli and was said to have been done at the request of a canon from the same city who also signed a praise to the author at the beginning of the work. Germain announced it to be a foretaste of a larger work on the art of the apothecaries, although this never saw the light.²⁸

The *Breve trattato*—indeed a short, small folio volume—included thirteen full-page copperplate engravings representing the skeletons of a man (two plates), ape, dog, cat, mouse (*sorge*), turtle (*testudine*), rooster, pigeon, starling, spoonbill, sparrowhawk, and owl (*ascio*). Germain signed three of them as the author (“F. Gio. Germano francese invent.”) and one bore the name of the carver—a certain Nicolas Perrey (“NPerrej fec.”), a

²⁸ Germain, *Breve trattato*, sig. **2r: “Caparra di un’altro maggiore à venire da intitularsi, ARCHIVIO DE SPETIALI con un vero modo de cavar ogni Quinta Essenza & far ogni sorte estratti, nella cui sine aggiunti vi faranno due trattati, l’uno della peste, & l’atro del modo di conoscere ogni specie di veleno, con gl’antidoti sicuri.”

renowned French engraver in seventeenth-century Naples. Despite the claims to originality, the plates (some at least) imitated famous images of the history of anatomical iconography: the first two plates of the *Breve trattato* mirrored two of the three famous representations of the human skeleton in Vesalius's *De humanis corporis fabrica libri septem* (1543), those showing a frontal and a rear view.²⁹ The origin of the rest of the images is less clear, although they probably were made by the same draftsman and carver as the those on the human skeleton. It can be said, however, that the engraving of the ape (*simia*) anticipated the well known work of Edward Tyson on the anatomy of apes: the *Orang-Outang, sive Homo Sylvestris: or, the Anatomy of a Pygmy compared with that of a Monkey, an Ape, and a Man* (1699).³⁰ Just as Germain did as early as 1625, Tyson famously compared the anatomy of his "Orang-Outang" (i.e. chimpanzee) with that of man, and the image in *Breve trattato* is not entirely unlike some in the Englishman's book.

Equally remarkable in Germain's *Breve trattato* is the interaction between text and image. Unlike Plumier's and most of the seventeenth-century's illustrated books, the engravings were intercalated between the pages of written text: the two plates on the human skeleton preceded the long preface, and those of each animal, their respective written descriptions. Almost a half of the engravings (the two of a man, and those of an ape, dog, mouse, and pigeon) included texts within the pictures identifying specific osteological parts by name. It was not by chance that most of the bones signaled were the same across those engravings (calcaneus, ribs, ulna, fingers, femur, etc.), therefore correlating the anatomies of man and those of different animals and reinforcing the comparative character of work.³¹

The question of comparison between vegetable and animal specimens is to be encountered again in chapter 4. But it is worth stressing here that by picturing different animals through the very same iconographic strategies, as Plumier did with, say, the crocodile and the sea turtle—layer by layer, and part by part—a visual correlation was

²⁹ Andreas Vesalius, *De humani corpori fabrica libri septem* (Basel: [ex officina Ioannis Oporini, 1543]), 163 and 165.

³⁰ *Orang-Outang, sive Homo Sylvestris: or, the Anatomy of a Pygmy Compared with that of a Monkey, an Ape, and a Man. To Which is Added, A Philological Essay concerning the Pygmies, the Cynocephali, the Satyrs, and Sphinges of the Ancients. Wherein it Will Appear that They Are All either Apes or Monkeys, and not Men, as Formerly Pretended* (London: printed for Thomas Bennet and Daniel Brown, 1699). On the context of Tyson's book and its repercussions, see Silvia Sebastiani, "L'orang-outang, l'esclave et l'humain: une querelle des crops en régime colonial," *L'Atelier du Centre de recherches historiques* 11 (2013), <http://acrh.revues.org/5265>

³¹ Sixteen bones were equally identified across the six engravings with written inscriptions in them: the calcaneus, the ribs, the ulna, the finger bones, the femur, the fibula, the zygomatic bone, the humerus, the ilium, the maxilla and the mandible, the metatarsus, the radius, the tarsus, the tibia, and the vertebrae. Six others (coccyx, sacrum or tailbones, metacarpus, nasal or beak bones, occiput, scapula, parietal bone) were identified in three or four of the engravings.

made. The same can be said of the *Histoire des animaux* and of Germain's illustrated book. As we will see in chapter 4, it is not entirely anachronistic to refer to this as comparative anatomy. This might well not be what Cuvier, for instance, would understand by the term a century later. Yet "comparative anatomy" was an expression used already by Nehemiah Grew in the 1670s in reference precisely to the act of correlating graphically the visible structures of natural specimens—in Grew's case, tree trunks.³²

Like Plumier's manuscripts, Germain's printed work brought together, through images, the anatomy of very different beasts. In the twenty-page long essay serving as a preface for the book and sonorously entitled "Dell'eccellenza del microscosmo col suo discorso anatomico" (On the excellence of the microcosm with its anatomical discourse), Germain claimed similitude, or sympathy, to be an infallible sign for studying natural causes (as in, for instance, the physical similarity between parents and children or between siblings) and went into convoluted considerations on the resemblance between God and men. Interestingly, Germain quoted anatomists like Du Laurens, who in his *Historia anatomica* (1602) compared the anatomy of a man to different animals like apes, dogs, and birds.³³ The friar referred in general to a large array of ancient and modern authors (from St. Gregory the Great to the Prophet Jeremiah), but did not give any allusion to his own anatomical practice or the origin of his pictures.

Books like Germain's *Breve trattato* or the Academy's *Histoire naturelle des animaux* illustrate well the visual culture prevailing in the seventeenth-century natural history of animals: despite their formal differences, both were collections of engravings of various and often unrelated animals whose visible bodily structures were put side by side by means of visual representation. But it is worth mentioning one last work to which Plumier's anatomical research on the West Indies' animals can also be linked, this time a brief, specialized treatise dealing with the anatomy of one single type of animal, tortoises and freshwater and sea turtles, by his Italian contemporary Giovanni Caldesi (1650-ca. 1732). Caldesi was a naturalist and anatomist at the court of Florence: he studied with the leading Francesco Redi (1626-1697) and was in correspondence with Marcello Malpighi (1628-1694), an anatomist and professor at the University of Bologna known for his microscopic anatomical research. Caldesi's 1687 *Osservazioni anatomiche . . . intorno alle*

³² See below, chapter 4.

³³ André Du Laurens, *Historia anatomica humani corporis et singularum eius partium multis controversis & observationibus novis illustrate* (Frankfurt: apud Matthaeum Bekerum impensis Theodorici de Bry viduae et duorum filiorum, [1599?]). Germain refers in particular to the fourth chapter of the first book, "Quid hominis corpus à caeteris animalibus distet, & quid habeat peculiare in sui structura."



Fig. 3.7. One of the plates in Caldessi's *Osservazioni anatomiche*. The copy reproduced here belonged to Plumier. It is sparingly annotated by him: only a few comments appear here and there in the margins to note some of the specificities of American turtles (which were not studied by Caldessi in his treatise). But the fact that none of the nine elegant plates in Caldessi's book gave any figure of the entire animal is a good clue of the preeminence that the anatomical method had in the study of animals by Plumier's time. (Bibliothèque interuniversitaire de Santé, Paris.)

tartarughe marittime, d'acqua dolce, e terrestri (Anatomical observations on the sea and freshwater turtles and tortoises) was the only book he ever published.³⁴ A quarto volume of almost a hundred pages, it concluded with nine full-page intaglio engravings. The text originally was announced as a letter to Redi and was followed in the volume by a dozen pages of explanations of the figures, which were gathered at the end. The engravings, significantly, depicted various and very specific anatomical parts of the animals: sections of the carapace and the skeleton, the flippers' bones, the heart, vessels, and lungs, as well as some microscopic details of the tongue—and a polyp the author found inside one of the creatures' heart (fig. 3.7).

In Caldessi's book, not a single figure of the entire animal was given. Apart from the first plate depicting the carapace, the images alone, as a matter of fact, gave little idea to the non-expert eye of the animal they were dealing with. One could speculate that his most direct visual reference in this respect were Malpighi's famous illustrations of the

³⁴ *Osservazioni anatomiche di Giovanni Caldessi Aretino intorno alle tartarughe marittime, d'acqua dolce, e terrestre. Scritte in una lettera all'illustriss. sig. Francesco Redi* (Florence: per Piero Matini, 1687).

silkworm, in which guts and nerves monopolized the space of the plate. But the engravings in the *Osservazioni anatomiche*, like Plumier’s records on the American fauna, illustrate something else: a mode of approaching the natural world that was well embedded in seventeenth-century natural history—one that, rather than anatomizing, aimed at understanding nature by putting it into pieces.

“Faire voir les parties séparées”

Caldesi’s obscure treatise on Testudinata embodies the intellectual context in which Plumier’s drawings and notes on American reptiles, amphibians, birds, and fishes must be placed. Caldesi’s volume was quoted by Plumier in his 1702 article on the inner ear of the turtle and an extant copy of the treatise was originally owned and sparingly annotated by the Minim friar.³⁵ The copy was bound with the arms of the Minims of Paris and marked on the title page with the ex libris of the convent’s library, as well as a shelf number of its location among medical books.³⁶ Plumier’s own name can also be recognized, almost cut off, at the bottom of the first page, probably an indication that the Minim friar owned the volume in loose folds, before the sheets were cut and bound to integrate them into the community’s library. The few annotations in the book seem from Plumier’s hand, and they referred the observations of the Italian naturalist to his own on the American islands. He notes, for example, that the upper shell of the green sea turtle (“la tortue franche”) is composed of 39 scutes (each of the bone plates in which is the shell), in lieu of the 42 counted by Caldesi in his own specimen of a Testudinata, and other anatomical comments on the heart of its Martiniquais relative, the green sea turtle.³⁷

From his Enlightened point of view, the Swiss anatomist Albrecht von Haller (1708-1777) praised Caldesi’s work as an excellent one and worth Redi’s friendship, for it entirely resulted from experience.³⁸ For Cuvier, however, Haller’s remarks were a bit of an exaggeration. In one of his lessons at the Collège de France, Cuvier discussed the work of Caldesi in terms that could easily be extended to European natural history of animals at large, as it was conceived and practiced around the turn of the century:

Caldesi gave the skeleton of all the known parts [of the turtle]: it was the custom of the time.

Anatomical authors used to give the skeletons separate from arteries, veins, nerves, each

³⁵ Plumier, “Réponse à Baulot.” Plumier’s copy of the *Osservazioni* is in BIUM 5547.

³⁶ The shelf number was D (red)/19. Red D indicated the books by “Medici,” or physicians.

³⁷ BIUM 5547, pp. 5, 59, 60.

³⁸ Albrecht von Haller, *Bibliotheca anatomica*, vol. 1 (Tiguri: apud Orell, Gessner, Fuessli, et Soc., 1774), 723: “Bonum opus, dignum amicum Francisci Redi, & totum per experimenta natum.”

group of organs, to isolate these parts, and to detach them from those to which they were connected. . . . Caldesi, however, showed a remarkable exactitude.³⁹

Caldesi's little book on turtles brings us to two questions that arise from Plumier's anatomical drawings. The first is the one treated in chapter 1: the crucial mediating role that bookish culture played in the observation of nature, be it the anatomy of animals or the less invasive depiction of flora and fauna from afar. The second has to do with the epistemic foundations of anatomy as a form of historical (i.e. descriptive) inquiry of nature.

Despite Haller's commonplace praise of experience alone, books were a crucial resource in anatomical learning during the sixteenth and seventeenth centuries, and this was by no means opposed to the claims of firsthand observation.⁴⁰ The eminent French physician André Du Laurens (1558-1609) sustained this position in his textbook on anatomy, the *Historia anatomica*: in a chapter on the "method to teach & demonstrate Anatomy," he argued that "we can also teach Anatomy without dissection, either by word of mouth [*de vive voix*], or by means of writing [*par écrit*]: for there are many things that cannot be known from their sight alone, and they need to be described. . . . We therefore must read the writings of both the ancients and moderns who excelled in this sort of teaching."⁴¹ The idea that anatomy could be learned in books is worth stressing, because Plumier, unlike most of his contemporary fellow naturalists, had no medical training. The Minim friar surely acquired his anatomical knowledge and competences—at least part of them—through books: not only did he own Caldesi's *Osservazioni anatomiche*, but there are, among his extant papers, abundant reading notes on an anatomical textbook widely diffused at the time, Amé Bourdon's 1678 *Nouvelle description anatomique de toutes les parties du corps humain*.⁴²

³⁹ Georges Cuvier, *Histoire des sciences naturelles, depuis leur origine jusqu'à nos jours, chez tous les peuples connus, professée au Collège de France*, ed. Magdeleine de Saint-Agy, vol. 2 (Paris: chez Fortin, Mason, et Cie. Libraires, 1841), 245.

⁴⁰ On anatomical textbooks in sixteenth- and seventeenth-century France, see Guerrini, *Courtiers' Anatomists*, 33-9. On the relation between reading and dissection, see Mandressi, *Le regard de l'anatomiste*, 111-8.

⁴¹ Du Laurens, *Historia anatomica*. I used a French edition: *Histoire anatomique, en laquelle toutes les parties du corps humain sont amplement déclarées: enrichie de controverses & observations nouvelles*, trad. François Sizé (Lyon: de l'imprimerie de Simon Rigaud, [1631], 38-9: "On peut aussi enseigner l'Anatomie sans la dissection, ou de vive voix, ou par escrit: car il y a beaucoup de choses qui ne se peuvent pas sçavoir par la seule veuë, lesquelles il faut descrire. . . . Il faut donc lire les escrits tant des anciens que modernes, qui ont excellé en ceste sorte d'enseigner."

⁴² For Bourdon's book and the reading notes Plumier took on it, see below.

Texts on the practice of human dissection were not insufficient at the time. As a matter of fact, they were part of the literary tradition in which European botanists found themselves submerged at around 1700, for the traditions of botany and anatomy had then been running in parallel for a long time. Among the anatomical textbooks available to Plumier in the library of the Parisian convent of Minims at Place Royale was that by the Swiss Protestant Gaspard Bauhin. Better known for his hugely influential botanical work, the *Pinax theatri botanici* (1623), Bauhin taught not only botany in Basel, but also anatomy, and published an exceptionally detailed (more than 1,300-page) and generously illustrated (with more than 140 full-page woodcuts) anatomical textbook.⁴³

Anatomy was taught and learned at very different levels in late seventeenth-century Paris, precisely because it played a crucial role in several non-medical fields of knowledge. This was the case not only of natural history, but also of the visual arts: conferences on anatomy and the arts were pronounced at the Paris Academy of Painting and Sculpture during the 1690s, and a surgeon was accepted there as soon as 1651 as an honorary member with the charge of teaching anatomy.⁴⁴ Whether or not Plumier was an habitué of public (or closed-door) dissections and anatomical lessons strays into the field of speculation, but there is no doubt that the opportunities to learn anatomy *de vive voix* were numerous in Paris in those days. Free public anatomical lessons and dissections were dispensed at the Jardin du roi and, from the 1690s onwards, these took place in a new purpose-built theater (fig. 3.8). In charge of the instruction there was the *démonstreur d'anatomie*, Pierre Dionis (1643-1718) from 1673 and, from 1680, Joseph-Guichard Duverney.⁴⁵ Many ephemeral publications and indeed whole little treatises informed

⁴³ Gaspard Bauhin, *Theatrum anatomicum novis figuris aeneis illustratum et in lucem emissum opera & suptibus Theodori de Bry p. m. relicta vidua & filiorum Ioannis Theodori & Ioannis Israelis de Brj* (Frankfurt: typis Matthaei Beckeri, 1605). Bauhin's *Theatrum anatomicum* was therefore printed in the same workshop as Du Laurens's *Historia anatomica*. Up to ten books by Bauhin were listed in the 1722 catalog of the library of the convent of Place Royale (Maz. MS 4147). For the relations between medical botany and anatomy in Renaissance Europe, see Sachiko Kusakawa, *Picturing the Book of Nature: Image, Text, and Argument in Human Anatomy and Medical Botany* (Chicago: The University of Chicago Press, 2012), 1-22.

⁴⁴ Alain Mérot, ed., *Conférences de l'Académie de peinture et de sculpture au XVII^e siècle* (Paris: École supérieure des beaux-arts, 1996), 252-4. The surgeon, one Quéroux or Qualtroux, was accepted at the same time as the printmaker Abraham Bosse, both on an honorary basis (as artisans, they could not join the Academy with full rights) so as to teach anatomy and perspective respectively. See Sheila McTighe, "Abraham Bosse and the Language of Artisans: Genre and Perspective in the Académie royale de peinture et de sculpture, 1648-1670," *Oxford Art Journal* 21, no. 1 (1998), 3-26.

⁴⁵ On the anatomical instruction at the Jardin du roi, see Guerrini, *Courtiers' Anatomists*, esp. chap. 6, and Matthew Senior, "Pierre Dionis and Joseph-Guichard Duverney: Teaching Anatomy at the Jardin du roi, 1673-1730," *Seventeenth-Century French Studies* 26 (2004), 153-69. It seems there was an amphitheater for anatomy lessons before the one built in the 1690s, for Dionis writes, in his *L'anatomie de l'homme suivant la circulation du sang, & les dernières découvertes* (Paris: chez Laurent d'Houry, 1690), sig. [A8^v], that "Sa Majesté presente, dans les mois de Mars de l'année 1673, ordonna que les Demonstrations de l'Anatomie & des



Fig. 3.8. Anatomical instruction at the Jardin du Roi by Pierre Dionis, in his *Cours d'opération de chirurgie*, 1708. The Jardin du roi offered public lessons in anatomy during the winter and of botany during the spring and summer. (Bibliothèque nationale de France, Paris.)

Parisians of where to find public anatomical lectures: the famous guide *Livre commode des adresses de Paris* (1692) referred its readers to the Royal Society of Medicine, where public conferences were held every Sunday afternoon by the author himself (the surgeon Nicolas Blegny, who signed the book with a pseudonym). The same publication also indicated that “Surgery, Anatomy, Chemistry and Botany are taught publicly and freely, on the orders and at the expenses of the King, at the Royal Garden of Plants,” and that lessons were announced on posters for “Anatomical Dissection and Surgical Operations at the beginning Winter, and for Demonstrations on Plants and Chemical Preparations at the beginning of the Summer.”⁴⁶ In his *Description nouvelle de la ville de Paris* (1698), Germain Brice also reported on Duverney’s anatomical *démonstrations* at the Jardin, in “a large Room, the interior of which is furnished with benches disposed in amphitheater,” as well as on his “curious Cabinet, in which he keeps rarities in relation to the science he practices.”⁴⁷

Operations de Chirurgie se feroient au Jardin Royal à portes ouvertes, & gratuitement, dans un Amphitheatre qu’elle y avoit fait construire à cet effet.”

⁴⁶ Pradel, Abraham du [Nicolas du Blegny], *Livre commode des adresses de Paris pour 1692* (Paris: Paul Daffis, 1878 [1692]), 123 and 145.

⁴⁷ Germain Brice, *Description de la ville de Paris, ou recherche des choses les plus singulieres & les plus remarquables qui se trouvent à present dans cette Ville*, 2 vols. (Paris: chez Nicolas Le Gras, Nicolas Le Clerc, and Barthelemy Girin, 1698), vol. 2, 17-8: “La Dissection Anatomique a aussi un endroit pour ses Démonstrations dans



Fig. 3.9. Detail of Plumier's drawing of the *Castanea racemosa* (chestnut) in his manuscript “Solum, Salum, Coelum Americanum,” with anatomical depictions of the fruit. (Bibliothèque centrale du Muséum national d'histoire naturelle.)

As a mode of inquiry, anatomy was profoundly embedded in the way in which the intelligibility of nature was constructed at the time: its objects were far from being limited to human and animal corpses.⁴⁸ A good example of the weight that the anatomical method carried at the time in the study of the natural world is to be found in botany. As Alice Stroup has remarked, a shift took place around the mid-seventeenth century in the study of vegetables towards regional flora, classification, and anatomy.⁴⁹ The Paris Academy of Sciences carried forth this project: in the 1660s and 1670s, Denis Dodart led the botanical counterpart of Perrault's project, one of the purposes of which was to “describe the Interior of some of their [plants'] parts, as much as we will be able to know it by means of dissection.”⁵⁰ This “description of the internal structure” of plants consisted in the anatomy of seeds, roots, and fibers, often with the assistance of a

une grande Sale, dont l'interieur est garni de Bancs, disposez en amphitheatre, à la faveur desquels un grand nombre de personnes peuvent voir tres-aisement les Operations que l'on fait. Joseph du Vernay Medecin, de l'Académie Roïale des Sciences, y donne souvent des Leçons qui lui ont acquis une tres-grande reputation. Les découvertes qu'il a fait & les nombreux Traitez qu'il a mis au jour maquent son profond sçavoir & la grande experience qu'il a dans la Dissection. Il a un Cabinet curieux, dans lequel il conserve des raretez qui ont du raport à la science qu'il pratique, où l'on remarquera bien des singularitez que l'on ne trouvera point ailleurs sans doute.”

⁴⁸ Mandressi, *Le regard de l'anatomiste*, esp. 217-68.

⁴⁹ Stroup, *Company of Scientist*, 65-88, 117.

⁵⁰ Denis Dodart, “Projet de l'histoire des plantes,” in *Mémoires pour servir à l'histoire des plantes, dressés par M. Dodart, de l'Académie Royale des Sciences, Docteur en Medecine de la Faculté de Paris* (Paris: de l'Imprimerie Royal, 1676), 3: “Nous avons aussi resolu . . . de descrire l'Interieur de quelques-unes de leurs parties, autant que nos serons capables de le connoistre par la dissection. Cela comprend la Description de la structure interieure de quelques semences, de quelques Germes, & de quelques Racines naissances; la Description des Fibres, & de leurs Intervales, tant de la racine adulte que du tronc, des Pedicules, & de leurs enveloppes.”

microscope. Both the manuscript and printed images by Plumier reflected this contemporary concern with the internal forms of some specific parts of plants (fig. 3.9), and the Minim friar knew and referred to the work of two naturalists who perhaps did the most at that time in scrutinizing the interior of flowers and seeds: the abovementioned Marcello Malpighi of Bologna and the Englishman Nehemiah Grew.⁵¹ Of “the learned and curious Anatomist Malpighi,” Plumier quoted the first tome of his *Anatome plantarum* (1675), a treatise on the structure of plants in which the Italian systematically compared the vegetable and animal anatomical parts.⁵² The first volume of the *Anatome plantarum* counted just over eighty pages of text, but more than fifty full-page engravings, each of them gathering several pictures on real-size and microscopic observations of plants’ parts. In the preface to the second part (1679), Malpighi specifically discussed the use of images in his work: “I had offered a series of observations together with figures, so that anyone at all may philosophize relying on any system at will. In like manner, I drew the figures myself, even when they represent the object enlarged by means of the microscope; however, they do not represent distinctly all the parts of the object that are truly there. . . . Rather, retaining a certain method analogous to that used by Nature, I delineated only those parts that serve to instruct the reader.”⁵³ The passage by the Italian anatomist, when compared to Plumier’s ways of doing, evidences common proceedings in representing nature. Malpighi’s drawings, as Plumier’s, were made by himself: the images were crafted by the observer and were part of the observation itself. In both cases, visual representation worked selectively, as the anatomical eye did: only the pertinent parts were retained. Malpighi’s look, however, was much more radically anatomical than the Minim’s in that his figures were exceptionally fragmented: in the Italian’s book, organisms (not only plants) were never shown in their entirety, but always broken into pieces—and these pieces were themselves usually dissected. In both cases, too, bridges were continuously built between the visual

⁵¹ He mentioned them in the preface to the *Traité des fougères de l’Amérique* (Paris: de l’Imprimerie royale, 1705), iii and xiii. For a comparative study of their contributions to plant anatomy in the second half of the seventeenth century, see Agnes Arber, “Nehemiah Grew (1641-1672) and Marcello Malpighi (1628-1694): An Essay in Comparison,” *Isis* 34, no. 1 (1942), 7-16.

⁵² Marcello Malpighi, *Anatome plantarum*, 2 vols. (London: impensis Johannis Martyn, 1675 and 1679). On Malpighi’s anatomy, see Domenico Bertoloni Meli, *Mechanism, Experiment, Disease: Marcello Malpighi and Seventeenth-Century Anatomy* (Baltimore, MD: The Johns Hopkins University Press, 2011), esp. chap. 9 (234-70) for his work on the anatomy of plants.

⁵³ Malpighi, *Anatome plantarum*, x-xi: “In reliquis observationum seriem exhibui iconibus sociatam, ut quilibet pro arbitrio cuicumque systemati innixus philosophari valeat. Icones pariter meâ manu expressi, licet microscopii microscopii ope ad auctuni repraesentent objectum: non tamen omnes ejusdem partes signatim exprimunt. . . . Sed servatâ aliquali & analogâ Naturae methodo, eas tantum delineavi partes, quae Lectorem erudire valent.” Quoted and translated in Bertoloni Meli, *Mechanism, Experiment, Disease*, 239-40.

representations and the textual observations by means of lettering systems of references. More important, Malpighi explicitly stated his belief that written descriptions and visual depictions could translate their observations as raw material, perfectly distinguishable from their own interpretation. This conviction seems to be applicable to Plumier’s pictures, too.⁵⁴

As regards Nehemiah Grew, Plumier might have read his work through that of John Ray, in particular the latter’s *Historia generalis plantarum* (1686-1704), in which he reported Grew’s microscopic observations on the seed vessels of the “Phyllitide.”⁵⁵ Another good reason to think that the friar might not have been directly familiar with Grew’s work is that both Malpighi and Ray, but not Grew, found a place in Plumier’s pantheon of illustrious naturalists: the *Malpighia* and the *Ian-Raia* were two of the genera of West Indian plants described in the *Nova genera*.⁵⁶ However, Grew’s best-known work, *The Anatomy of Plants* (1682), had been available since 1675 in a French translation printed in Paris.⁵⁷ Be that as it may, Grew’s iconography in *The Anatomy of Plants* goes along the two lines of anatomical picturing highlighted here: references between text and images, and visual fragmentation. The anatomical fragmentation affected Grew’s images no less than his text: the figures focused, as in Malpighi’s work, on parts of plants (mostly dissected themselves) and microscopic observations and, besides some pictures of a flower or a root, few of them showed parts identifiable in the specimens seen with the naked eye. But also the text proceeded by parts, from the roots to the pith to the flower, with references to the engravings and specific parts of them by means of lettering.

This glimpse into Malpighi’s and Grew’s work shows convincingly that anatomy should be understood as a mode of inquiry—one proper to natural historical research at large—rather than a discipline constructed around a specific object of study (i.e. the human body). To dissect (*disséquer*) was to “open the body of an animal, to make the

⁵⁴ For a comparative example of Malpighi’s use of images, see Bertoloni Meli, *Mechanism, Experiment, Disease*, chap. 8 and 9, and Matthew Cobb, “Malpighi, Swammerdam and the Colourful Silkworm: Replication and Visual Representation in Early Modern Science,” *Annals of Science* 59, no. 2 (2002), 111-47.

⁵⁵ Plumier, *Traité des fougères*, iii: “L’observation que le sçavant & curieux Anglois M. Grew en a faite, comme on peut voir dans l’Histoire generale de Ray 134.” He referred in particular to the first edition and volume of Ray’s *Historia plantarum generalis* (London: impensis Samuelis Smith & Benjamini Walford, 1693), in which the author reported Grew’s researches on the anatomy of plants.

⁵⁶ Charles Plumier, *Nova plantarum Americanarum genera* (Paris: apud Joannem Boudot, 1703), 46 and pl. 36 for the *Malpighia*, 33 and pl. 29 for the *Ian-Raia*.

⁵⁷ *Anatomie des plantes qui contiennent une description exacte de leurs parties & de leurs usages, & qui fait voir comment elles se forment, & comment elles croissent*, trad. Louis Le Vasseur (Paris: chez Lambert Roulland, 1675). I have not found Grew’s books in the catalogs of the Minim convent at Place Royale, but it was in the library of the Minim convent of Marseille according to a 1776 catalog: BMM MS 1485 “Catalogus librorum bibliothecae massiliensis minimorum,” fol. 324.

anatomy of it, to make its disconnected parts visible” (*faire voir les parties séparées*), as Furetière defined the word in his dictionary.⁵⁸ All over the early modern period, anatomy as a mode of inquiry involved these two crucial ideas: fragmentation and visualization. As regards the first, it entailed a logic of fragmentation as the basis for comprehension. In its restricted meaning limited to medical disciplines, the anatomical method went hand in hand with the early modern conception of the human body as a composite of parts: it consisted precisely in the operation of separating those parts and describing them independently.⁵⁹ But as a way of knowing in general, it was grounded in the belief that knowledge could be acquired by means of this patient exercise of dividing and describing—as a matter of fact, dividing to better describe. To anatomize was to make the history of bodies (be they human, animal, or vegetable) by splitting them into parts. The premise was therefore to consider its objects as composite entities, which comprehension entailed discomposing. André Du Laurens famously formulated this idea: anatomy, for him, “does not deal with the entire & continuous body, but with it divided into parts & into members.”⁶⁰ The rhetoric of the parts imbued modes of knowledge that, in the late seventeenth and early eighteenth centuries, exceeded even the boundaries of the study of nature and referred to another contemporary notion: that of “analysis.” “Analysis” was used as a synonym of anatomy when it came to this logic of fragmentation.⁶¹ The same Claude Perrault who led the project on the natural history of animals at the Academy of Sciences published in 1680 a four-volume work entitled *Essais de physique, ou recueil de plusieurs traites touchant les choses naturelles* (Physical essays, or collection of treatises on natural things). It incorporated a dictionary of “scientific terms”

⁵⁸ Furetière, *Dictionnaire* (1690), sig. [LIII4v]: “DISSEQUER. v. act. Terme de Chirurgie. Ouvrir le corps d’un animal, en faire l’anatomie, en faire voir les parties séparées.” The same definition is reemployed in the 1701 edition.

⁵⁹ On the proliferation of the social and symbolic practices of “piecing out” the body in the early modern period, see the introduction to *The Body in Parts: Fantasies of Corporeality in Early Modern Europe*, ed. David Hillman and Carla Mazzio (New York: Routledge, 2009), xi-xxix. On fragmentation as an anatomical method, see Mandressi, *Le regard de l’anatomiste*, 137-47 (incidentally, Mandressi’s book is indispensable for the epistemic power of the anatomical method to conceptualize and elaborate its objects of research themselves), and Mandressi, “Dividere per conoscere: la ‘parte’ come concetto nel pensiero anatomico in età moderna,” in *Anatome: Sezione, scomposizione, raffigurazione del corpo fra medioevo e età moderna*, ed. Giuseppe Olmi and Claudia Pancivino (Bologna: Bononia University Press, 2012), 117-35. A compelling interpretation of anatomical fragmentation in Spanish Baroque culture is in Nuria Valverde, “Small Parts: Crisóstomo Martínez (1638-1694), Bone Histology, and the Visual Making of Body Wholeness,” *Isis* 100, no. 3 (2009), 505-36.

⁶⁰ “Car l’Anatomie ne traite pas du corps entier & continu, mais divisé en parties & membres,” quoted in Mandressi, *Le regard de l’anatomiste*, 271.

⁶¹ Mandressi, *Le regard de l’anatomiste*, 144-7, 237-9.

(*termes de science*), and the author described in it the word "analysis" (*analyse*) as a "dissolution," or

the development that is made of a thing that, not being known but roughly [*en gros*], needs to be separated into parts so as to consider them independently, and to grasp more precisely by this means the nature of the whole. Therefore, when we disassemble a timepiece, or dissect an animal, or distill something, we say that we do an analysis of it.⁶²

This logic of fragmentation went beyond the limits of the epistemically rational into the realm of the wondrous: Lorraine Daston and Katharine Park have noted that objects resulting from an excellent workmanship were labeled as "curious" precisely because their nature was perceived as complex or composite: for a scholar like Thomas Hobbes, they remark, "the dissection of an object into its minute parts, be it by the eye of the body or the eye of the mind, prolongs the pleasurable state of curiosity, by disassembling a single object into many."⁶³ The logics of fragmentation thus conceived constituted curiosity at its best, the scholarly passion duly conducted. This was not always the case, especially regarding the long-distance transit of natural knowledge. Once more, the *Histoire des animaux* offer a good example of this. In the preface to the volume of 1671, Perrault conveyed the commonplace suspicion about accounts on overseas flora and fauna done by observers who were not naturalists.⁶⁴ Most of these authors lacked adequate training and this "made their work not much significant, & their evidence suspect." For the academician, it was "not likely that Merchants & Soldiers are endowed with the spirit of Philosophers & patience, which are necessary for observing all the particularities of so many different Animals." First, their curiosity was exclusively concerned with the "extraordinary figure" of these overseas marvels: these sorts of observers limited their accounts to the wondrous aspects of far-flung natures, and did not consider "a more exact research necessary." But there was an even more important aspect for Perrault:

⁶² Claude Perrault, "Table pour l'explication des termes de science," in *Essais de physique, ou recueil de plusieurs traités touchant les choses naturelles*, 4 vols. (Paris: Jean Baptiste Coignard, 1680), vol. 3, 333: "ANALYSIE. m. g. *Dissolution*. Le developement qui se fait d'une chose, qui n'estant connuë qu'en gros, a besoin qu'on en separe les parties pour les considerer à part, & sçavoir par ce moyen plus precisement la nature du tout. Ainsi lorsque l'on demonte une montre, que l'on fait la dissection d'un animal, que l'on distille quelque chose, on dit que l'on fait l'Analyse."

⁶³ Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York: Zone Books, 2001), 314. They paraphrase Thomas Hobbes, *Thomas White's De Mundo Examined*, 38.5.

⁶⁴ On evidence and credit in naturalists' travel narratives during the eighteenth century, see Juan Pimentel, *Testigos del mundo ciencia, literatura y viajes en la Ilustración* (Madrid: Marcial Pons, 2003), esp. 29-70.

what must decrease even more our esteem for this kind of descriptions is the little fidelity that Travelers ordinarily use in their accounts, in which to what they have seen they add most of the time what they could have seen; and in order not to leave the stories of their journeys incomplete, they report what they have read from the Authors, by whom they are misled, as they mislead in turn their own Readers.⁶⁵

The observation of flora and fauna—especially when far afield—was not without rules and limits. Bernard Le Bouvier de Fontenelle formulated a similar view some years afterwards apropos of Joseph Pitton de Tournefort: “an excellent Traveller” is not someone “who simply travels, but [one of] those in whom can be found a very extended curiosity, which is rather rare, & a certain gift for seeing well (*un certain don de bien voir*), even rarer.”⁶⁶ To “see well” was a pressing problem at the time, one that preoccupied in particular the members of the Academy of Sciences and partially accounts for their collective empiricism. Denis Dodart, for instance, opened the foreword to the *Histoire des plantes* with a force statement on the collective grounds of the work: “This Book is the Work of the whole Academy. There is not one of those who composed it that has not Judged, & who has not contributed at least with some advice.”⁶⁷ Collective empiricism was the mainstay of the Academy’s functioning, and it might well be read as a form of conjuring the anxieties around “exact observation.” But fieldwork—like the one in which Plumier was engaged while dissecting a crocodile—was inevitably more solitary; to “see well” was to a large extent a matter of opinion. In this regard, the logics of fragmentation at play in Plumier’s drawings—the anatomical approach to animals and plants in his notes and depictions—can be interpreted in terms of what Simon Schaffer has come to call the “imaginary systems of control over record keeping.” There is for him, in the

⁶⁵ [Perrault], *Histoire animaux*, sig. [a^v-e^r]: “Le défaut de ces qualitez dans la plupart de ceux qui ont fait des relations particulières & des memoires, rend leur travail peu considerable, & leur témoignage fort suspect : n’y aiant gueres d’apparence que des Marchands & des Soldats soient pourvus de l’esprit de Philosophie & de la patience, qui sont necessaires pour observer toutes les particularitez de tant de differens Animaux, dont la figure extraordinaire remplissoit d’abord toute leur curiosité, comme estant capable d’enrichir suffisamment leurs relations; sans qu’ils jugeassent necessaire de passer à une recherche plus exacte. Mais ce qui doit davantage diminuer l’estime qu’on peut faire de ces sortes de Memoires, c’est le peu de fidélité dont les Voyageurs usent d’ordinaire en leurs Relations; qui ajoutent presque toujours aux choses qu’ils ont vuës, celles qu’ils pouvoient voir; & qui pour ne pas laisser le recit de leurs voïages imparfait, rapportent ce qu’ils ont leu dans des Auteurs, par qui ils sont premièrement trompez, de mesme qu’ils trompent leurs Lecteurs en suite.”

⁶⁶ Bernard Le Bovier de Fontenelle, “Éloge de M. de Tournefort,” in *Histoire de l’Académie royale des sciences. Année MDCCVIII* (Paris: par la Compagnie des Libraires, 1708), 152: “Avec toutes les qualitez qu’il [Tournefort] avoit, on peut juger aisement combine il étoit propre à être un excellent Voyageur, car j’entends ici par ce terme, non ceux qui voyagent simplement, mais ceux en qui se trouve & une curiosité fort étenduë, qui est assez rare, & un certain don de bien voir, plus rare encore.”

⁶⁷ Dodart, *Histoire des plantes*, sig. e^r: “Ce Livre est l’Ouvrage de toute l’Academie. Il n’y a personne de ceux dont elle est composée qui n’en ait esté le Juge, & qui n’y ait au moins contribué quelques avis.”

stories of exploration and inscription, “a puzzle much more important than the one that asks how knowledgeable persons make reliable inscriptions”: for him, this has to do with the concern of those people with “how [certain] ways of seeing and inscribing made someone into a reliable agent of knowledge.”⁶⁸

Analysis, dissolution, anatomy: these were instruments of precision, ways of knowing that made the observation of wondrous animals far afield—from the cruel crocodile to the pouched pelican—“exact” in the terms of Perrault: they turned *voir* into *bien voir*. And material inscriptions, verbal and visual alike, mediated that experience in fundamental ways. Around 1700, the preoccupation of natural historians for this *bien voir* accounts not only for Plumier’s anatomical approach to the nature of the West Indies, but also for the specific forms of note-taking and inscribing in which he tried to capture it on paper.

Travel and note-taking

Plumier’s papers were mostly loose sheets of very different sorts, sizes, and contents when they arrived at the Bibliothèque du roi in the 1760s. The Enlightened rationality, however, could not find a place for all that heterogeneous mass of papers and those few with no clear adscription were gathered in the same folder under the hackneyed label “Notes diverses.” Among these assorted notes, some few extant pages of an otherwise lost quarto booklet are filled with written observations in an untidy handwriting, among which some “observations on the vipers of Martinique” or an incomplete piece of writing identified as “*mémoires* for a natural history of the crocodile, commonly known as caiman on the island of St Domingo.” This sheet in particular is numbered 178, a trace of the length that his observational notebooks may have reached. The pages on the crocodile are ceremoniously introduced by a brief contextual paragraph:

I, brother Charles Plumier, friar of the Order of Minims in the province of France, and Botanist of the King Most Christian, Louis the Great, on the Isles of America, began dissecting a crocodile that I took in the lake Miragoâne, located near the Petite Goine of the island of St Domingo, otherwise isle Espagnole.⁶⁹

⁶⁸ Simon Schaffer, “‘On Seeing Me Write’: Inscription Devices in the South Seas,” *Representations* 97, no. 1 (2007), 105.

⁶⁹ BCMNHN MS 33 “Notes diverses du P. Plumier,” 178 (although most of the pages in the folder are not numbered): “Je frere Charles Plumier Religieux de l’ordre des minims de la province de France et Botaniste du Roy tres chrestien Louis le grand, and les isles de l’Amérique, commençois a dissequer un

It follows an numbered list of measurements taken by the friar of the dead beast—it was these measurements that were afterwards copied on the same loose sheet displaying the first picture of another crocodile, the smaller one whose dissection was recorded in drawing. Incomplete as the text of the “*mémoires*” itself, the list finishes unexpectedly with the entry no. 11 on the nostrils of the creature, “located above the muzzle” and “closing by means of a cartilage similar to an eyelid.” There are several elements in this fragmentary journal of observations that are interesting for our purposes. First, the title “*mémoires* for the natural history of the crocodile” echoes titles such as Perrault’s *Mémoires pour servir à l’histoire naturelle des animaux* and Dodart’s *Mémoires pour servir à l’histoire des plantes*. The meaning attributed to the word *mémoires* at the time is revealing of the historical method of inquiry on which the study of nature was grounded: a *mémoire* was, for instance, “a summary piece of writing that is given to somebody as a reminder of something”; but in the plural, “it is said of the Books of Historians, written by those who took part in the affairs or were eyewitnesses.”⁷⁰ Memory and eyewitness descriptions are recurring themes in this story. The *mémoires* on the crocodile are also a good example of the previously discussed central role of the enumeration of parts in this anatomically-inspired natural history of animals. The connotations of “description” were imbued by the idea of inventory, *dénombrement*, or “written enumeration”: that is, “the detailed count of several bodies” (*le compte par le menu de plusieurs corps*). Within the field of rhetoric, *dénombrement* had a meaning along the same lines: “division of the parts of a discourse, & above all of a narrative, where the things that serve to the subject are mentioned in detail.”⁷¹ Inventory, enumeration, and measurement of parts were a common inscriptive strategy in the natural history of animals at the time; they are frequent in the written reports of the Academy’s dissections—in a display of exactness, the elephant anatomized in Versailles in 1681 was also carefully measured under the eyes of its aristocratic audience.⁷²

The Paris Academy of Sciences also offers one of the most famous iconographic materializations of the central role that inscription played in seventeenth-century natural

crocodile que j’avois pris dans le lac de miragoane situé proche le petit goine de l’isle St Domingue autrement l’isle Espagnole.”

⁷⁰ Furetière, *Dictionnaire* (1690), 593: “Mémoire . . . est une écrit sommaire qu’on donne à quelqu’un pour le faire souvenir de quelque chose. . . . Mémoires, au pluriel, se dit des Lires des Historiens, écrits par ceux qui ont eu part aux affaires ou qui ont esté témoins oculaires.”

⁷¹ Furetière, *Dictionnaire* (1690), 791: “en termes de Rhetorique, se dit de la division des parties d’un discours, & sur tout dans une narration, où on fait mention en detail des choses qui servent au sujet.”

⁷² *Histoire de l’Académie. 1666-1686*, 322–28. Similar descriptions involving measurements are spread across the volume (i.e. the description of an ibis and a lizard, p. 236-37).



Fig. 3.10. Intaglio vignette by Sébastien Leclerc in the *Histoire des animaux*. It depicts an (almost certainly idyllic) moment of collaborative work by anatomists of the Paris Academy of Sciences. Note particularly the secretary at the edge of the table taking notes of the dissection. (Bibliothèque nationale de France, Paris.)

historical observation. In order to observe well, one had to take good notes. A good case in point is the intaglio vignette authored by the celebrated engraver Sébastien Leclerc, the one placed at the head of the preface of Perrault's *Histoire des animaux* (fig. 3.10): it presents an idyllic scene of corporate collaboration between the anatomists of the Academy during a dissection. It portrays a room filled with gentlemanly scholars assembled in groups: Perrault sits theatrically holding a volume (in all probability the very *Histoire des animaux*), another presents one of the engravings of the project, a couple of them observe through microscopes, human and animal skeletons from the Academy's collection are displayed in the shady background, and the gardens and buildings of the Jardin du roi can be perceived through the windows. The figures to retain here are those of the dissector, skillfully stabbing his scalpel into the opened thorax of a dead fox, and especially that of the secretary sitting at the edge of the table and taking notes, quill in hand, of the whole process.⁷³ The concomitance of anatomical observation and its recording was also emphasized by some of the academicians' written reports. An even more famous anatomical scene than that of the fox gathered the anatomists of the Academy in Versailles in January 1681, on the occasion of the death of an African elephant from the royal menagerie. The creature was originally from Congo and a gift of the king of Portugal to Louis XIV. It also became the object of a collective dissection

⁷³ [Perrault], *Histoire des animaux*, sig. ãr.



Fig. 3.11. Some of Plumier's paper materials seem likely to have been produced in the field. These are quite diverse, and range from calculations and sketches to imprints of leaves. They all are good examples of the mediating role that inscriptions of all sorts and the practices of drawing and writing played in the exercise of natural historical observation. (Bibliothèque centrale du Muséum national d'histoire naturelle, Paris.)

performed in the presence of the court and the monarch. It involved more than severing and slicing, for it required the minute registration of what was observed and what became increasingly visible thanks to the scalpel: "Mr Du Verney made the dissection [of the elephant], Mr Perrault the description of its main parts, & Mr De la Hire, the drawings."⁷⁴

The mediating role of note-taking in the naturalist's act of observation goes well beyond the study of nature, as seen in some of Plumier's papers in the abovementioned folder "Notes diverses." This portfolio compiles loose, miscellaneous sheets of very different format and content: field annotations, sketches, and more elaborated descriptions (such as the *mémoires* for the natural history of the crocodile and the viper), drafts of his preface to the *Traité des fougères* (with some sections crossed out, some others highlighted in a box, and numerous additions between lines), and a plan for a new book

⁷⁴ *Histoire de l'Académie royale des sciences*, vol. 1, *Depuis son établissement en 1666 jusqu'à 1699* (Paris: Gabriel Martin, Jean-Baptiste Coignard fils, and Hippolyte-Louis Guérin, 1733), 322-28.

that never saw the light. A dozen of these papers are of a particular interest for better understanding the role that inscriptions played in mediating the experience of travel: sketches of insects, birds, and landscapes, as well as random observations, scribbles, and dated annotations share here the space of the same page. Let us focus for the moment on this last form of travel inscription: the discrete, diary-like entries spread across several of the loose sheets in the “Notes diverses” folder. The Minim reported in them very different sorts of annotations, from his personal experiences during the journey to systematic natural observations. Consider, for instance, this fragment written in a hurried handwriting:

On the same day of the 3rd, captain Rambaldo arrived from Nantes. It rained several times. I draw the *Aster flore minore albo* . . . and described it. [Follows a description of the specimen in Latin.] The same day of the 3rd, Monsieur de la Motte . . . and captain Perudière . . . departed from here, Fort Royal, to join our army in Saint Christophe.⁷⁵

Plumier’s notes combined unsystematically his experiences en route with natural observations, sketches of coastal landscapes seen from the ship, and even ink imprints of leaves, all in unbound sheets the size of a folio book of which most have been lost (fig. 3.11). How many of these materials were actually made in the field cannot be known, but some of these extant loose pages offer vivid glimpses into the everyday vicissitudes of traveling naturalists in a way not unlike travel logs would do in a much more systematic way a century later.⁷⁶ In one of these rare fragments, for instance, Plumier narrated one of his journeys across the Atlantic:

The first day of August we entered the Carénage around noon . . . I thanked the good Lord for our happy journey, thanks to a favorable wind, from La Rochelle to Martinique, where we arrived in less than thirty days. . . . During the second day, I unloaded my small luggage and started to look for housing. The Reverend Father . . . superior general of the Fathers [?]. . . offered me accommodation in their new house. The third day I paid my respects to

⁷⁵ BCMNH MS 10, unpaginated: “Ce mesme iour 3^{me}, Capitaine Rambaldo arriva de Nantes. Il pleut par diverses fois. Je dessina l’*Aster flore minore albo, caule rebense aspero, foliis persicariae asperis* et le decrivis. . . . Ce mesme iour 3^{me}, Monsieur de la Mothe, capitaine du Mignat [?] et Monsieur de la Perudière, capitaine de la fregatte ditte La Friponne sont partis d’ici, du Fort Royal, pour aller joinder nostre armée à Saint Cristophle commandée par Mg^{eur} le conte de Blenac.”

⁷⁶ For latter examples on the role of logs in mediating the experience of travel, see Isabelle Surun, “Le carnet de route, archive du voyage. Notes manuscrites et récit du voyage de René Caillié à Tombouctou,” *Revue de la Bibliothèque nationale de France* 22 (2006), 31-7, and Bourguet, “Portable World.”

Monsieur de Gimosac, who acted as general in Monsieurs de Blenac's stead, and he showed me his satisfaction about my being back on the islands.⁷⁷

Other sections among these loose pages of a journal show much shorter, more methodical observations of the journey. Plumier recorded in short daily entries the intensity and orientation of the wind,⁷⁸ the direction of the ship, and the heights in degrees and minutes for calculating their position. This sort of daily observations was interspersed on occasion with accounts of the hazards of the journey. The longest extant fragment of Plumier's log occupies one sheet with worn borders: it registers the two last days of June 1689 and the first two weeks of July—that is, his third trip to the Caribbean islands. The usual short daily navigation entries are interspersed with longer narrations of episodes that seemed worth mentioning, such as the sighting of threatening ships, the capture of what seemed to be a shark and happened to be a dolphinfish (which he had already “drawn and described on his first trip,” but now was too small to “note well all [its] particularities”), the traditional baptism ceremony of those who were crossing the tropics for the first time, or a menacing storm that kept the crew awake for the good part of one night.⁷⁹ Plumier's few extant dated entries are a surprising record of the experience of travel and scholarly observation, not only because of the immediacy they transmit, but also because they constitute an account in which (here again) both visual and textual elements interact. In a similar way to the interplay of images and writing in his anatomical drawings, the diary-like records slip through the blanks of images—in this case, portraying what was seen from the deck of the ship:

⁷⁷ BCMNHN MS 10, unpaginated. The entire extant fragment goes as follows: “un ordre a Monsieur De la Mothe, nostre commandant, de partir promptement pour St Cristophe, mais comme la fregate dite La Friponne estoit beaucoup incomodée par une voye d'eau qui depuis plus de dix iours travailloit beaucoup l'equipage a pomper, ou fut obligé de la faire entrer dans le carenage pour la redoubler [?]. De suite que le premier jour d'aoust nous entrasmes dans le carenage environ a midi.

... je fis remercier le bon dieu de nostre bon et heureux voyage nous ayant favorisé d'un vent fort favorable depuis La Rochelle jusques à La Martinique ou nous avons arrivé en moins de trente jours sauf quelques vaisseaux marchands de nostre convoi qui avec toutes leurs voiles ne faisoient pas plus de chemin que nous avec une et qui nous causoit un grand ennui.

Le 2 jour je fus occupé à débarquer mon petit bagage et à chercher un logement. Le Rd pere ... supérieur général des PP ... me fit la grace de me le donner dans la maison neuve.

Le 3me je fis rendre mes humbles respects à Monsieur de Gimosac [Gémozac] faisant poulors les fonctions de ~~gouverneur~~ général à la place de Mr de Blenac, il me tesmoigna beaucoup de satisfaction de mon retour aux isles.”

⁷⁸ This was precisely the seventh instruction in the “Directions for Sea-Men” circulated by the Royal Society of London in 1666: “To keep a Register of all changes of Wind and Weather at all heures, by night and by day, shewing the point the Wind blows from, whether strong or weak,” in “Directions for Sea-Men, Bound for Far Voyages,” *Philosophical Transactions* 1 (1665), 142.

⁷⁹ BCMNHN MS 10, unpaginated

On the morning of the 31st, at the break of day, we sighted the land of Martinique. I drew it as in the first figure AB, but since two of the ships of the convoy blocked my sight, I could not draw the other part of B. Some hours later, having moved away 6 leagues (*lieues*) or 20 miles (*milles*), I drew it seeing it as in the second figure, the cape being west $\frac{1}{4}$ to the southwest around noon (fig. 3.12).⁸⁰

These on-the-spot inscriptions, graphic and textual alike, were as much a private diary as a navigation log.⁸¹ Producing and collecting records of the sort described here—a particular blend of private experiences, notes on the social and political context of the islands, natural historical descriptions, and navigation observations—was part of the reality of scholarly travel, and Plumier states in fact that he kept similar (now lost) travel accounts (*relations*) on his previous journeys.⁸² This sort of field and travel inscription manifest the naturalist as an observing and note-taking self, an aspect that becomes all the more explicit in graphic and written notes in which the observer's point of view is embedded.⁸³ A case in point are Plumier's sketches of coastal profiles. One of these pictures captures a "view" (*veüe*) of the small island of Redonda as it was seen "when one is at a good league from it when coming from Montserrat to Nieves, the Rotunde being in the northeast." Similar sketches go into more accurate detail ("view of the island Saint Croix at a distance of 18 miles, the ship's bow being towards the west-southwest, $\frac{1}{4}$ towards the west") and the drawings included references in the form of capital letters that indicate the orientation ("A. southwest, B. west-southwest").⁸⁴ By such devices, these graphic and verbal travel notes capture the position of the observer. Consider, in this respect, the example of three different depictions of the coastal profile of the island of

⁸⁰ BCMNHN MS 10, unpaginated: "Le 31 au matin à la pointe du jour nous descouvrimes terre de la Martinique. Je la dessina de la maniere AB première figure, mais comme deux vaisseaux du convoy me firent obstacle, je ne peus dessiner le viste recus B. Quelques heures apres, estant environ esloigné 6 lieues ou 20 milles, je la dessina ~~de la façon~~ la voyant de la façon qu'est la seconde figure, le cap estant oest $\frac{1}{4}$ au sud oest sur le midi."

⁸¹ On logbooks as a (failed) epistemic tool and in relation to the history of scientific observation, see Margaret Schotte, "Expert Records: Nautical Logbooks from Columbus to Cook," *Information & Culture: A Journal of History* 48, no. 3 (2013), 281-322.

⁸² BCMNHN MS 10, unpaginated. On the tropic-crossing ceremony, he notes that "je ne repette pas ici cette ceremonie, l'ayant descrite assez au long dans la relation de mon premier voyage." Another manuscript, BCMNHN MS 35, includes only the first three lines of a "Relation du second voyage du Père Charles Plumier religieux minime aux Antilles et a la coste de St Domingo par ordre de Sa Majesté en l'année 1689," which suggest a narrative account: "Suite du voyage: L'année 1688 le 3 aoust estant de retour a Marseille de mon premier voyage des Antilles (où j'avois esté de la part de Sa Majesté conjointement avec Mr Surian pour la recherché des plantes et autres raretés qui se trouvent aux dites isles) Monsieur Bégon Intendant des Galères de Sa Majesté..."

⁸³ Lisa Gitelman, "The Note-Taking Self," *Take Note: An Exploration of Note-Taking in Harvard University Collections*, online exhibition, <http://takenote.harvard.edu/node/110>.

⁸⁴ BCMNHN MS 33, unpaginated: "Veüe de la Rotunde quand on y est/ vis a vis a une bonne lieüe venant de/ montserrat a nieves, la rotunde restant/ au nord est"; "

Martinique (fig. 3.13): they documented the moving vantage point of the naturalist observing from the boat. Each of these three “views” made visible different perspectives of the coast of Martinique—“view of the ‘Diamant’ and the ‘Grand Morne’ with a clear sky,” “another sight (*reconnaissance*) of Martinique from around 6 leagues”—and letter keys identified the same elements across the three pictures and the cardinal directions.⁸⁵ The same page registers the moving point of view of the naturalist on the deck and points at the ship as an often too-neglected space of scientific observation and work: the long transoceanic journey (a 30-day-long voyage from La Rochelle to Martinique seemed an acceptably short, uneventful one to our naturalist) gave leisure enough to scholarly travelers like Plumier for writing, drawing, and paperwork in general, as well as for observations.⁸⁶ The term “view” (*vue*) reflects the nature of these field notes as an attempt to register an observation as a personal experience, if not the naturalist’s deeper conviction that paper inscriptions worked as a reliable means for securing the impalpable act of looking. It can be related to another meaningful term used by Plumier in observation records as familiar already to us as the drawings of the crocodile: some of the notes described the images to which they referred as *apparences*: that is, the aspect of the crocodile as it was seen by the observer, the way in which it *appeared* to the eye of its viewer (“aspect of the arterial trachea,” “aspect of the sternum, very white”, “second aspect [of the crocodile] once the pectoral muscles were removed”).⁸⁷

Words in images

Another important point evoked in the example of the coastal profiles regards the place of letters, numbers, and symbols in building cross-references between texts and images—a system at work in most of Plumier’s manuscript records, whether of landscapes, plants, or animals. This was in a way not unlike *marginalia* and other forms of early modern notation of printed written texts that precede our quintessential footnotes. Placed usually at the side of the page, *marginalia* to seventeenth-century written texts did not always include letter or number references in superscript, but were often just placed

⁸⁵ BCMNHN MS 33, unpaginated: “vue du diamant et du grand morne a decouvert”; “autre reconnaissance de la Martinique environ a 6 lieues.”

⁸⁶ Richard Sorrenson argued that ships, in fact, were scientific instruments in their own right given that, far from mere mode of transportation, they held a mediating role between representation and reality: Sorrenson, “The Ship as a Scientific Instrument in the Eighteenth Century,” *Osiris* 11 (1996), 221-236. As Ann Blair and Peter Stallybrass have stated, “ships were one of the main schools for the development of note taking” and, since the beginning of the seventeenth century, different people began to keep journals on every ship: Blair and Stallybrass, “Mediating Information, 1450-1800,” in *This Is Enlightenment*, ed. Clifford Siskin and William Warner (Chicago: The University of Chicago Press, 2010), 146.

⁸⁷ BCMNHN MS 30, fol. 13-16.

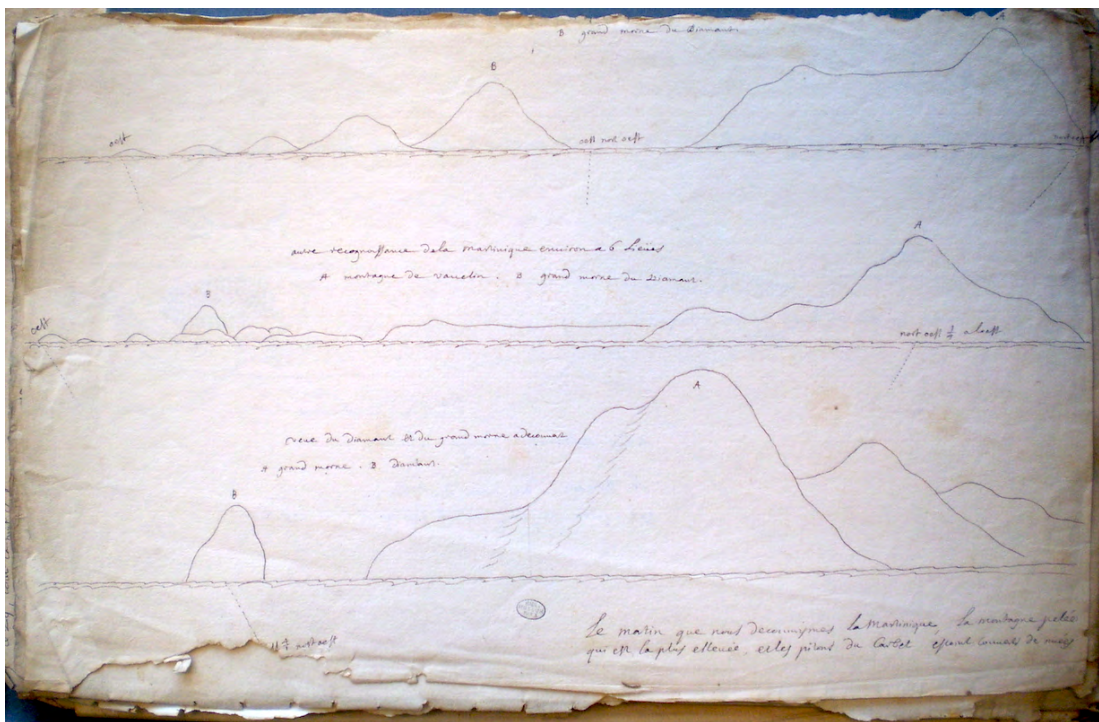
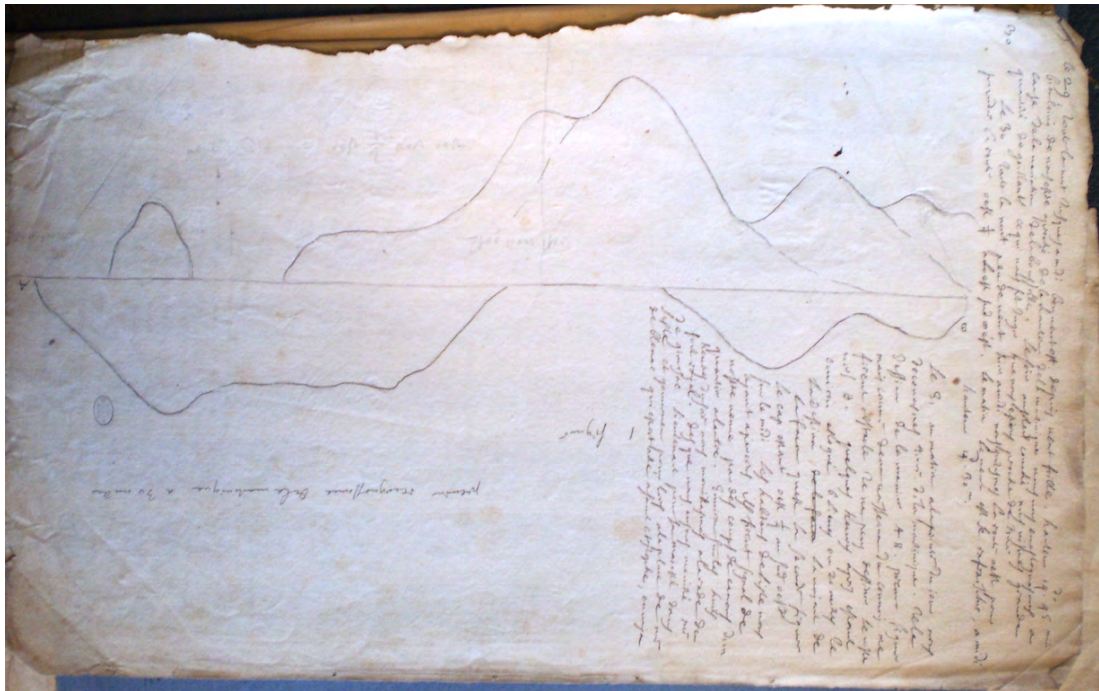


Fig. 3.12. (top) Loose sheet among Plumier’s “Notes diverses.” The dated entries of a travel log slip through the blanks left by the sketches of coastal lines, drawn by the naturalist from the deck of a ship. Fig. 3.13. (bottom) Three sketches of the same coastal profile of the island of Martinique, each documenting the naturalist’s moving point of view from a ship in transit. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

next to the passage to which they applied. In contrast, this sort of reference had a lofty tradition in scholarly printed images: they reached a particularly high degree of complexity in the field of anatomy during the first half of the sixteenth century. One of most famous examples are Vesalius's engravings in the *Fabrica*. As pointed out by Nancy Siraisi, the *Fabrica* was a composite artifact, "simultaneously an anatomical atlas, a dictionary of anatomical terms, a dissection manual, and a detailed descriptive narrative about the human body." This resulted in a dense web of cross-references bringing the reader "from text to picture and back again over a hundred times in a single short chapter."⁸⁸ The interaction of images and text became even more intricate in subsequent anatomical treatises, such as Juan Valverde de Amusco's *Historia de la composición del cuerpo humano* (1556), in which the text referred to specific plates in the volume and concrete areas on those plates.⁸⁹

This system of cross-references between images and texts was a common resource for illustrated printed books on natural history. Plumier used it in his *Nova genera*. Its plates, collected at the end of the volume, presented a few selected parts of each genus (normally the flower, seeds, and fruit): letter references guided the reader from these parts back to the textual description in the first half of the volume, where they were labeled and expounded. As much of the material characteristics of the *Nova genera*, this form of bridging text and images was adopted from Tournefort's *Éléments de botanique* (1694), composed of three quarto volumes: one of text and two of engravings.⁹⁰ Here too, each plate presented selected elements that were assumed to represent the best of each genus: both the text and the plates of the *Éléments* were sprinkled with capital letters that invited the reader to go back and forth between the first and the last two volumes. Such a way of interacting with text and images was not only intended by the authors, but usually also by the readers and printers. This is convincingly shown in an issue⁹¹ of the *Nova genera* now at the Historical Library "Marqués de Valdecilla" in Madrid, in which the problem of having to go back and forth between the text at the beginning of the volume

⁸⁸ Nancy G. Siraisi, "Vesalius and Human Diversity in *De humana corporis fabrica*," *Journal of the Warburg and Courtauld Institute* 57 (1994), 63-4.

⁸⁹ Mandressi, "Images, imagination et imagerie médicales," in *Les lieux du savoir*, ed. Christian Jacob, vol. 2, *Les mains de l'intellect* (Paris: Albin Michel, 2011), 643-4.

⁹⁰ The relationship between Plumier's *Nova genera* and Tournefort's *Éléments* will be discussed below: see chap. 5.

⁹¹ I am using here the vocabulary sanctioned by the English-speaking bibliography, which distinguishes between edition, issue, and state. See Fredson Bowers, *Principles of Bibliographical Description* (Princeton: Princeton University Press, 1949), and Philip Gaskell, *A New Introduction to Bibliography* (Oxford: Clarendon Press, 1972).



Fig. 3.14. Issue of Plumier’s *Nova genera* in which the plates have been printed on larger paper than the text, so that the former can be unfolded and placed side by side with the latter. This allowed the reader to make a speedy use of the cross-references connecting the text with the images. (Biblioteca histórica “Marqués de Valdecillas,” Universidad Complutense de Madrid.)

and the plates at the end was solved with a modification in its composition. In most of the extant copies of the *Nova genera*, the plates are printed on a lighter paper the same size as the pages of text. In most of the cases, too, they are placed at the end of the volume, right after the “*Catalogus plantarum Americanarum*,” a catalog of the plants discovered by Plumier on the American islands during his three journeys that was printed with the *Nova genera*. In the Madrid copy, in contrast, the plates were printed on larger paper, so that they could be unfolded and kept side by side with the text (fig. 3.14).⁹² It is also remarkable that they were placed not at the end of the volume, but right after the text of the *Nova genera* and before that of the “*Catalogus*,” thus making clear that, strictly speaking, they referred to (and thus needed to be consulted while reading) the *Nova genera*, not the catalog.

The system of cross-references between images and texts, whether in manuscript or print, was the result of a specific use that was imposed, in turn, upon the reader. They led the reader’s gaze from the very concrete visual details whose importance was sanctioned by a letter or a number to the adjacent written legend. In contrast to printed books, however, the intended audience of Plumier’s notes and manuscript drawings cannot be

⁹² BHMV MED 7015: it comes from the library of the “San Carlos” Royal College of Surgery in Madrid. I thank Fernando Bouza for bringing this state of the *Nova genera* to my attention.

clearly delineated. Arguably, and in the field records at least, this sort of interaction between images and text was not simply expository, for it aimed at directing the attention of the observer/author no less than that of the reader. Normally in the form of letters of the Latin alphabet (sometimes Greek letters or numbers), Plumier weaved with references a network of bridges between, on the one hand, specific spots of his handmade drawings (whether simple sketches such as those on coastal landscapes or little artistic achievements like the pictures of the crocodile) and, on the other hand, the galaxy of notes orbiting around them (fig. 3.2, top-left image). As a sort of legend, these numbered annotations spoke for the images: the notes labeled and explained what the images represented, they elaborated on the conditions of these records' making and on aspects that the graphic medium could not capture.

Cross-references made those images more complex, thus acknowledging a sort of intellectualization of the observational experience, one that could be found at the time in lecture halls where botany and anatomy was taught: those, say, of the Jardin du roi. Plumier's annotated drawings seem to correlate on paper to a mode of observation (one proceeding part by part) on which the contemporary teaching of botany or anatomy was based.⁹³ While the numbered notes equated to the living word of the *démonstrateur*, the keys over the images stood for his finger: they pointed to those parts that should be looked at. This visual, demonstrative component was particularly clear in the way anatomy and botany were taught in late seventeenth- and early eighteenth-century Paris: at the Jardin du roi the teaching was done in the form of “demonstrations” and by “demonstrators,” which consisted of lessons carried out in the gardens, the chemical laboratories, or the anatomical theaters. This sort of botanical and anatomical teaching proceeded “by finger and by the eye” (*au doigt & à l'oeil*), sometimes with a baton (*baguette*). Without being new, it epitomized the main meaning of the word *démonstration* itself, for it denoted an “action by which we show, we indicate something” or “make something clearly visible.” Some dictionaries of the period actually used the teaching at

⁹³ An official document from 1708 regulating the functioning of the Jardin du roi listed the obligations of the *démonstrateur de l'intérieur des plantes* (professor of the interior of plants) as to “teach [their] known virtues and uses by means of experiences,” as well as by the “analysis of the parts that compose them” (AN AJ¹⁵ 501, dossier 34 “Règlement ordonné par le Roy pour fixer les exercices de chaque professeur du Jardin Royal des plantes à Paris”). On the teaching at the Jardin du roi, see Yves Laissus, “Le Jardin du roi,” in *Enseignement et diffusion des sciences au XVIII^e siècle*, ed. René Taton (Paris: Hermann, 1986), 287-341, and Jean-Paul Contant, *L'enseignement de la chimie au Jardin royal des Plantes à Paris* (Cahors: A. Coueslant, 1952) although the last one is mostly (but not exclusively) focused on the teaching of chemistry.

the Jardin du roi as an example of what “to demonstrate” meant.⁹⁴ The same sort of ceremonial and spectacular dimension present in this sort of anatomical and botanical pedagogy was not absent from Plumier’s drawings filled with letter keys connecting them to surrounding explicative notes.

The kind of observational experience embodied in cross-references between images and texts is better grasped when compared to cases beyond the boundaries of scientific practice. One of the most illustrative examples of this can be found a century earlier in another superb iconographic project: the set of 153 devotional engravings conceived by the Spanish Jesuit Jerónimo Nadal (1507-1580).⁹⁵ Entitled *Evangelicae historiae imagines*, this collection of printed images was posthumously published without text in Antwerp in 1593; they were reprinted two years later with textual commentaries and a new title, *Adnotationes et meditationes in Evangelia* (fig. 3.15).⁹⁶ Persistently said to have been commissioned by Ignatius of Loyola (of whom the Spaniard was the secretary),⁹⁷ this collection of burin engravings illustrating the Gospels has usually been placed at the center of a “Jesuit visual culture”—that is, the idea that the cultivation of the visual arts among the Jesuits was as integral part of an active and conscious “corporate” apostolic

⁹⁴ Furetière, *Dictionnaire*, vol. 1, sig. TTTt2r: “Démonstrer. Action par laquelle on montre, on indique quelque chose. Quand des parties ne sont pas d’accord sur quel heritage une redevance est dueë, il en faut faire la démonstration au doigt & à l’oeil. Il y a au Jardin Royal un Professor Botanique qui fait la démonstration des plantes avec une bagueette.”; César-Pierre Richelet, *Dictionnaire françois, contenant les mots et les choses, plusieurs nouvelles remarques sur la langue françoise* (Geneva: chez Jean Herman Widerhold, 1690), 228: “Faire voire clairement.”

⁹⁵ I owe the idea of this comparison, as many others along these pages, to Fernando Bouza. The literature on Nadal’s use of images is extensive: particularly useful for me were T. Buser, “Jerome Nadal and Early Jesuit Art in Rome,” *Art Bulletin* 58 (1976), 424-33; David Freedberg, “A Source for Rubens’s Modello of the Assumption and Coronation of the Virgin: A case Study in the Response to Images,” *The Burlington Magazine* 120, no. 904 (1978), 432-441; M. B. Wadell, “The Evangelicae historiae imagines: The Designs and Their Artists,” *Quaerendo* 10 (1980), 279-91; Marc Fumaroli, “Sur les seuil des livres: Les frontispices gravés des traités d’éloquence,” in *L’école du silence: le sentiment des images au XVII^e siècle* (Paris: Flammarion, 1998 [1994]), 421-44, and José Eugenio Borao Mateo, “La versión china de la obra ilustrada de Jerónimo Nadal *Evangelicae Historiae Imagines*,” *Goya: Revista de arte* 330 (2010), 16-33.

⁹⁶ *Evangelicae historiae imagines: ex ordine Evangeliorum quae toto anno in missae sacrificio reicantur in ordinem temporis vitae Christi digestae* (Antwerp, 1593), and *Adnotationes et meditationes in evangelia quae in sacrosancto missae sacrificio toto anno legentur: cum Evangeliorum concordantia historiae integritati sufficienti: Accessit & Index historiam ipsam Evangelicam in ordinem temporis vitae Christi distribuens* (Antwerp: Martinus Nutius, 1595).

⁹⁷ On Ignace having originally commissioned Nadal’s project and, more generally, the function of “imagination” in the spiritual exercises, see Pierre-Antoine Fabre, “Les ‘Exercices spirituels’ sont-ils illustrables?” in *Les jésuites à l’âge baroque, 1540-1670*, ed. Luce Giard and Louis de Vaucelles (Paris: Jérôme Milton, 1996), 197-209. Father Diego Jiménez wrote a letter to Pope Clement VIII that was placed at the beginning of the *Adnotationes et meditationes*; in that letter, Jiménez stated that the founder of the order commissioned to Nadal, in one way or another, the project of the *Imagines*. Fabre argues that it was on the basis of this “argument from authority” that the tradition weaved a “mystical contract” regarding not only the commission of an illustrated evangelical commentary, but the inscription of material images at the spiritual core of the Society of Jesus.



Fig. 3.15. First engraving of Jerónimo Nadal's *Evangelicae historiae imagines*, depicting the Annunciation of the Virgin Mary. Note the cross-references in capital letters connecting image and text, and tacitly guiding the attention of the viewer. (Getty Research Institute, Los Angeles.)

program.⁹⁸ Nadal's *Imagines* had a long and versatile influence, from the Jesuit missions in China to Rubens's composition of the *Assumption of the Virgin Mary* completed in 1626. The goal of the *Imagines* was originally to "afford the seminarians of the same Society [of Jesus] continual and ready material and profit for meditating and praying."⁹⁹ In other words, the purpose was to provide the basis for a prayer based on focused observations, that is, "observations for meditation, that depend upon pictures."¹⁰⁰ The *Imagines* gave printed form to one of the main aspects of Ignatius's *Spiritual exercises*: the composition of place (*compositio loci*), a prelude to the meditation in which the worshipper engaged in "seeing the place." Ignatius himself prepared his prayer by images he collected for this purpose, and Francis Borgia (1510-1572) gave a verbal formulation to this exercise based on attention to visual details: "to aid in meditation," said Borgia, "one places an image that represents the evangelical mystery and, therefore, before beginning the meditation, [one must] look up to the image, *particularly noticing what is to be noticed*, in order to consider

⁹⁸ Gauvin Alexander Bailey, "Le style jésuite n'existe pas": Jesuit Corporate Culture and the Visual Arts," in *The Jesuits: Cultures, Sciences, and the Arts, 1540-1773*, ed. John W. O'Malley et al. (Toronto: University of Toronto Press, 1999), 38–89.

⁹⁹ Diego Jiménez's prefatory remarks to the *Adnotationes*, quoted and translated by Buser, "Jerome Nadal," 425.

¹⁰⁰ Jiménez in *Adnotationes*, quoted and translated by Buser, "Jerome Nadal," 425.

it better during meditation and obtain its advantage.”¹⁰¹ What is remarkable in Nadal’s *Imagines* is precisely the articulation of textual and visual elements on the same plate by means of keys: capital letters identified specific details of the image as “what has to be noticed,” and a legend at the bottom of the engraving explained and gave an interpretation of it. As in the realm of anatomical imagery, the process of meditation and thought passed through a careful consideration of the details and the regulation of attention: it proceeded part by part.

Is it legitimate, then, to liken Nadal’s sixteenth-century devotional engravings to Plumier’s field drawings? In the former the system of bridges between text and image by means of letter references surely suggests something that became explicit in the second half of the seventeenth century: the place of visual representations in linking fragmentation and thought. Consider as an example the reflections of another Jesuit, Claude-François Ménéstrier (1631-1705), probably one of the greatest theorists of the image in the early modern period. In the “avertissement” to his *Recherches du blason* (1673), in which he laid down the principles of his “philosophy of images,” Ménéstrier identified six human faculties that “worked by means of images”: the eyes, imagination, memory, judgment (*jugement*), understanding (*entendement*), and will (*volonté*). The eyes, said Ménéstrier, “receive all those [images] that are presented to them”; the imagination “incise [*grave*] images in the soul and on the body”; memory “prints and arranges them”; and the inclinations, habitudes, and affections of will “are, in their own way, images.”¹⁰² Particularly interesting for our purpose are judgment and understanding. Judgment, according to the Jesuit, “casts [*moule*] them by comparing them with one another,” a capacity that illustrates also the part that visual representation played in late seventeenth-century natural history for comparing different plants and animals.¹⁰³ As for

¹⁰¹ “Para hallar mayor facilidad en la meditación se pone una imagen que represente el misterio evangélico, y así, antes de comenzar la meditación, mirará la imagen y particularmente advertirá lo que en ella hay que advertir, para considerarlo en la meditación mayor y sacar mayor provecho de ella,” quoted and translated by Ilenia Colón Mendoza, *The Cristos yacentes of Gregorio Fernández: Polychrome Sculptures of the Supine Christ in Seventeenth-Century Spain* (Farnham: Ashgate, 2015), 100.

¹⁰² *Les recherches du blason. Seconde partie de l’usage des armoiries* (Paris: chez Estienne Michallet, 1673), sig. [ã4v]: “Il y a aussi six facultez de l’homme qui travaillent en Images./ 1. Les YEUX reçoivent celles de tous les objets qui se presentent à eux comme les miroirs, & les corps polis. . . / 2. L’IMAGINATION grave des images dans l’ame & sur le corps./ 3. La MEMOIRE les imprime & les arrange. . . / 6. La VOLONTÉ toute aveugle qu’elle est a ses inclinations, ses habitudes, & ses affections, qui sont à leur maniere des Images.” *Les recherches du blason* was originally the second part of *Le véritable art du blason, et la pratique des armoiries depuis leur institution* (1671), a text that was reedited several times with varying titles. On the complex printing history of Ménéstrier’s books, see Stéphane Van Damme, “Les livres du P. Claude-François Ménéstrier (1631-1705) et leur cheminement,” *Revue d’histoire moderne et contemporaine* 42, no. 1 (1995), 5-45.

¹⁰³ A field that, without being explicitly comparatist in the manner in which it would become in the nineteenth century, was attempting to find a certain sort of order in nature on the basis of a process of

understanding, it “paints and cuts,” said Méneſtrier: “it unites things so as to draw consequences, and *separates them through Analysis so as to know them.*”¹⁰⁴

However far Méneſtrier’s “philosophy of images” was from Plumier’s actual use of visual representation as an instrument of knowledge (the Jesuit’s neoplatonism contrasts with the Minim’s sort of empiricism—one would be tempted to say, an almost Baconian one),¹⁰⁵ they both bring into light (the former through his theoretical formulations, the latter in his actual practice) a conception that was common ground in European thought during the period: that images worked as *instruments of analysis*, that they were *analytical tools*. We have already encountered the word and concept of *analysis* as associated to the method of anatomy. It seems useful, though, to come back to it, for not only does it condense the epistemic grounds of the anatomic act, but may also help explain fragmentation through paperwork. The first editions of Furetière’s *Dictionnaire* (1690 and 1701) went along lines similar to those developed by Méneſtrier: Furetière placed the French *analyse* in its etymological tradition, signaling the Greek origins of a word that connoted *dissolution*, from where its current meaning derived: “when we separate and we develop the parts of a thing that we did not know but in general [*en gros*], so as to know it in detail,” or still “when we *disassemble* a machine, we know all the *analysis* and the construction of it.” The following example he gave was a classic one: “when we make the anatomy of an animal, it is a sort of *analysis* that permits us to know those parts.”¹⁰⁶ The dictionary of the French Academy designated it as a “dogmatic term” (a technical word used in the sciences), and directly defined it as a “way of knowing” (*une manière de connoître*) based on “examining something by reducing it to its principles.” After some examples of usage (from the analysis of a plant to chemistry as a form of analysis), the authors defined *analysis* as it applied to the examination of a discourse: that is, “reducing

delimitation (drawing limits between this and that, putting together some things and separating some others) that consisted, after all, of a visual comparison: I will have the occasion to return to this point in the next chapter.

¹⁰⁴ Méneſtrier, *Recherches du blason*, sig. [ã4^v]: “4. Le JUGEMENT les moule en les comparant les unes avec les autres pour les rectifier./ 5. L’ENTENDEMENT peint & taille, puis qu’il unit les choses pour en tirer des consequences, & les separe par Analysis pour les connoistre.” My emphasis.

¹⁰⁵ I thank Stéphane Van Damme for pointing this out to me and sharing his expertise on Méneſtrier.

¹⁰⁶ Furetière, *Dictionnaire universel* (1690), sig. [K4^v]: “quand on separe & on developpe les parties d’une chose qu’on ne connoissoit qu’en gros, pour la connoistre en detail. Quand on demonte une machine, on en connoist tout l’analyse & sa construction. quand [*sic*] on fait l’anatomie d’un animal, c’est une espece d’analyse qui en fait connoistre toutes les parties. . . . Ce mot est Grec, & signifie, *dissolution*.”

it in its principal parts so as to know better the order and continuation” (*pour en mieux connoistre l'ordre & la suite*).¹⁰⁷

Paper devices such as the depictions of the crocodile or non-anatomical sketches like the coastal profiles were far from self-evident: they embodied very concrete *manières de connoistre*, ways of knowing. Plumier’s witty use of images and text for capturing the personal experience of observation in the field was not entirely unconstrained or idiosyncratic, but rather the product of cultural practices of his time that were, on occasion, shared far beyond the study of nature and, more important, beyond the realm of the field. This last point is the subject of the next section.

To note, to abridge, to copy: the naturalist as reader

In his essay on travel (“Of Travaile”), Francis Bacon disapproved of the fact that note-taking seemed to be a practice of observation mostly performed in exotic latitudes: “It is a strange Thing, that in Sea voyages, were there is nothing to be seene, but Skye and Sea, Men should make Diaries; but in Land-Travaile, wherein so much is to be observed, for the most part, they omit it; As if Chance, were fitter to be registered, than Observations.”¹⁰⁸ European travelers may well have been registering to a lesser degree their observations at home than they did in the tropics, but graphic and written forms of note-taking were far from limited to field observations. Plumier’s numerous ink drawings and their accompanying annotations compel us to reappraise such an “investment in paper”—or, in Ann Laura Stoler’s words, “commitments to paper.”¹⁰⁹ True, the Minim friar (as other naturalists of his time) devoted a good amount of time and effort (and ultimately, also money) to producing, correcting, modifying, remaking, transporting, and stockpiling these records. But can this investment be explained solely by a conscious desire to accurately mobilize observations of things far afield? An examination of handmade records by Plumier confirms the need for an all-embracing approach to the manuscript culture in the work of naturalists from the 1680s to the 1710s. Rather than an instrument specifically employed for the long-distant mobilization of knowledge, paperwork was an integral part of the work of naturalists, whether in the field or beyond.

¹⁰⁷ *Le dictionnaire de l'Académie française, dédié au Roy* (Paris: widow of Jean-Baptiste Coignard and Jean-Baptiste Coignard, 1694), vol. 1, 38: “Terme dogmatique. Maniere de connoistre, d'examiner quelque chose que ce soit en la reduisant dans ses principes. . . . *Faire l'analyse d'un discours*. C'est le reduire dans ses parties principales, pou ren mieux connoistre l'ordre & la suite.”

¹⁰⁸ Francis Bacon, *The Essayes or Counsels, Civill and Morall, of Francis Lo. Verulam, Viscount of St. Alban. Newly Written* (London: John Haviland, 1625), 100-4.

¹⁰⁹ Ann Laura Stoler, *Along the Archival Grain: Epistemic Anxieties and Colonial Common Sense* (Princeton: Princeton University Press, 2009).

Note-taking did not only accompany observation. Another scholarly experience also mediated by broadly shared habits of taking and storing notes was reading. The history of reading has demonstrated in the last decades that such a gesture was to a large extent a process of annotation, list-making, and extraction. It is thus tempting to correlate the practice of note-taking while observing with the logics of fragmentation and reconfiguration allowed by early modern practices associated with the act of reading allowed (e.g., commonplace headings). There is something telling about the analogy between observation and reading, at least in what regards the material traces that these ethereal practices occasionally (rarely in fact) left—the only through which the historian can aspire to grasp them. As much as naturalists and travelers took and saved notes as a form of stockpiling memory, so too did most early modern scholars read “quill in hand” still by 1700. They usually scribbled on the printed books they were reading themselves, but often also copied, abridged, and excerpted from them in loose sheets or notebooks.¹¹⁰ In actual fact, a remarkable amount of Plumier’s manuscript materials did not result from his fieldwork, but was rather the product of practices of reading. Before attending to these, however, two points on Plumier’s act of reading need to be clarified. First, by “reading” I refer here to a form of appropriation that engages not only verbal texts, but also images. For just as scholars used the relatively malleable manuscript form to abridge, excerpt from, take notes of, or cut and paste from printed texts, so too did Plumier not slavishly duplicate printed images by hand. Second, two forms, at least, of material appropriation (of reading “quill in hand”) can be distinguished among the friar’s papers: he either employed the images literally (cutting from the original printed document and rearranging, annotating, and correcting them) or copied printed images by hand and modified them according to his needs.¹¹¹

¹¹⁰ Plumier’s case falls mostly in the second category, but I have often found research on marks in books inspiring, and specially William H. Sherman, *Used Books: Marking Readers in Renaissance England* (Philadelphia, PA: The University of Pennsylvania Press, 2008).

¹¹¹ An interesting case on the art of excerption is that, in the second half of the eighteenth century, is that of Johann Joachim Winckelmann, to whose reading and note-taking practices Élisabeth Décultot has devoted some fascinating pages: Décultot, *Johann Joachim Winckelmann. Enquête sur la genèse de l’histoire de l’art*. Paris: Presses Universitaires de France, 2000; “L’art winckelmannien de la lecture. Reprise et subversion d’une pratique érudite,” in *Lire, copier, écrire. Les bibliothèques manuscrites et leurs usages au XVIII^e siècle*, ed. Élisabeth Décultot (Paris: CNRS Éditions, 2003), 91-110; and, more recently, “The Art of Excerpting in the Eighteenth Century Literature: Subversion and Continuity of an Old Scholarly Practice,” in *Forgetting Machines: Knowledge Management Evolution in Early Modern Europe*, ed. Alberto Cevolini (Leiden: Brill, 2016), 105-27. See also Décultot’s introduction to *Lire, copier, écrire* for a good summary of the art of excerption in the early modern period: “L’art de l’extrait: définition, évolution, enjeux,” in Décultot, *Lire, copier, écrire*, 7-30.



Fig. 3.16. First page of the Arsenal MS 2502, corresponding to the frontispiece of the first volume of Tournefort's *Éléments de botanique*. Plumier used this frontispiece at the beginning of his own “hybrid notebook” (half printed, half manuscript). Note the text at the bottom of the page: “par le Sieur Pitton de Tournefort Academicien, professeur Royal dans le Jardin du Roy à Paris.” The annotation is by the anonymous author of the “avertissement” to the volume, probably a librarian at the Paris convent of Minims around the mid-eighteenth century who seemingly felt the need to state clearly that the volume, although in Plumier’s hand, was not his own creation. (Bibliothèque de l’Arsenal, Paris.)

An example of the first case is MS 2502, nowadays kept at the Bibliothèque de l’Arsenal in Paris under the name “*Éléments de botanique*.” This is a bulky quarto volume bound in brown calf and counting around 480 pages.¹¹² The format and number of pages are not fortuitous characteristics, for they consisted of a manuscript appropriation of images printed in another author’s work: it is composed of the 451 intaglio engravings gathered in the second and third tome of the first edition of Tournefort’s *Éléments de botanique* (1694), plus the frontispiece opening the first tome (fig. 3.16).¹¹³

The material form deserves attention. The front pastedown bears the old shelf mark of the library of the Minim convent in Place Royale (“3/JR/17”), locating it among the *Manu scripta* section kept at the beginning of the eighteenth century above the Chapel of St. Francis of Paola, on the eastern side of the convent’s church. The recto pages, those showing the engravings of the *Éléments*, have been renumbered by hand. The verso of the printed pages, and sometimes even the blanks below the engraved spaces in the rectos,

¹¹² Ars. MS 2502 “Le P. Charles Plumier, religieux minime: *Éléments de botanique*.”

¹¹³ Joseph Pitton de Tournefort, *Éléments de botanique, ou methode pour connoître les plantes*, 3 vols. (Paris: Imprimerie royale, 1694).

are filled with Plumier's neat, small handwriting that colonizes most of the margins, sometimes well into the gutter (fig. 3.17). This seems to indicate that the volume was bound after writing, and it is thus quite plausible that the friar came into the possession of the engravings in the form of an unbound set of gatherings or sections at the Imprimerie royale, at which both Tournefort's *Éléments* and Plumier's *Description* (and some years later, the latter's *Traité des fougères*) had been printed. The Arsenal manuscript volume opens with the plate originally used as the frontispiece to the first volume of the *Éléments*; below the figure, a few lines in Plumier's handwriting identified the author of the book of which they were supposed to be part: "par le sieur Pithon de Tournefort Académicien et professeur Royal dans le Jardin du Roy A Paris." A leaf covered on both sides by a shaky handwriting different from our Minim's is placed right after the frontispiece and before the first plate. In the form of the classic "avertissement" ("Pour l'Intelligence de ce Volume qui est écrit de la main de nôtre R. p. Plumier Botaniste Royal, lisez ce qui suit"), it explained the composition of that strange hybrid book—half printed, half manuscript. The author of the "avertissement," in all probability one of the father librarians at the Parisian Minim convent during the first decades of the eighteenth century, explained that the tome gathered the plates of "Monseigneur Tournefort former Botanist in the King's Garden," collected by Father Plumier "so as to write, as he did," in the versos and the blanks, where he "copied" or "summarized" (*abrégé*) Tournefort's book.¹¹⁴

MS 2502 is indeed a composite volume: the handwritten body in it does not correspond to one single, linear document, but juxtaposes distinct and discernable texts, most probably written at different times. Apart from the foreword by the anonymous and shaky hand, three texts can be differentiated in the volume. The three are by Plumier and do not follow one another linearly, but coexist on most of the pages. The first consists of notes related to the plates of the *Éléments*: they were taken from Tournefort's own text and written on the white page opposite the figure in question (the verso of the

¹¹⁴ Ars. MS 2502, fol. 1^{r-v}: "Les Planches que l'on voit icy sont de mons^r Tournefort ancien Botaniste du Jardin du Roy. Le R. P. Plumier les a fait relier avec du papier blanc entre deux pour y écrire, come il a fait. / Il a mis d'abord les Explications des Planches, et on écrit qu'il n'a fait que (Coppier) en celui, le livre imprimé en 3 volumes in 8° de mons^r Tournefort, que nous avions en nôtre Bibliothèque, et qui n'ont nous ont été derobez. Peut-être as-ce été pour suppléer a ce sot [?] que le P. Plumier a fait le present volume manuscrit." This fragment includes two notes in the margin: the first seemingly corrects the word "Coppier," that was put into brackets in the text: "Abréger"; the second refers to Tournefort's book: "C'est l'imprimé de 1694." The volume, however, was probably bound after Plumier wrote in it, and not before, as the author of the foreword suggests, and he "copied" or "summarized" from Tournefort's French edition of the *Éléments*, not the Latin one of the *Institutiones rei herbariae* (1701). He does date it correctly in the margin, however.

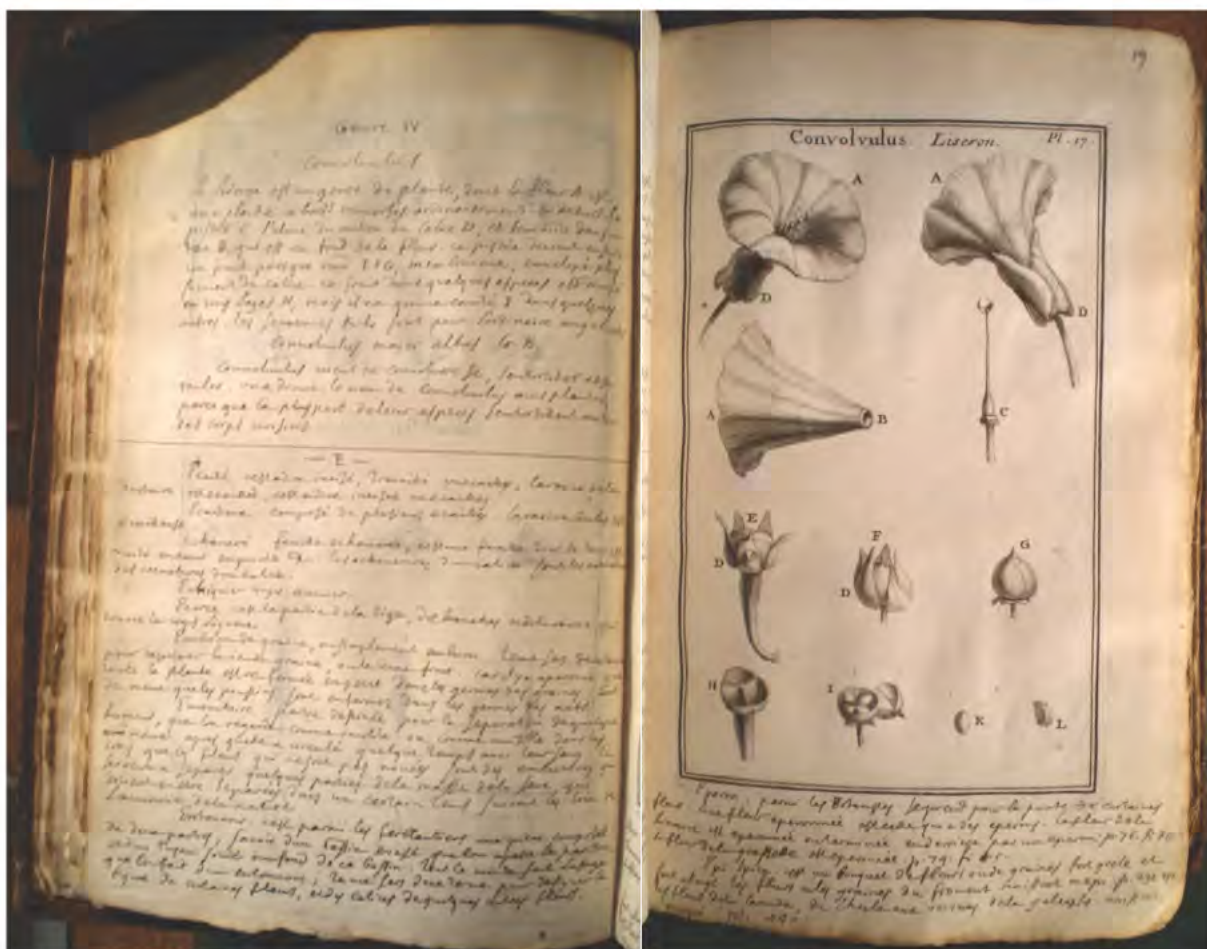


Fig. 3.17. Folios 18^v and 19^r of the Ars. MS 2502. In this hybrid notebook, both a printed book and a unique manuscript, Plumier gathered the engravings of genera in the *Éléments*, whose versos he used to summarize or excerpt from Tournefort’s description of each genus. Note that this excerpt, on the *Convolvulus*, only occupies half of the page; on the other half, separated by a line and the letter “E,” as well as on the space below the plate in the recto, the friar copied and abridged entries from Tournefort’s “Dictionnaire de termes botaniques,” in this case from the word “écaillé” (flaked) to “épi” (ear). (Bibliothèque de l’Arsenal, Paris.)

previous plate). “He put, first, the explanations of the plates,” wrote the author of the foreword, “and we think that he simply *copied* in this the printed book . . . of Monseigneur de Tournefort.” Significantly, the unknown commentator put the word *coppier* in brackets, and corrected it as *abrégé* (summarize) in the margin.¹¹⁵ Indeed, this manuscript text was actually a summary of the written descriptions printed in Tournefort’s first volume of the *Éléments*. Moreover, it does so on the page opposite the picture it refers to, so that in Plumier’s manuscript, text and image are kept side by side,

¹¹⁵ Ars. MS 2502, fol. 1^{r-v}.

whereas the reader of the *Éléments* was supposed to handle the one volume of the text and the two of plates at the same time.

Tournefort's engravings can be divided into four main groups, as they appeared originally in the *Éléments*: a preliminary one on botanical structures, the main one on the different genera, a third one with genera included in the appendix, and a last one illustrating the terms of a botanical glossary. The main set of plates went from the twelfth to the 419th: each of these images was devoted to one or two specific classes—from the *Mandragora* (the first genus of the first section of the first class) to the *Barba Jovis* (the fifth genus of Section III in Class XXII). Letter references were scattered all over the images, and referred to the written text in the first volume, in which Tournefort offered a morphological description of the genus, a list of the known species included in it, and some brief comments on the etymology of their names and what ancient and modern authors said about them. In his volume, Plumier either copied these explanations verbatim or abridged them by sorting some sentences and omitting others (he always bypassed, for instance, the list of species for each genus). The friar proceeded likewise for a group of supplementary plates illustrating those genera included in the appendix of the *Éléments*: opposite each plate, Plumier summarized in his manuscript part of the original descriptions by Tournefort—especially those explaining the letter references on the plates.

Things were different with the preliminary group of plates of the *Éléments*, those from no. 1 to 12. These images illustrated not specific genera, but general botanical structures: their constitutive parts, different forms of stamens, pistils, calyxes, and flowers, and so forth. Tournefort did not give a description for each picture as in the others, but referred to them in an essay included at the beginning of the work and entitled “On how to establish the classes of Plants,” in which he presented the general principles of his method.¹¹⁶ An example: when explaining which parts of a plant were to be considered for establishing classes, Tournefort entered into a discussion about some “little threads” (*filets*) that come out of the edge of the embryo, “and in some flowers they show some fur.” A superscript reference guided the reader to a marginal note, and from there to “plate 3, figure L and I, the embryo is marked K, wrapped in a membrane N

¹¹⁶ Tournefort, *Éléments*, vol. 1, 17-25.

with some fur M.”¹¹⁷ In contrast to the rest of the plates (each of them standing for a genus with its corresponding description), these first twelve pictures illustrated particularly obscure or technical notions used along his preliminary discourse. In his manuscript, however, Plumier was not interested in the academician’s essay, but in the images: he did not copy the entire text, nor did he even abridge it, but he rather used it to elaborate a legend for each of Tournefort’s twelve engravings on the opposite page. The legend listed the letter keys and gave the name and an explanation of what they were signaling on the image. These explanations were extracted from Tournefort’s essay—sometimes simply excerpting it as it was, others paraphrasing or rewriting several sections. The engravings in the *Éléments* that were meant to illustrate the most technical parts of Tournefort’s essay on his method became, in Plumier’s manuscript, something else, a visual vademecum with an annexed legend for each picture, thus transforming the original relationship between images and text.

Plumier’s handwritten excerpts of the *Éléments* occupied only part of the back of each engraving: he used the blanks left on the versos, as well as those below the space of the plate in the rectos, for taking notes on two other documents. The first of these texts was also drawn from Tournefort’s *Éléments*: it was a “Dictionnaire ou explication des termes de botanique et de quelques autres qui peuvent servir pour l’intelligence de cet ouvrage” (Dictionary or explanation of the botanical and other kind of terms that may be useful for the understanding of this work) included at the end of Tournefort’s first volume.¹¹⁸ This glossary was illustrated by the fourth and last group of plates in the *Éléments*, composed of 29 engravings picturing different forms of fruits, leaves and roots that were defined in the dictionary. On the blanks of over a hundred leaves (both on the versos and in the free space left on the rectos below the engravings), Plumier copied almost verbatim most (but not all) of the definitions given by Tournefort, from the word *abajour* (dormer) to *urne* (urn), although he excluded parts which were unrelated to the definitions or repetitive,¹¹⁹ included some other definitions omitted in Tournefort’s book

¹¹⁷ Tournefort, *Éléments*, vol. 1, 54: “En effet ces filets sortent de l’extrémité de ces embrions, & dans quelques fleurs ils sont garnis vers leur extrémité de quelques^b poils chagez de poussière”; the note went as follows: “b. Pl. 3. Fig. L, & I, l’embrion est marqué K, envelopé d’une membrane N garnie de poils M.”

¹¹⁸ Tournefort, *Éléments*, 515-62. In the MS 2502, the glossary runs from fol. 3^v to 62^r.

¹¹⁹ These included social niceties and the like, such as a note to the entry “Analyse chimique des plantes” informing the reader that “Mr Bourdelin de l’Académie Royale des Sciences a porté ces sortes de travaux à un tel point de perfection qu’il est difficile de pouvoir aller plus loin.” Tournefort, *Éléments*, 516.

because they had already been given in the body of the volume,¹²⁰ and punctually created his own references. In other words, he did not simply copy by hand the *Éléments*' glossary, but transformed it into a manuscript tool adapted to his own needs.

A third and last text can be distinguished in the written mass of the MS 2502: this occupies the blanks of the two hundred leaves following the dictionary, and consists of notes drawn from a printed text that was not, this time, Tournefort's *Éléments*. This was an anatomical treatise by a contemporary physician from Cambrai (by this time a city in Flanders), Amé Bourdon (1638-1706),¹²¹ who in 1678 published a series of eight double folio intaglio engravings on human anatomy (fig. 3.18).¹²² The plates, claimed by the author to have been engraved from his own drawings, were printed without text: this only appeared the following year in the form of a duodecimo volume entitled *Nouvelle description anatomique de toutes les parties du corps humain*.¹²³ Both the double folio volume of the plates and the duodecimo written manual were in the library of the convent in Place Royale, at least when its collection was inventoried in 1722, and both may well have been in the convent at Plumier's time.¹²⁴

¹²⁰ In the entries "Arbre" or "Plante," for instance, Plumier included definitions that in the *Éléments* glossary were omitted and referred to previous pages on which they had already been given.

¹²¹ The anonymous author of the foreword pays, once more, particular attention to the organization of these three bodies of written notes over the book and their mise en page: "Nota . . . le père Plumier ayant achevé d'écrire en ce livre tout ce qui regarde la botanique ; et ayant apperçu qu'il étoit resté beaucoup de plances vuides, d'y écrire un traité d'anatomie de Amé Gourdon [sic] ; ce traité commence à la planche 62 et il continuë en remplissant tousjours les vuides qui étoient restez au bas des pages : il observe de mettre a chaque bas des feüillets, ce mot, anatomie, affin d'avertir que ce qui est ainsi au bas des feuillets n'est pas de la botanique, mais la continuation de son traité de l'anatomie, qui finit à la page 263." Ars. MS 2502, fol. 1r.

¹²² *Nouvelles tables anatomiques. Ou sont représentées au naturel toutes les parties du Corps humain, toutes les nouvelles découvertes, le cours de toutes les humeurs, les lieux où elles déposent leurs excréments. On y a joint un petit livre qui en fait la description et en explique clairement les Usages, avec ordre et en peu de mots. Le tout desiné et composé par Amé Bourdon, medecin* (Cambrai: Chez l'auteur, and Paris: Laurens d'Houry, 1678). Most of the plates are double signed: "Amatus Bourdon Medicus delineavit et excudebit C.[um] P.[rivilegio] Regis" and "Daniel le Boßu sculp.[sit]" There are few works on Bourdon: see Ludwig Choulant, *History and Bibliography of Anatomic Illustration*, trans. Mortimer Frank (New York: Hafner, 1962 [1852]), 249; José Luis Crespo Fajardo, "Amé Bourdon y su atlas de láminas anatómicas," *Tsantsa. Revista de investigaciones artísticas* 1 (2014). The plates can be consulted in the USA National Library of Medicine's digital project "Historical Anatomies in the Web": https://www.nlm.nih.gov/exhibition/historicalanatomies/bourdon_home.html

¹²³ *Nouvelle description anatomique de toutes les parties du corps humain, & de leurs usages, avec le cours de toutes les humeurs. Sur le principe de la circulation, & conformément aux nouvelles découvertes. Le tout représenté au naturel sur plusieurs grandes Tables, réduit en un tres-bel ordre, expliqué en peu de mots, & d'une manière tres-lisible* (Paris: Jacques Langlois, 1679). The work was reprinted four times in the following decade: three times in Paris by d'Houry (1683, 1686, and 1687) and once in Lyon by Benoît Vignieu (1685). See Crespo Fajardo, "Bourdon y su atlas."

¹²⁴ The book is registered in the alphabetical catalog, Maz. MS 4147 "Catalogue alphabétique de la bibliothèque des Minimes de la Place Royale, à Paris," 1722. One of them, with all security the plates tome, is listed as well in the second volume of the thematic catalog (AN LL 1569 "Deuxième tome du catalogue de la bibliothèque des Minimes," 1776) with the name "Description anatomique du corps humain par Bourdon." This last one was classed in the section P "Numismatum," and the third subsection of folio volumes were gathered under the name of "Simbola et icones," along with some of Plumier's own books

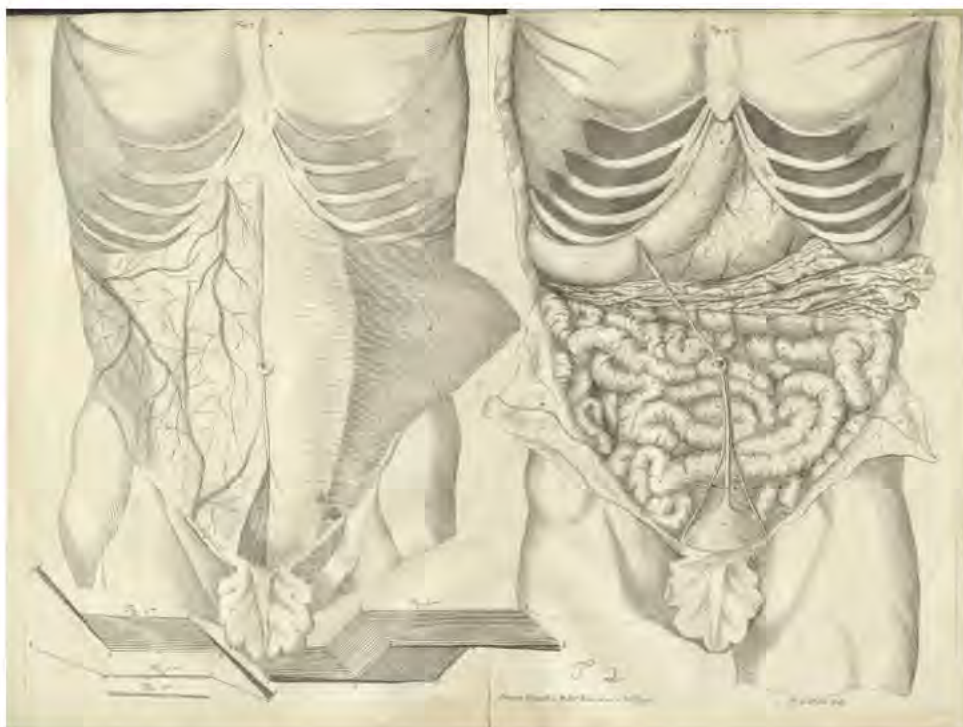


Fig. 3.18. Plate from Bourdon’s *Nouvelles tables anatomiques*. Plumier copied or abridged from Bourdon’s descriptions in the blanks left on the pages of his “hybrid notebook” after having summarized Tournefort’s descriptions and dictionary by hand. It seems likely that Plumier learned most of his anatomical notions from Bourdon’s book. Note on this plate that the process described is the same that Plumier used in his dissections of Caribbean animals, one proceeding layer by layer. (National Library of Medicine, Bethesda, MD.)

The *Nouvelle description anatomique* was probably one of the texts through which the friar learned the theoretical rudiments of anatomy. It formulated a recurrent idea of the contemporary anatomical thinking that also permeates Plumier’s drawings: that anatomy was a regime of knowledge proceeding by means of *analysis*. Bourdon gave written form to the premise of anatomy as a “manière de cognoistre,” according to which the complex things to be understood (whether human bodies, animals, or plants) were compounds of parts, and that only by dividing them into those parts and studying them first could one attain a proper knowledge of the whole. “One cannot work successfully in repairing [the movements] of the human body,” wrote Bourdon, “if we do not know enough the nature of the parts that compose it, their particular usages, the relation they bear one to

and other richly illustrated works, like “Le cabinet de la Bibliothèque de Ste Genevieve par le P. Claude du Moulinet” published in Paris in 1672 and “Estampes et cérémonies des Turcs” (probably the *Explication de cent estampes qui représentent différentes nations du Levant avec nouvelles estampes de cérémonies turques qui ont aussi leurs explications*) printed in Paris in 1715.

another, & the effect of their union.”¹²⁵ Bourdon’s plates also materialize codes that were commonplace in the anatomical literature and practice of the time and reappear in Plumier’s drawings. Two of these are worth mentioning: first, Bourdon used the two graphic ways of anatomical representation that reappeared in the Minim’s manuscript: the progressive discovery of different layers (tables 2 and 3) and the fragmentation into parts (tables 4 and 5); second, Bourdon’s engravings were also filled with letter keys identifying every figure in the plate and some of their parts and relating them to the text.

The appeal of his little book, Bourdon argued, was not only that it was written in vernacular and “in conformity with the new discoveries” like the “new system of circulation,” but precisely that it “comprised in few words, & in a very proper order, all what is badly disposed in big Volumes.” Just as the human body was constructed in parts and layers, so too the book was divided into six chapters which were themselves composed of between eight and fourteen articles.

In his manuscript copy of the *Nouvelle description anatomique*, seeping through the blanks of the MS 2502, the Minim kept this same organization into chapters and articles. In the free lower half of the verso of folio 63 and under the title “Traitté d’Anatomie,” Plumier began copying Bourdon’s manual from the first article of the first chapter to the end; no reference was made to the author, to the original page or to the plates being made. Plumier duplicated Bourdon’s manual article by article, virtually verbatim, over the blanks of a hundred leaves, either on the versos or in the band under the images of the rectos, indicating in both cases where the copy of Bourdon’s manual began in the space of the page with a line and the word “anatomie” under it (fig. 3.19).¹²⁶

MS 2502 is interesting, to start with, because it was a sort of hybrid in which Plumier used the engravings of Tournefort’s book, rearranged them, annotated them so as to serve new purposes, and filled the blank spaces for abridging and copying other documents, such as Tournefort’s botanical glossary or Bordon’s anatomical textbook. The volume, gathering in a single codex abridgments or notes on works of different

¹²⁵ Bourdon, *Nouvelle description anatomique*, sig. [a6^r]: “car il est certain . . . qu’on ne peut jamais bien régler les mouvements d’une machine, si on n’en connoît parfaitement les ressorts, comment pourroit-on travailler avec succes à régler ceux du corps humain, dont la structure est infiniment au dessus de tout ce que l’art a de plus parfait, si on ne connoist pas assez la nature des parties qui le composent, leurs usages particuliers, & enfin la liaison & le rapport qu’elles ont entr’elles, & avec ce qui resulte de leur union.”

¹²⁶ The omissions were few and significant: he passed over Bourdon’s paragraph on the feminine “external parts of generation,” and went from those of men directly to the “external parts of the arms and the hands.” Bourdon, *Nouvelle description anatomique*, 11-12; Ars. MS 2502, fol. 67^v-68^r.



Fig. 3.19. Folios 63v and 64r, where Plumier's excerpts from Boudon's *Nouvelle description anatomique* begin. (Bibliothèque de l' Arsenal, Paris.)

authors, can partly be related to the practice of printed “miscellanies.”¹²⁷ But MS 2502 was not the only example of Plumier's manuscript work on a collection of engravings printed in another author's book. The friar also reemployed (literally) the engravings of the book that a contemporary of his, the Italian Jesuit Filippo Bonanni (1638-1725), devoted to shells: the *Ricreatione dell'occhio e della mente nell'osservation' delle chiocciolle, proposta à curiosi delle opere della natura dal P. Filippo Buonanni della Compagnia di Giesù. Con quattrocento, e cinquanta figure di testacei diversi, sopra cui si spiegano molti curiosi problemi* (Recreation of the eye and the mind in the observation of shells, proposed to those curious about the works of nature by Father Bonanni of the Society of Jesus. With four hundred fifty figures of different shelled mollusks, many curious problems which are here explained) was

¹²⁷ Armando Petrucci, “Dal libro unitario al libro miscellaneo,” in *Società romana e impero tardoantico*, vol. 4, *Tradizione dei classici, trasformazioni della cultura*, ed. Andrea Giardina (Rome: Laterza, 1986), 173-87.

published in Rome in 1681.¹²⁸ Bonanni was a prolific scholar with multifaceted interests: apart from the treatise on shells, he authored a treatise in favor of spontaneous generation published in 1691—its title, like the *Ricreatione*'s, is priceless: *Observationes circa viventia, quae in rebus non viventibus reperiuntur* (Observations on living things that are perceived in non-living things); a several-volumes numismatic study of papal coins across history printed from 1696 to 1700; another catalog in 1709 on the collections of the splendidly famous museum founded by his fellow Jesuit Athanasius Kircher (whom he succeeded as the custodian) in the Collegio Romano; a study on Chinese lacquer in 1720, and still another catalog in 1722 inventorying musical instruments conserved at various European collections. Bonanni's oeuvre is a good example of the kind of culture of erudition that was assembled through print at the time: most of his works were folios and all of them counted numerous engravings, from the 67 plates of the *Observationes* to the 90 of the first volume of the *Numismata* to the 171 of the *Musaeum Kircherianum*.¹²⁹

The *Ricreatione* was equally well illustrated: it included 106 plates, each of which assembled several figures of different shells and arranged them into three classes (“testacei univalvi non turbinati,” “testacei bivalvi,” and “testacei univalvi turbinati”). Plumier owned the 106 original engravings, now at the Bibliothèque nationale de France in Paris, and filled their versos with written annotations, colored in some of the figures, and completed the series with some of his handmade drawings of West Indian shells that he interspersed among Buonanni's original plates. (fig. 3.20). Bonanni's set of plates were for Plumier a material to work on and to be reworked.

It is indeed interesting to bring Bonanni's catalog of shells closer to the study of Plumier's work, not only because the *Ricreatione*, authored by a noted member of the Jesuit Collegio Romano, was published in the papal city the same year that the Minim friar left the convent of Trinità dei Monti, but also because in the Italian's work, many of the interests that the Minim developed later in his own corpus were included. The most obvious of these was a concern for the classification of natural things and the investment

¹²⁸ Rome: per il Varese, a spese di Felice Cesaretti, 1691. It seemed to me worth reproducing here the entire title. Plumier's copy is BNF Est. JB-68-4 “Coquilles gravées et dessinées provenant du Père Plumier.”

¹²⁹ *Observationes circa viventia, quae in rebus non viventibus reperiuntur. Cum micrographia curiosa sive rerum minutissimarum observationibus, quae ope Microscopii recognitae ad vivum exprimuntur* (Rome: Typis Dominici Antonii Herculis, 1691); *Numismata summorum pontificum templi vaticani fabricam indicantia. Chronologica ejusdem fabricae narratione, ac multipli eruditione explicata, atque uberiori numismatum omnium pontificiorum lububrationi videnti prodromus praemissa* (Rome: sumptibus Felicis Caesaretti, & Peribeni, typis Dominici Antonii Herculis, 1696), of which two further volumes appeared in 1699, and a fourth one in 1700; *Musaeum Kircherianum sive musaeum a P. Athanasio Kirchero In Collegio Romano Societatis Jesu jam pridem incoeptum nuper restitutum, auctum, descriptum, & Ionibus illustratum* (Rome: Typis Giorgii Plachi, 1709).

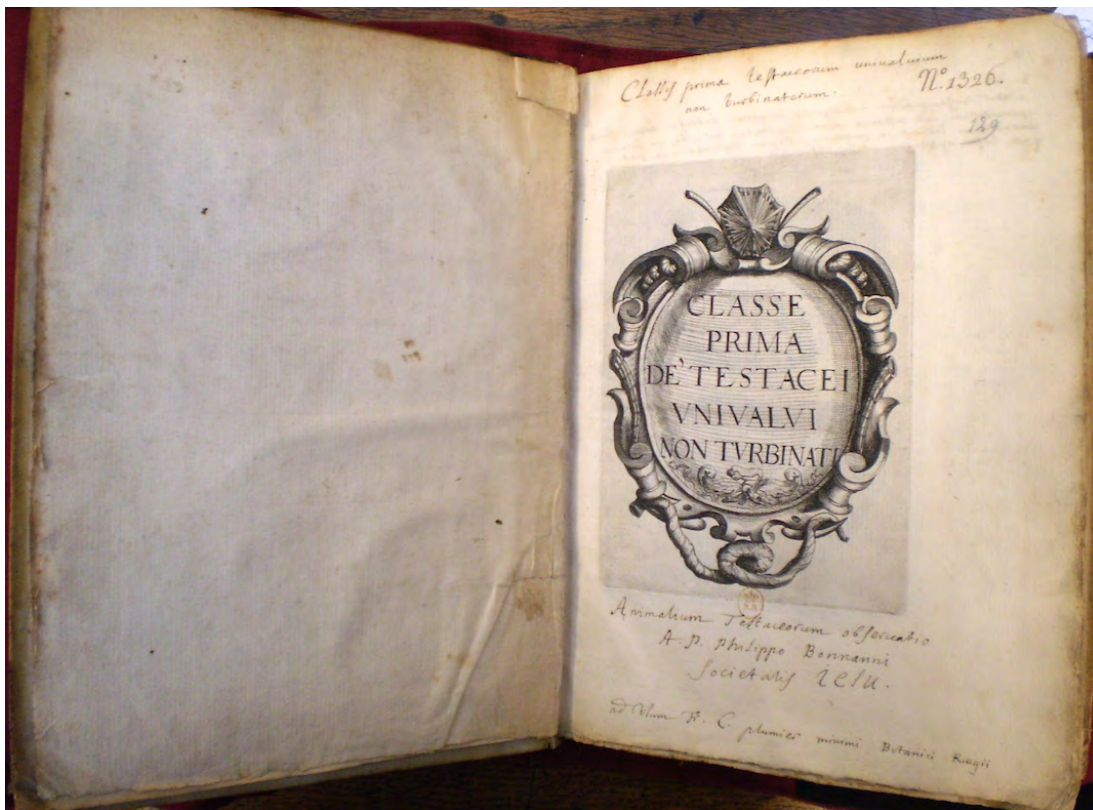


Fig. 3.20. Plumier's manuscript appropriation of the engravings in Filippo Bonanni's *Ricreatione dell'occhio et de la mente*. Plumier used Bonanni's engravings (but not the text that originally accompanied it), excerpted from Bonanni's original descriptions in the versos, and added his own manuscript drawings to complete Bonanni's classes with American shells observed by him. (Bibliothèque nationale de France, Paris.)

into print, although seemingly also in manuscripts: the Jesuit's eulogist noted not only his early inclination for the "noble art of drawing" (*fino dall'età verde pendè col genio all'arte nobile del disegno*), but also his work as custodian of the archive of the Collegio Romano.¹³⁰ Two main parallels, therefore, emerge in the comparison. The first is an investment in the making of printed images—an integral part, one might reasonably say, of the study of natural history, although it appears more clearly as a crucial part of any erudite work, whether on plants, animals or historical coins. The second, closely related parallel regards the catalog form as a privileged mode of the material organization of data, which is further discussed in the next chapter.

These two manuscripts artifacts, the Arsenal MS 2502 and the BNF volume using Buonanni's plates, show convincingly that, at the turn of the eighteenth century, manuscript practices were a pervasive feature in the daily work of the naturalist, whether this took place in the field or in the cabinet, and whether they involved natural objects or printed books. Furthermore, these two cases offer material instances of what the history of reading has long been devoted to proof: that readers (early modern or not) do not passively receive texts, but rather construe them in sometimes very creative ways. Plumier appropriated Tournefort's *Éléments* and Bonanni's *Ricreatione* in a such a productive manner: his was a literal reemployment of printed materials that resulted in what Adrian Johns called "hybrids, half printed book, half unique manuscript."¹³¹

However, the appropriation of printed material by means of manuscript practices may not necessarily have entailed such a physical usage. Two important examples from Plumier's corpus may be cited in this respect. The first is an astonishing, superb document entitled "Synopsis botanica," a set of 152 leaves of manuscript images and text in Latin.¹³² Part of Plumier's corpus, nowadays conserved at the Bibliothèque centrale du Muséum national d'histoire naturelle in Paris, the "Synopsis botanica," is bound together with five other documents, all of them in the Minim's handwriting, including dictionaries and lists of botanical names and described in the next chapter. The "Synopsis" in the strict sense occupies about 160 pages. It opens with a rich frontispiece drawn in ink and colored with aquarelle bearing the title of the work: "Synopsis botanica / plantarum iam

¹³⁰ The eulogy was published in the *Giornale de' letterati d'Italia* 37 (1725), 360-380.

¹³¹ Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: The University of Chicago Press, 1998), 386. For an overview, see Margaret J. M. Ezell, "Handwriting and the Book," in *The Cambridge Companion to the History of the Book*, ed. Leslie Howsam (Cambridge: Cambridge University Press, 2015), 90-106, and H. J. Jackson, *Marginalia: Readers Writing in Books* (New Haven, CT: Yale University Press, 2001).

¹³² BCMNHN MS 10 "Synopsis botánica."



Fig. 3.21. Ink-and-watercolor frontispiece to Plumier’s “Synopsis botanica.” This is but one of the several richly illustrated “manuscript books” composed by Plumier. Plumier’s intentions in making this sort of manuscript books is not clear, and neither is their actual circulation. It seems quite possible that they were never meant to be printed. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

cognitarum / tam genera quam species / complectens / opera / p. Caroli Plumier Minimi / Botanici Regii / An.[nus] 1703” (Botanical synopsis of plants already known, including both the genera and the species, a work by Father Charles Plumier, Minim, Royal Botanist, in the year 1703) (fig. 3.21). Three parts can be differentiated in it: a twelve-page preface, a set of 34 images without text, and a group of around 150 leaves combining writing and drawing.¹³³ This last series of leaves constitutes the bulk of the “Synopsis botanica”: it alternated pages of text (in the recto and the verso) with pages of images (on the two sides, too) so that, upon opening the manuscript codex, one page of figures and one page with their written descriptions lay under the reader’s eyes (fig. 3.22).

¹³³ BCMNHN MS 10, fol. 25r-30v; 31r-47v, and 48v-203r, respectively.

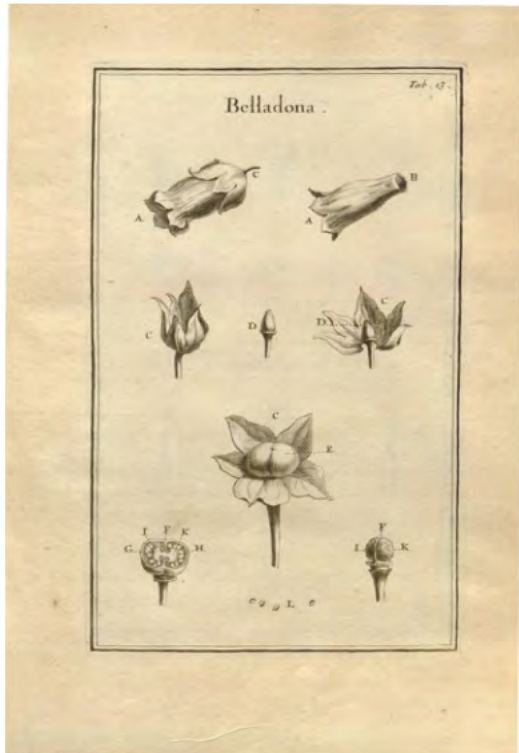
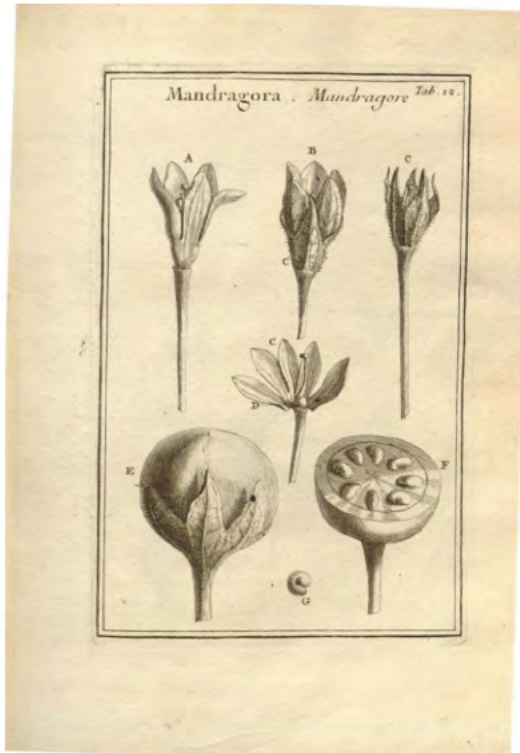


Fig. 3.22. (top) Ink-and-watercolor drawings in the “Synopsis botanica” of the genera *Mandragora* and *Belladonna*. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.) Compare with the two plates in Tournefort’s *Institutiones rei herbariae* (bottom) from which Plumier “excerpted” these images, and note the modifications introduced in figures C-D of the *Mandragora* and C-D of the *Belladonna* (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.)

These pages were also not the result of Plumier’s observations in the Caribbean field, but of his cabinet work. They abridged into manuscript form Tournefort’s *Institutiones rei herbariae* (Botanical institutions), an extended Latin translation of the *Éléments* printed in 1700 with the same engravings, plus several additions, that listed, described, pictured, and classified the different vegetable genera established by the academician. In the “Synopsis,” Plumier abridged or paraphrased the textual descriptions of the *Institutiones*, but omitted some parts—such as the legends to the letter keys on the plates and the list of species identified for each genus. In contrast to the Arsenal manuscript, however, the friar did not physically employ the original engravings, but copied the printed images by hand: he first outlined the figures in pencil, then retouched them in ink, and even enhanced some of them in gray-scale watercolor.¹³⁴

The remarkable aspect of these manuscript copies of the *Institutiones*’ plates is that they are not slavish copies. Plumier here “excerpted” the engravings of Tournefort’s book, just as he had done with the text: he copied most of the figures but omitted others, and on occasion modified them too and changed their arrangement (fig. 3.29). The friar performed a similar sort of “graphic abridgement” in the 34 images preceding these verbal and visual inventory of genera in the “Synopsis”: this initial set of drawings had no text and most of them (but not all) copied a series of plates in the *Institutiones* that aimed at depicting not specific genera, but general botanical structures such as varieties of fruits, leaves, roots, and so forth.¹³⁵ Here again Plumier made a sort of “visual abridgment” of these engravings: he excerpted selected figures from them while discarding others; he rearranged them, gave them a new order, and added some pictures of his own. In other words, he copied and modified Tournefort’s images so as to make them part of a new discourse (fig. 3.23).¹³⁶ The friar briefly stated the aim of the manuscript in its preface: “this small work . . . I conceived it as a handbook (*enchiridion*), or at least to use it myself as a handbook.”¹³⁷ The word *enchiridion* (from the Greek

¹³⁴ In fact, he only colored the first quarter of the images, what indicates that the “Synopsis” is after all an unfinished document.

¹³⁵ These plates were placed at the beginning of the second volume (pl. 1-11, the same as the eleven first engravings of the *Éléments* discussed above) and at the end of the third one (pl. 447-75).

¹³⁶ The correspondences of the drawings whose source I was able to establish is as follows (the first figure indicates the drawing’s original number; the one in parentheses the number of the folio in the BCMNHN MS 10, and those in italics after the colon the number of plates in the first edition (1700) of Tournefort’s *Institutiones rei herbariae*): 1 (31r): 1, 2, 3; 2 (31v): 4, 5, 6; 3 (32r): 7, 8; 4 (32v): 9, 10, 11; 5 (33r): 447, 448; 6 (33v): 449, 450, 451; 7 (34r): 452, 453, 454; 8 (34v): 454, 455, 456; 9 (35r): 457, 458; 10 (35v): 459, 460; 11 (36r): 461, 462; 12 (36v): 462, 463; 13 (37r): 464, 465, 566; 14 (37v): 467, 468; 15 (38r): 469, 470; 16 (38v): 471, 472, 473; 17 (39r): 473, 474, 475, and so forth.

¹³⁷ BCMNHN MS 10, fol. 30v: “hoc opusculum ceu enchiridion, aut mihi manual, confeci.”

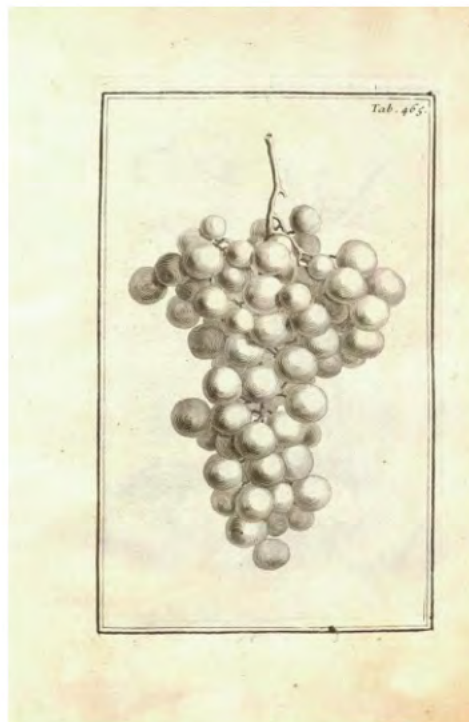
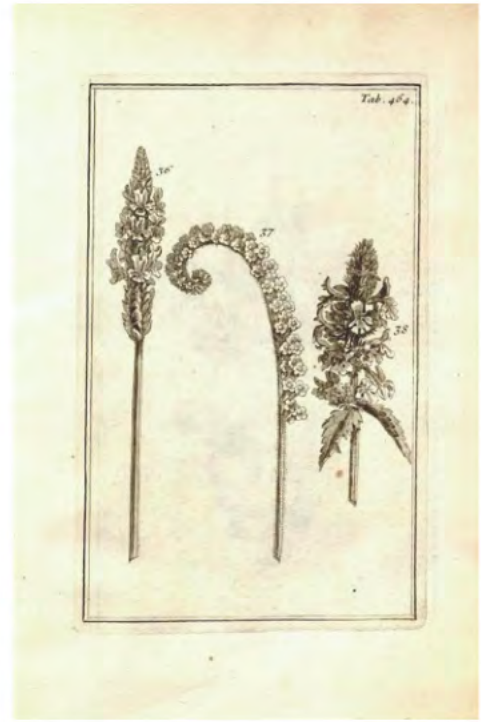


Fig. 3.23. (top left) Ink-and-watercolor drawing from the “Synopsis.” (Bibliothèque centrale du Muséum national d’histoire naturelle.) (top right and bottom) Original engravings in Tournefort’s *Institutiones* from which Plumier composed the image in the “Synopsis.” (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.)

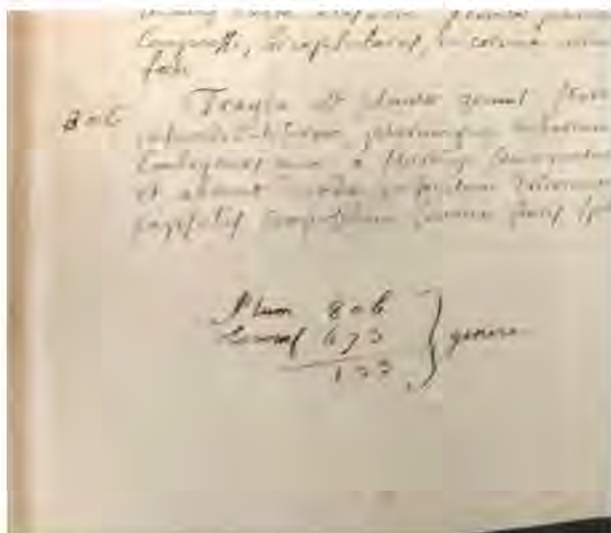


Fig. 3.24. Sketchy calculation at the bottom of the last page of the “Synopsis botanica,” in which Plumier settled scores with Tournefort: the friar’s 806 genera vs. the 673 established by the professor. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

ἐγχειρίδιον, “that fits in the hand,” and used, for instance, by Erasmus for his small guide book on how to live a Christian without much of the ceremonial fanfare of Catholics¹³⁸) indicates the personal use Plumier may have had in mind for it: excerpting from printed books only the graphic and textual information that he needed in his field observations.

Far from a slavishly mimetic reproduction of Tournefort’s plates, the “Synopsis” (especially in this first part) used printed images to create a relatively new (manuscript) discourse: it was a productive, creative manuscript appropriation of printed text and images. The argument that Plumier was excerpting from Tournefort’s printed material to create a manuscript discourse of his own is beautifully illustrated by a sketch at the end of the “Synopsis,” a quickly drafted calculation at the bottom of the last page, settling scores with Tournefort: Plumier’s illustrated catalog counted 806 genera—133 more than the academician’s (fig. 3.24).¹³⁹

A fourth and last example of Plumier’s manuscript “reading” practices is the MS 913 in the Bibliothèque de l’Alcazar in Marseille. The manuscript’s provenance was the library of the Minim convent of Marseille and, although it has no title (nor title page in fact), it was listed in a 1776 catalog of that collection (in the section of octavos) under the

¹³⁸ Desiderius Erasmus, *Enchiridion militis Christiani* (Antwerp: Th. Martens, 1503).

¹³⁹ BCMNH MS 10, fol. 202^v. That makes 673 for Tournefort; in the *Corollarium institutionum rei herbariae* (1700), the academician counted up to 675. We can apply also to Plumier and his contemporaries in late seventeenth-century France Marie-Noëlle Bourguet’s conclusion for eighteenth-century German authors: “une fois qu’un érudit ou un savant a sous la main, dûment condensé dans son carnet, l’esprit de toutes les choses qu’il a lues, entendues et observées, il lui est loisible . . . de se rendre indépendant de ses sources. . . . Considéré sous ce rapport, l’art de lire, d’observer et de noter devient alors une technique heuristique, un art de l’invention.”



Fig. 3.25. Front and back cover of the MS 913 “Icones plantarum.” (Bibliothèque municipale de Marseille.)

name of “Icones plantarum” with the comment “a MS by Father Plumier.”¹⁴⁰ The “Icones plantarum” is a small volume of more than one hundred folios bound in an inexpensive covering—so much so that it reused paper already bearing sketches of plants, flowers, parts of a landscape with a church, and even a man’s face (fig. 3.25). On the frontal flyleaf, a manuscript annotation identifies the Marseille Minim convent as the origin of the volume and Plumier as the author. Yet below this, a more modern hand annotation noted, as a sort of disappointed refutation, that “this is not at all a work by father Plumier, [but] this Botanist scholar excerpted from the works of Marcgraf and Piso when he had to go herborize to America on the orders of the King.”¹⁴¹

The “Icones plantarum” is composed of two sections. The first, which runs one 150 pages long, follows a structure along the lines of the manuscripts described above: full-page ink drawings of American plants on the recto of the leaves, facing their written description on the versos of the previous page. The second part (another hundred pages

¹⁴⁰ BMM MS 913, “Flore américaine, redigée en Latin,” and MS 1485 “Catalogus librorum bibliothecae massiliensis minimorum,” fol. 324.

¹⁴¹ BMM MS 1485, [fol. 1]: “Ce n’est point un ouvrage du pere Plumier, ce savant Botaniste tira cet extrait des ouvrages de Marcgrave et de Pison, lorsqu’il dut aller en ameryque y herboriser, par ordre du Roi.”

long) splits images and their written descriptions: the sixty-six full-page drawings come first, and are followed by some forty pages of text. Here again the drawings show different degrees of completion, from simple line drawings to well-rendered chiaroscuros. They were, once again, entirely extracted from a printed book, this time Marcgraf’s and Piso’s respective books in the *Historia naturalis brasiliae* (1648). Those in the first part of the manuscript copied, in the same order, most (but not all) of the plants in Piso’s fourth book of his “Medicina Brasiliensi,” from the *Acaju* to the *Janiparandiba*. In this part, also the written descriptions facing or following Plumier’s drawings excerpted, totally or in part, the text by Piso (fig. 3.26). Some of the plant species were treated by both Piso and Marcgraf in their respective books, as in the case of the *Ibipitanga*: here Plumier retained some fragments of both descriptions (the images were, in these cases, actually the same in the two parts of the *Historia naturalis brasiliae*) and identified in the margin which part was excerpted from each author.¹⁴² The drawings of the second part mirrored (in a similar but not identical order) those in Marcgraf’s “Historiae plantarum” (the first two books of his “Historiae rerum naturalium,” which constituted the second half of the *Historia naturalis brasiliae*). Plumier retained here a smaller number of plants, since he omitted those already treated by Piso in the previous part of the volume. In this manuscript, too, the pictures vary in quality, from simple line drawings to more detailed figures in ink to a few retouched in watercolor.

We do not know when Plumier made the “Icones plantarum” or even if it is older than the other manuscripts mentioned here: the prefatory note (“Plumier . . . tira cet extrait . . . lorsqu’il dut aller en ameryque”) seems to suggest that its composition just preceded one of the friar’s journeys (perhaps during one of his stays at the Minim convent while in Marseille) and that he departed without it. Perhaps a way of cultivating his dexterity at drawing, such a sort of small manuscript copy of larger books could easily have been a portable reference instrument for his work in the field. The practice of copying, and especially of abridging not only text, but—and this was much more important—also images from printed books therefore seems a crucial and neglected activity in the work of seventeenth-century naturalists—perhaps a step preliminary to travel and firsthand observation. As the disappointed annotation by an eighteenth

¹⁴² For a comparison of the *Ibipitanga* images and descriptions, see BMM MS 913, fol. 143-4, and *Historia naturalis Brasiliae, auspicio et beneficio illustriss. I. Mauritii Com. Vassau illius provincie etmaris summi praefecti adornata in qua non tantum plantae et Animalia, sed et in digenarum morbi, ingenia et mores describiuntur et iconibus supra quingentas illustrantur* (Leiden: Frans Hack; Amsterdardam: Louis Elzevier, 1648), 121 (in Piso’s “Medicina Brasiliensi”) and 116 (in Marcgraf’s “Historiae plantarum”).

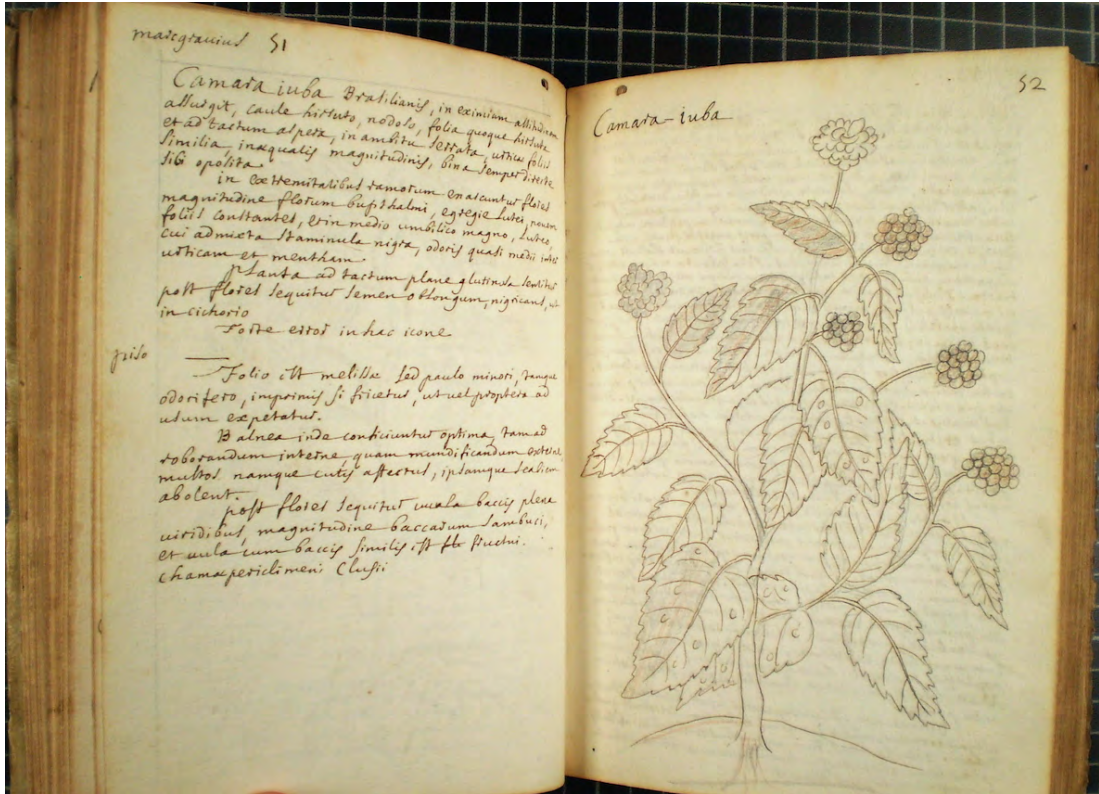


Fig. 3.26. (above) Drawing and description of the *Camara uba* (shrub verberna) in MS 913. Note the names of Marcgraf and Piso in the margin of the left page indicating from which author the written description is excerpted. (Bibliothèque de l’Arsenal, Marseille.) (left) Original woodcut of the *Historia naturalis brasiliae* from which Plumier copied the image. (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.)

century archivist suggests (“this is not at all a work of Father Plumier”), the erudite practice of copying and excerpting from books probably lost its central place in the daily work of the natural historian from the mid-eighteenth century, when new notions of authorship and originality emerged.¹⁴³

In different ways, these four manuscripts illustrate the central place that manuscript practices in general, and that of copying in particular, occupied in Plumier’s work as a naturalist. Manuscript replication was never completely mimetic: it selected and excerpted, abridged and adapted. More generally, as it has been argued here, copying by hand from printed books was not a marginal scholarly practice in the early modern times. Isabelle Charmantier has shown that Linnaeus copied by hand diagrams and tables from published books in his first notebook, the “Ortabök”; the flyleaves of his copy of Martin Johnren’s *Vade mecum botanicum* (1710) were also filled with images of flowers that the “Prince of botanists” patiently transcribed from Tournefort’s books.¹⁴⁴ But, as classicist Michael D. Reeve pointed out, this is “a phenomenon that has too often been ignored or greeted with surprise.”¹⁴⁵

How are we to construe manuscript practices such as copying (whether slavishly or creatively), excerpting from, or abridging both visual representations and written texts? The obvious, immediate interpretation is one in terms of conservation: rewriting by hand was on occasion the only way of keeping a copy of a document. This is the hypothesis in the Arsenal manuscript by the foreword’s anonymous author: Plumier, the commentator wrote, “only *copied* [crossed out and corrected in the margin as “abridged”] the printed book in 3 octavo [sic: quarto] volumes by Monseigneur of Tournefort, which we had in our Library and were stolen from us. Perhaps it was to compensate for this loss that Father Plumier made the present manuscript volume.”¹⁴⁶ Yet that precise manuscript reemployed the very original engravings from Tournefort’s *Éléments*. More generally, most of the printed books analyzed here were of a medium or small size, and one can conjecture that they were not particularly unaffordable.

¹⁴³ On this regime of textual production (previous to the development of the romantic aesthetic of the individual work and the figure of the author), see Roger Chartier, “The Author’s Hand,” in *The Author’s Hand and the Printer’s Mind*, trans. Lydia G. Cochrane (Cambridge: Polity Press, 2015), 73-86.

¹⁴⁴ Isabelle Charmantier, “Carl Linnaeus and the Visual Representation of Nature,” *Historical Studies on the Natural Sciences* 41, no. 4 (2011), 371-4.

¹⁴⁵ Michael D. Reeve, “Manuscripts Copied from Printed Books,” in *Manuscripts and Methods: Essays on Editing and Transmission* (Rome: Edizioni di Storia e Letteratura, 2001), 175-83.

¹⁴⁶ Ars. MS 2502, fol. 1r (“on croit qu’il n’a fait que (copier) [between brackets, and correction on the margin: “abrégé”] en cela, le livre imprimé en latin en 3 volumes in 8° de Monseigneur de Tournefort, que nous avons dans nôtre Bibliothèque, et qui nous ont été derobez. Peut-être ai-ce été pour suppléer à ce vol que le père Plumier a fait le présent volume manuscrit.”)

Another speculative answer could also be advanced here to this question: the exercise of copying from printed books was sustained by the purpose of publishing—under the form of commentaries or similar, for instance. Anthony Grafton considered this idea to be based in an anachronistic hypothesis, even for Renaissance humanism, for “was not copying a form of reading in itself, a tribute, letter by letter, to the power of the original?”¹⁴⁷ Grafton associates this copying from printed books to the proliferation of note-taking itself: “the humanist read quill in hand, and wrote as he read.” This was both a reading practice and a form of sociability in the Renaissance, for notes were shared between scholars. This applies to the 1700s, too: when the English naturalist Martin Lister visited Plumier in his cell at the Paris Minim convent in 1698, he was stunned by the vast collection of botanical and zoological drawings that the friar had brought from the American islands. Lister was especially pleased by those depicting sea snails, on which he was a renowned expert—at that time, he had already published about five books on shells that are still deemed by many as the founding works for the discipline of conchology.¹⁴⁸ The way in which the friar depicted those creatures was particularly compelling to the eyes of the physician: “because the *Murex* and [the] *Buccinum* was drawn with the Animals creeping out, I desired a Copy of them, which he [Plumier] freely and in most obliging manner granted me.” On 23 March, the day after they met in the convent, Plumier sent to Lister a copy of the drawings via Tournefort.¹⁴⁹ Four of these images of gastropods and arthropods—a centipede, a land snail, a murex snail, and a millipede—were reproduced by Lister in his *Journey to Paris* (fig. 3.27).¹⁵⁰

If anything, the manuscript practices of visual appropriation of printed materials described here suggest a double parallel. The first of these symmetries regards traditions of textual information management: the examples described here convincingly suggest that Plumier’s paperwork with images may be seen as akin to several of the modes that defined these traditions, such as reading by means of notes and commonplaces. Bacon, for instance, wrote some advice on research techniques to cope with the distressing fact

¹⁴⁷ Anthony Grafton, “Le lecteur humaniste,” in *Histoire de la lecture dans le monde occidental*, ed. Guglielmo Cavalho and Roger Chartier (Paris: Le Seuil, 1997), 243. Grafton evokes in this respect the German polymath Johannes Trithemius, who in his *Praise of Scribes* (a denunciation of printing) claimed that “fortius enim, que scribimus, menti imprimimus, quia scribentes et legentes ea cum morula tractamus” [every word we write is imprinted more forcefully on our minds since we have to take our time while writing and reading].

¹⁴⁸ Anna Marie Roos, *Web of Nature: Martin Lister (1639-1712), the First Arachnologist* (Leiden: Brill, 2011), chap. 12: “The Art of Science: The *Historiae Conchyliorum* and the *Historia Piscium*.”

¹⁴⁹ Plumier to Lister, Paris, March 23, 1698, Bodl. Ms. Lister 2, fol. 137.

¹⁵⁰ Martin Lister, *A Journey to Paris in the Year 1698* (London: printed for Jacob Tonson, 1699), 72–73. The original drawings (or at least a manuscript version of them) is now at BCMNHN



Fig. 3.27. Engraving of the *Purpura Americana* (murex) from Lister’s *Journey to Paris*, after one of the drawings that Plumier shared with Lister after the former’s visit to the friar in his convent at Place Royale. (Bibliothèque nationale de France, Paris.)

that “Knowledge is so infinite, and the Writers of every sort of it so tedious.” In his discussion about note-taking and commonplacing, the Lord Chancellor distinguished between the “Epitome, or Abridgment” and “Heads and Common Places”: the first “is but a short Narration of that which the Book itself doth discourse at large,” and the second, “of far more profit, and use,” consisted of commonplaces in which passages and “a kind of Observation” were copied verbatim and organized methodically.¹⁵¹ True, commonplace reading (concentrating on small fragments of text, excerpting them and placing them into notebooks, lists or other textual devices) was not among the practices that can be traced in Plumier’s work—or, for that matter, in his contemporary naturalists’. It had in fact lost most of its prominence among European scholarly methods by this time. Yet there is something telling in the comparison, for both are ways of reading/observing “quill in hand,” and instanced a form of reading as a process of annotation, extraction, and—more importantly—reconfiguration.

The second parallel, much more relevant for this chapter, concerns field records. By examining both field and reading records, we have seen that notes can take many forms—not only verbal, but also graphic. Just as written notes could adopt wide variations (from a hasty comment on the color of the neck of the pelican to a journal-like dated annotation of travel experiences, or from a one-word entry in a handmade legend

¹⁵¹ Vernon F. Snow, “Francis Bacon’s Advice to Fulke Greville on Research Techniques,” *Huntington Library Quarterly* 23, no. 4 (1960), 369-378, and Blair, *Too Much To Know*, 72.

to an engraving to a faithful transcription of a printed text), so too did manuscript images go from a perfunctory sketch to an ink-and-watercolor depiction. More importantly, the analysis of Plumier's reading manuscripts and notes convincingly suggests the need of an all-embracing approach to the manuscript culture deployed in the work of late seventeenth- and early eighteenth-century naturalists. Only such a perspective can reveal logics of inscription shared between, on the one hand, travel and field notes and, on the other, forms of manuscript inscription that are not necessarily linked to circulation far afield. A good example are the few extant loose sheets of Plumier's travel journal, mixing in a crabbed handwriting descriptions of obscure species of plants, dreary observations on the intensity and direction of the wind, and precious comments on his journey's experiences and the political life of the American islands. Lorraine Daston has pointed out, in this respect, the "kinship of form (short, private dated entries) and coincidence of timing (16th and 17th centuries) of the diary and the notebook of experiment and field observation."¹⁵² All in all, the case forcefully asserts that the appropriation "quill in hand" of the little books of men was indissolubly linked, via ink and paper, with the Book of Nature.

Conclusion

This chapter has addressed the role that Plumier's graphic field records played in mediating his observations of the American flora and fauna. Manuscript drawings and notes, such as those on the anatomy of animals, are a case in point of how inscription through images and text not only accompanied the impalpable act of observation, but in fact were the site at which *voir* was constructed into *bien voir*, to use Fontenelle's words. In his anatomical drawings, Plumier fragmented natural specimens into their constitutive parts—as the anatomical method Plumier learned (either in books, or else in the anatomical lessons that took place at several Parisian institutions at the time) stipulated—and profusely and meticulously annotated these depictions through letter keys. In doing so, the friar was not only "dissecting through paper," but was also registering his observations so as to make them travel and be accepted as accurate and "exact" back in Paris. The preoccupation of late seventeenth-century naturalists in France about making "exact observations," especially overseas, accounts for both the anatomical approach—one proceeding part by part—and for the specific forms of note-taking and inscription in Plumier's papers. Sketches of coastal profiles are a good example of how inscriptions of

¹⁵² Lorraine Daston, "The Moral Economy of Science," *Osiris* 10 (1995), 23.

the kind aimed at registering what the naturalist saw overseas in a way that was deemed ordered, learned, and, in Perrault's words, "exact." The cross-references through letter keys scattered all over Plumier's field drawings reflect the ordered attention of the scholar—part by part, and layer by layer—that made his observations those of a "travelling Philosopher," praised by Fontenelle and Perrault as a precious rarity.

The crucial mediating role of practices of inscription in the act of scientific observation has become more and more evident in recent years.¹⁵³ Yet, as this chapter argued, graphic and textual note-taking was far from limited to the direct observation of the world: they pervasively accompanied other seemingly impalpable scholarly practices such as reading. Plumier's observational drawings were the result of cultural practices that were specific to his time, but were not exclusive to fieldwork. As shown in the last section of this chapter, the inscription strategies deployed by Plumier in the drawings of the crocodile or those of Martinique's coastline were not limited to field records. To understand how and why manuscript inscriptions became, then and there, a reliable means for transporting and accumulating data on natures far afield we need to examine them as part of a broader scribal culture. And this includes reading practices of copy, excerption, abridgement, and so forth. Among Plumier's manuscript papers were not only notes taken overseas, but also intriguing documents that attest to the pervasive practice of reading "quill in hand." The "Synopsis botanica," the "Icones plantarum," or the untitled manuscript at the Bibliothèque de l'Arsenal, show the often surprising ways in which Plumier appropriated not only printed texts, but also printed images that he copied, modified, and rearranged.

We need to turn now to another of the naturalist's material practices: not those by which images were made, but those by which they were collected, stockpiled, and arranged.

¹⁵³ An exemplary recent analysis in this regard is Omar W. Nasim's study of graphic records in nineteenth-century nebular astronomy: *Observing by Hand: Sketching the Nebulae in the Nineteenth Century* (Chicago: The University of Chicago Press, 2013).

4. “Soit en dessein, soit en nature”

The Order of Images in the Knowledge of Nature

John Ray liked ferns. “Who would not be delighted,” asked the English naturalist, “to see an arborescent fern, of a single woody stem, straight and undivided, bearing leaves only at the top like a palm-tree[?]”¹ Whoever was such a great fan of this kind of non-flowering plant could not avoid at least two works. One was that of Hans Sloane, in particular his 1696 catalog of Jamaican plants, which Ray was actually prefacing when he found himself confessing his botanical preferences. The other was that of “one Father Plumier, who hath published at Paris two folios of West India Plants.” Though in fact only one volume—the *Description des plantes de l’Amérique*—had been printed by then and almost a decade was to elapse before the *Traité des fougères* would see the light of day, the English botanist soon spotted priority issues: “It is like he,” wrote Ray to Sloane, “may have anticipated your discovery.”² Some months earlier, however, he was rather suspicious of that French monk of whom he had heard through his colleague at the Royal Society, the physician Tancred Robinson. Ray was by then struggling with the third volume of the *Historia plantarum*, his colossal attempt to make all known plants fit into the boxes of his classificatory system. Plumier’s images were part of the immense amount of information—texts, figures, and dried specimens—that he was managing to this end. In 1694, he complained to Sloane that “I have not yet compared the titles of your capillaries with Plumier’s descriptions, for the figures I have not by me.”³

¹ This was not the only kind of fern Ray enjoyed: “or, 2dly, capillaries of almost all kinds creeping on trees, or rocks, or the ground, with wires after after the manner of strawberries; or, 3dly, capillaries, the tip of whose leaves turning downwards, and touching the earth, takes root and puts forth a new plant, so propagating their kind; or, 4thly, capillaries putting forth from the middle stem of their leaves two shoots, each bearing a spike of flowers and seeds?” Unpublished preface of John Ray for the *Catalogus Plantarum* by Hans Sloane, dated around 1695-6, in *The Correspondence of John Ray*, ed. Edwin Lankester (London: The Ray Society, 1848), 465-6. I thank Sebastian Kroupa for providing this quotation and, at a more general level, for his attentive eye to spot any reference to Plumier in his own sources. For he, too, likes ferns.

² John Ray to Hans Sloane, Black Notly, November 29, 1693, in BL Sloane MS 4036, fol. 158, transcribed in *Correspondence of John Ray*, 270.

³ Ray to Sloane, Black Notley, February 3, 1694, in BL Sloane MS 4036, fol. 222-3: “I shall not be able to finish my Supplement this summer. I take into it all the last six volumes of “Hortus Malabaricus,” and Plumier’s first vol. I hear there is a second published already, but have not yet seen it,” and Ray to Sloane, Black Notley, February 21, 1695, in BL Sloane MS 4036, fol. 227-8: “I have not yet compared the titles of your capillaries with Plumier’s descriptions, for the figures I have not by me, having remitted the book Mr. Smith sent me.”

Delightful as they were, ferns became particularly problematic for Ray, both because of the absence of flowers or fruits (“the difference of these plants must consist in the different figure and texture of the leaves”) and because of the remarkable number of sometimes closely similar individuals. He initially considered the images of that obscure French friar with a certain circumspection.

I cannot but wonder how and from whom he should procure so many Jamaica capillaries; who in that island should be so skillful and diligent as to find out and collect so many; and whether he did not get a sight of some sheets of your [Sloane’s] Catalogue. I dare say before your discovery, no herbarist imagined there had been half that number to be found there, nay, I think I may say in all America.⁴

Underneath the flattery, Ray’s lines reveal a legitimate concern: there were far too many ferns. A couple of months later, Ray had to acknowledge that, indeed, this multiplicity was not an exaggeration, especially when he saw Sloane’s catalog: “I confess, when I first saw the author’s [Sloane’s] stock of dried plants collected in Jamaica, and some of the Caribee islands, I was much surprised, and even astonished, at the number of capillary kind, not thinking there had been so many to be found in both the Indies. I might say much of the other generas [*sic*].”⁵

Ray’s amazement reflected that of a community of naturalists engulfed by the anxiety of what they saw as a crushingly multitudinous (although not infinite) variety of the natural world. The number of plant species was believed to be constant from the time of Creation until the end of days, but those known by scholars had grown swiftly in the previous two hundred years or so: in the early sixteenth century, Matthias de l’Obel described about 500 species of plants; by the mid-century, Hieronymus Bock was listing 800, and a few decades later, Dalechamps was already at 2,000; by the 1640s, Bauhin counted at least 6,000, and Tournefort raised the number to more than 10,000.

The sheer number of images produced and stockpiled by Plumier reflected not only the perception of information overload that had prevailed among scholars by then, but also the relatively new contours of a field that was adopting an increasingly documentary approach. Take for example the *Traité des fougères*; open it to, say, plate 29 and begin to turn one page at a time. What do you see? A species of bracken, a *Dennstaedtia*, another *Dennstaedtia*, a *Polybotrya*, a *Losophoria quadripinnata*, a *Ctenitis*, and another 170 engraved

⁴ Ray to Sloane, Black Notley, July 22, 1696, in *Correspondence of Ray*, 298-9.

⁵ Ray’s unpublished preface to Sloane’s *Catalogus Plantarum*, in *Correspondence of Ray*, 466.

images of ferns strikingly similar to each other for the eye of the non-specialist. Take now one of Plumier’s folders of manuscript drawings to find another arresting series of images. On fishes, for instance: a greater weaver, a smooth trunkfish, a common snook, a bonefish, a species of tilefish, a great barracuda, and almost 120 others.⁶ Plumier’s manuscript corpus of drawings and printed books actually consist of long series of images on different—although perhaps often quite similar—Caribbean animals and plants. A rapid survey of the friar’s extant manuscripts reveals noteworthy numbers. It comprises more than a hundred sheets of drawings of shells (with several figures each), about 180 pages of depicted birds, and nearly 300 of fishes. At least 1,100-odd pieces of botanical iconography can be counted on American plants alone, plus all those on specimens growing in France, either naturally or at the Jardin du roi.⁷ Numerous were also the pages of written descriptions, catalogs, and lists, as well as the volumes of graphic and textual copies and excerpts that were one of the riddles of the previous chapter. Even his printed volumes, examined in the next chapter, are a good example of visual seriality: the *Description* had 108 engravings, while Plumier intended to include more than 220 plates in the *Traité des fougères*, but these eventually had to be cut to only 172.⁸

Just like Ray’s bulky, carefully ordered catalog of all known plants, Plumier’s images both accepted and attempted to make sense of the crushing variety of natural forms—arresting even for an area as limited as that of the French West Indian islands. Both scholars were struggling with the same issue: not so much order and classification, but rather clear identification. Naturalists by 1700 could simply not do without books: a good amount of their time was devoted to collating literary sources and contrasting the information they drew from them with the real world. But where Ray patiently listed each of the large variety of ferns and any other plant that purportedly existed in the world (giving the literary source from which he was borrowing the names and, when available, a brief description), Plumier carried out this endeavor by means of the

⁶ For the modern equivalences of these ferns and fishes, I used David B. Lellinger and George R. Proctor, “The Ascriptions of Plumier’s Ferns Plates,” *Taxon* 32, no. 4 (1983), 565-71 and Theodore W. Pietsch, “Charles Plumier (1646-1704) and his Drawings of French and American Fishes,” *Archives of Natural History* 28, no. 1 (2001), 1-57.

⁷ Among Plumier’s volumes of drawings on plants growing in France are BCMNHN MS 11-5 “Penu botanicum, ex omni plantarum genere adstructum...,” MS 16 “Area umbelliferarum Horti regii parisiensis, seu plantae umbelliferae, quas in Horto regio demosntrbat clarissimus D. Jos. Pitton Tournefort,” and MS 17-8 “Hortus botanicus ex singulis plantarum generibus ad leges institutionum rei herbariae constitutis singulari et vulgatori specie consitus. Area prima... Anno 1702 Area secund. Annis 1703-1704.” Further research would perhaps need to be made on these volumes of drawings to study their function.

⁸ Compare with cases of seriality in the nineteenth century: Nick Hopwood, Simon Schaffer, and Jim Secord, eds., “Seriality and Scientific Objects in the Nineteenth Century,” special issue, *History of Science* 48 (2010), 251-499.

iconographic form. Ray's goal was to craft a comprehensive and ordered list of all flora—including all novelties, but getting rid of any repetition, such as those due to a same plant being named diversely by different authors. The goal of Plumier was slightly different: he aimed at making an exhaustive catalog, too, but only of those plants and animals that he had encountered during his wanderings through the islands—a catalog that stood for the objects themselves and allowed scholars like Ray, aspiring to encyclopedic enumerations, to contrast the information provided by previous authors. The ideas of identification and inventory were behind both endeavors; they both drove the project of natural history at the time. Here, the order sought was not so much that of nature itself, but rather that of the knowledge naturalists had of it: at a more mundane and down-to-earth level, this was about ordering images, papers, and records.⁹

In his many, many drawings and copperplates of the vegetables and creatures inhabiting the West Indian islands, Plumier was proposing the visual form as an instrument of knowledge, a device serving the purposes of natural history in several ways: each drawing captured the unstable, volatile act of observation onto paper, yes, but the combination and accumulation of one picture after another also was part of the naturalist's quest for knowledge. To put it another way, the abundance of images in Plumier's corpus is a historical question in itself, one at the confluence of contemporary phenomena such as the collecting of art, books, and natural specimens, the inventorial concerns of botanists, and the technologies of information management through paper records. Such a stockpiling approach to the visual representation of exotic floras and faunas was neither new nor specific to Plumier. It should actually be related to a series of cultural and epistemic developments that affected the work of students of nature by 1700.

⁹ Probably the most famous discussion of order in natural history at the turn of the eighteenth century is the famous one given by Michel Foucault in his *Les mots et les choses. Une archéologie des sciences humaines* (Paris: Gallimard, 1994 [1966]). I would have liked to offer here a more thorough discussion of Foucault's chapter on natural history, but I find it (as most of Foucault's writing) as beautifully written as confusing. The idea of order I have in mind here is rather the one articulated by Roger Chartier for the book: "whether they are in manuscript or in print, books are objects whose forms, if they cannot impose the sense of the texts that they bear, at least command the uses that can invest them and the appropriations to which they are susceptible. Works and discourses exist only when they become physical realities. . . . Understanding the principles that govern the 'order of discourse' supposes that the principles underlying the processes of production, communication, and reception of books (and other objects that bear writing) will also be deciphered in a rigorous manner. . . . Keen attention should be paid to the technical, visual, and physical devices that organize the reading of writing when writing becomes a book." Roger Chartier, *The Order of Books: Readers, Authors, and Libraries in Europe between the Fourteenth and Eighteenth Centuries* (Stanford, CA: Stanford University Press, 1994 [1992]), viii-ix.

This chapter deals with Plumier as a compiler and with his iconographic corpus in terms of accumulation. I consider his drawings and copperplates along other, non-graphic scriptural genres and look at how they worked as material instruments for coping with a vertiginous growth of information on flora and fauna. While the previous chapter analyzed the role that iconographic and non-iconographic inscriptions played in mediating the act of observation in the field and reading from printed books, this chapter deals with the way in which paper served to collect, manage, and organize observations in large numbers. It interrogates what Plumier might have had in mind while he was in the process of compiling such a gargantuan number of drawings on the natural things growing in, and wandering through, the French West Indies, and which his cultural references may have been when doing so.

Collection and collation¹⁰

The abundance of drawings in both Plumier’s manuscript corpus and printed volumes requires attention in itself. The naturalist’s work with series of images involved not only his own depictions, but also those of others, as instanced in the friar’s copy of Filippo Bonnani’s engravings of shells from his *Ricreatione dell’occhio et de la mente* (1681), which he colored carefully, annotated profusely in Latin, and completed with images of American seashells from his own corpus (fig. 4.1).¹¹ Indeed, working with series of images by other authors meant both making use of them and appropriating them not only in an abstract way, but sometimes in a very material one, as chapter 3 demonstrated. The *Synopsis botanica* offers yet another example of this blurry boundary between original and unoriginal work, for the parts drawn from Tournefort and Plumier’s own additions and corrections intermingled. These cases not only instantiate the pervasiveness of material practices of appropriation, such as copying and abridging, but also the centrality of various kinds of paper records to deal with the scholarly perception of an overload of information—of natural specimens as much as of the books dealing with them.

Perhaps the only reason for Plumier’s collection not being but a “paper” one was just the result of the Atlantic journey’s hazardousness: Lister reminded us that the friar had “lost his *Specimens* of all things” in a shipwreck but, by pure chance, not the drawings and notes, “having fortunately logged them in other Vessels”; and he stressed: “so that

¹⁰ I use the title of Staffan Müller-Wille, “Collection and Collation: Theory and Practice of Linnaean Botany,” *Studies in History and Philosophy of the Biological and Biomedical Sciences* 38, no. 3 (2007), 541–62.

¹¹ BNF Est. JB-68-4, “Animalium testacerum observatio A. P. Philippo Bonnanni Societatis Iesu. Ad usum Fr. C. Plumier minimi Botanici Regii.”



Fig. 4.1. Plumier's manuscript additions to his copy of Filippo Bonanni's *Ricreatione dell'occhio et de la mente* (Bibliothèque nationale de France, Département des Estampes et de la photographie, Paris.)

the things themselves I did not see.” Nevertheless, Plumier's work with collections of images (both others' and his own) can be seen as an attempt to exploit the materiality of paper to create meaning through the accumulation and arrangement of images. As it has been suggested in chapter 1, the descriptive endeavor of natural history was germane to its cumulative ambitions. This also was not new: “paper museums” pervaded the study of both nature and antiquities during the early modern period, and one of the best-studied examples is that of Cassiano dal Pozzo's *museo cartaceo*.¹² Here again, antiquarianism provides a handy comparison. The ten volumes plus five of supplements of Montfaucon's *L'Antiquité expliquée et représentée en figures* are worth recalling: Montfaucon had not originally collected the thirty to forty thousand figures included in the plates with

¹² On the “paper museum” tradition in antiquarianism, see Élisabeth Décultot, ed., *Musées de papier. L'Antiquité en livres (1600-1800)* (Paris: Éditions du Louvre and Gourcoff Grandenigo, 2010), and Décultot, “Du musée d'images au musée imaginaire. Les recueils d'antiquités et la tradition des musées de papier aux XVII^e et XVIII^e siècles,” *Revue de l'Art* 182, no. 4 (2013), 19-26. On dal Pozzo's case in particular, see Francis Haskell's introduction to *The Paper Museum of Cassiano dal Pozzo* (Ivrea: Olivetti, 1992), 1-10; Irene Baldriga, *L'occhio della linca: I primi Lincei tra arte, scienza e collezionismo (1603-1630)* (Rome: Accademia nazionale dei Lincei, 2002); David Freedberg, *The Eye of the Lynx: Galileo, His Friends, and the Beginnings of Modern Natural History* (Chicago: The University of Chicago Press, 2002), and more recently Stephanie Moser, “Making Expert Knowledge through the Image: Connections between Antiquarianism and Early Modern Scientific Illustration,” *Isis* 105 (2014), 58-99, esp. 65-76.

the intention of printing them (or at least this is what he tells us), but as part of the “Collection of Drawings and antique Pieces” that he had begun “about six and twenty Years ago.” His work on antiquity consisted partly—and crucially—in the gathering of antiquities both literally and by means of images.¹³ Montfaucon’s “collection of drawings,” as we have seen in chapter 1, were also related to the practice of travel: he declared to have “spent the most part of the time” during his three-year journey to Italy with “increasing my Collections (*mes recueils*).”¹⁴ Montfaucon knew that he was not inventing paper museums; he referred in particular to the “incomparable” Nicolas-Claude Fabri de Peiresc, the Aixois antiquarian, insatiable collector, and prolific correspondent in the early-seventeenth-century European Republic of Letters. Peiresc, in the words of Montfaucon, “collected more monuments on almost every part of Antiquity, either in images or in kind [*soit en dessein, soit en nature*], than anybody else we know.” The Maurist praised particularly Peiresc’s “short explanations” and lamented that most of his corpus of manuscripts was “either lost or dispersed here & there,” for this corpus “supplied [*fournissoit*] materials to most of the scholars in Europe.”¹⁵

The case of Peiresc’s collection of antiquities, by means of either the objects themselves or images reproducing them, and its inscription within the networks of European scholarly exchange hints at both the social and the intellectual position that such collections of drawings occupied in seventeenth-century descriptive fields of knowledge—be they the study of nature or that of the past’s remains. The specific problems of credit and authority related to such forms of accumulation will be dealt with later in this chapter. Here it is sufficient merely to note once again the parallel between antiquarianism and natural history in this period. In terms of visual seriality, collections of drawings constituted both a documentary and expository mode for organizing and accumulating data, one closely related to the culture of collecting in late-seventeenth- and

¹³ Bernard de Montfaucon, *Antiquity explained, and represented in sculptures, by the learned father Montfaucon*, trans. David Humphreys, vol. 1 (London: printed by J. Tonson and J. Watts, 1721), sig. [b1^r].”

¹⁴ Montfaucon, *Antiquity explained*, trans. Humphreys, sig. [b1^r].

¹⁵ This translation is my own, for Humphreys omits in his translation the sentence “soit en dessein, soit en nature.” Bernard de Montfaucon, *L’antiquité expliquée et représentée en figures*, vol. 1 (Paris: chez Florentin Delaulne, Hilaire Foucault, Michel Clousier, Jean-Geoffroy Nyon, Etienne Ganeau, Nicolas Gosselin, et Pierre-François Giffart, 1719), viii: “Incomparable M. de Peiresc, qui a plus ramassé de monumens sur Presque toute l’antiquité, soit en dessein, soit en nature, que nul autre que nous connoissons, qui ajoutoit ordinairement à ces monumens des explications courtes, que nous voions encore aujourd’hui dans quelques-uns de ses manuscrits, & qui fournissoit des materiaux à la plûpart des savans de l’Europe: c’est dommage que ce grand nombre de manuscrits soit ou perdu ou dissipé d’un côté & d’autre.” On Peiresc, the indispensable reference is the work of Peter N. Miller: *Peiresc’s Europe: Learning and Virtue in the Seventeenth Century* (New Haven, CT: Yale University Press, 2000), and *Peiresc’s Mediterranean World* (Cambridge, MA: Harvard University Press, 2015).

early-eighteenth-century France. Engravings, etchings, and manuscript drawings were among the preferred items of collection for amateurs and connoisseurs—including Louis XIV himself, as shown in the so-called *velins du Roi*, the extensive series of botanical and zoological drawings on vellum initiated in the 1660s, or the collection of books of engravings printed by the Imprimerie royale and known as the *Cabinet du Roi*.

The culture of collecting had specific forms in the work of the naturalist around 1700, when accumulation became increasingly specialized and linked to an ideal of exhaustive inventory. Herbaria, or collections of dried plants, offer an opportunity for comparison. As noted by Brian Ogilvie, the herbarium (also called “winter garden” or *hortus siccus*, “dried garden”) developed in connection with the voracious Renaissance appetite for curious things of any kind. Unlike other collections, however, herbaria were not always an end in itself, but often a tool of knowledge for naturalists, too. Ogilvie also indicates that “with the transition to phytographic natural history [that is, the one concerned with the detailed descriptions of plants], techniques for reinforcing memory,” such as the field notebook and the herbarium, became central to naturalists’ undertakings.¹⁶ Far from declining, herbaria became even more prevalent during the eighteenth century: it is worth recalling the case of Hans Sloane, who gathered a collection of dried plants of more than 250 volumes (partly through acquisitions, such as Petiver’s considerable collection). Linnaeus, too, is reputed to have made extensive use of an unbound herbarium that he stored in a purpose-built cabinet designed by himself.¹⁷

Collections of dried plants were resources de rigueur for the students of nature in seventeenth-century France. It was a crucial instrument for the stockpiling of botanical information—especially, but not exclusively, from far-flung locations—and the drying and affixing of plants onto paper constituted one of the basic tasks of traveling naturalists, although it was not necessarily an easy one. A good example of this practice is the Jesuit Adrien Le Breton (b. ca. 1662), a missionary wandering through the West Indies in the early eighteenth century—he never coincided with Plumier. Le Breton was a

¹⁶ On herbaria, see Brian Ogilvie, *The Science of Describing: Natural History in the Renaissance* (Chicago: The University of Chicago Press, 2006), 42-3, 150, 165-74, and Jean-Baptiste Saint-Lager, “Histoire des herbiers,” *Annales de la Société Botanique de Lyon. Notes et mémoires* 13 (1885), 1-120

¹⁷ Sloane’s herbarium has been the object of a digital database by the London Natural History Museum: <http://www.nhm.ac.uk/research-curation/scientific-resources/collections/botanical-collections/sloane-herbarium/index.html>. See Charlie Jarvis, Mark Spencer, and Robert Huxley, “Sloane’s plant specimens at the Natural History Museum,” in *From Books to Bezoars. Sir Hans Sloane and His Collections*, ed. Michael Hunter, Alison Walker, and Arthur MacGregor (London: British Library Publishing, 2012), 137-57. On Linnaeus’s *hortus siccus*, see Staffan Müller-Wille, “Linnaeus’ Herbarium Cabinet: A Piece of Furniture and Its Function,” *Endeavour* 30, no. 2 (2006), 60-4.

correspondent of, and supplier of specimens for, naturalists in Paris like the Jussieu brothers and Fagon, and he actually shipped several boxes of specimens to France, along with lists and inventories of their contents. He sent to his metropolitan fellows plants dried as well as possible (for, he complained, it was difficult to find good drying paper in those remote places), as well as grains and vegetable gums stored into coconuts, for “lack of small vases.”¹⁸ The unsung Jesuit was not alone in expressing his troubles with drying plants overseas to his satisfaction: during his journey to the Levant, the great Tournefort, too, regularly sent specimens to colleagues and especially to patrons in Paris. In a letter of June 1700 addressed to the abbé Jean-Paul Bignon (1662-1743), the *démonstrateur* explained that he was sending “three [plants] of each species . . . & if upon my return you want to give me one . . . for it is very difficult to dry many [plants].”¹⁹

In actual fact, Tournefort was at the origins of one of the largest French herbaria of the eighteenth century—along with the one assembled by Sébastien Vaillant some years afterward. The botanist referred to the herbarium in terms of a seemingly boundless stockpiling of natural information—terms that can easily be applied to Plumier’s collection of images. In the “Dictionary or Explanation of Botanical Terms” included in his *Éléments de botanique*, the professor at the Jardin du roi defined an herbarium as “precisely a pile [*amas*] of dried plants that we conserve in boxes or books, so that we can examine them in detail during all the seasons of the year.” Tournefort highlighted that *herbier* was a homonymic term, for it could also denote “a Treatise, or a History of plants”—in English, an herbal.²⁰ He was in fact the first to use the term “herbarium” (*herbier*) to designate what was previously referred to as mainly *hortus siccus* or “dried

¹⁸ BCMNHN MS 667 “Description des plantes de l’Amérique par le Père Le Breton, avec une lettre de ce Religieux.”

¹⁹ Joseph Pitton de Tournefort, “Mémoires que Monsieur Tournefort, docteur en médecine de la Faculté de Paris, associé-pensionnaire de l’Académie roiale des Sciences, a envoieez, en différens temps, pendant son voyage en Orient, à monsieur l’abbé Bignon, conseiller d’Estat et président de ladite Académie des Sciences, depuis le mois de mars 1700, jusques au mois de mai 1702,” quoted in Denis Lamy and Aline Pelletier, “La conservation et la valorisation de l’Herbier de Tournefort au Muséum national d’Histoire naturelle,” *La Lettre de l’OCIM* 130 (2010), 20: “trois [plantes] de chaque espèce . . . & si à mon retour vous voulez m’en donner une . . . car il est fort malaisé d’en sécher beaucoup.”

²⁰ Tournefort, *Éléments de botanique ou méthode pour connoître les plantes*, 3 vols. (Paris: de l’Imprimerie royale, 1694), vol. 1, 547-8: “Herbier. C’est proprement un amas de plantes seches que l’on conserve dans des boites ou dans des livres; afin de les pouvoir examiner avec soin dans toutes les saisons de l’année. . . . Herbier signifie aussi un Traité, ou une Histoire de plantes. Gesner avoit dessein d’écrire une grande Histoire de Plantes, qu’il apelloit *Herbarium*. *Brunfelsius* a intitulé son Traité des Plantes *Herbarium*, &c.” On Tournefort’s herbarium, see Lamy and Pelletier, “Herbier de Tournefort”; Philippe Morat, Gérard-Guy Aymonin, and Jean-Claude Jolinon, eds., *L’herbier du monde. Cinq siècles d’aventures et de passions botaniques au Muséum national d’histoire naturelle* (Paris: Muséum national d’histoire naturelle and Les Arènes/L’iconoclasme, 2004), and Thomas Grenon, ed., *L’Herbier du Muséum. L’aventure d’une collection* (Paris: Muséum national d’histoire naturelle, 2013).

garden”—the term was erstwhile used only for illustrated books of plants. But more generally, Tournefort’s work as a naturalist entailed a well-tended collection that was not limited to plants: the writer of the well-known guide to the most curious places in Paris, Germain Brice, presented the professor as the owner of “a very curious cabinet, full of all what he was able to gather along his long journeys to various places: not only extraordinary & bizarre productions, such as Minerals, Congelations [i.e. “solidifications,” such as stalactites], natural Salts, sea Excrescences, Petrifications; but particularly very rare Shells, of which he has a gathering of more than three thousand of an admirable beauty & choice.” There also were “Skeletons of different monstrous animals, Fruits from the Indies of an extraordinary figure, & thousands of other things of this sort.” But the jewel of Tournefort’s cabinet, Brice tells us, was the herbarium:

His dried Garden [*Jardin sec*], as he calls it himself, is also a unique singularity that, no doubt, one can see nowhere else. It is composed of more than seven thousand dried Plants, from different places, affixed very properly on leaves of paper, with their names & their histories on the bottom.²¹

The English naturalist Martin Lister, of course, did not miss the chance to visit Tournefort and his collection during his journey to Paris in 1698, although most of his attention went to his beloved shells rather than the dried plants, about which he barely wrote a couple of lines: “I shall say nothing of his vast Collection of Seeds and Fruits, and dried Plants, which alone amount to 8000, and in this he equals, if not excels all the most curious Herborists in *Europe*.”²² Bernard de Fontenelle (Tournefort’s biographer, so to speak) tells us that the botanist began his herbarium at a young age from his early herborizations in Southern France and Northern Spain; he also tells us (with an eloquence close to fiction) about the botanist’s “pleasure of seeing [those dried plants] in large number, complete, well conserved, and arranged according to a handsome order in

²¹ Germain Brice, *Description nouvelle de la ville de Paris, ou Recherche curieuse des choses les plus singulieres & les plus remarquables qui se trouvent à present dans cette grande Ville*, vol. 2 (Paris: chez Nicolas Le Gras, chez Nicolas Le Clerc and Barthelemy Girin, 1698), 15: “Il a un cabinet tres-curieux, rempli de tout ce qu’il a pû amasser dans les longs voïages qu’il a faits en differens endroits; non-seulement de productions extraordinaires & bizarres, comme des Mineraux, des Congellations, des Sels naturels, des Excressances de mer, des Petrifications; mais particulièrement des Coquilles tres-rares, dont il a un amas de plus de trois mille, d’une beauté & d’un choix admirable. Son Jardin sec, comme il l’appelle lui-même, est encore une singularité unique que l’on ne verra point ailleurs, sans doute. Il est composé de plus de sept mille Plantes seches, de differens endroits, collées sur des feuilles de papier tres-proprement, avec leurs noms & leurs histoires au bas. . . . Avec ces choses il conserve des Squelets de differents animaux monstrueux, des Fruits des Indes d’une figure extraordinaire, & mille autres choses de cette sorte.”

²² Martin Lister, *A Journey to Paris in the Year 1698* (London: printed for Jacob Tonson, 1699), 61.

large Books of white paper.”²³ Celibate and childless, Tournefort bequeathed his collection of natural history, herbarium included, to Louis XIV with a very explicit purpose: “to intend it for use by Messieurs of the Royal Academy of Sciences.” The most precious pieces, however, were eventually claimed for the king’s personal cabinet, while the rest of the collection went to the Jardin du roi. The notaries in charge of the collection’s inventory described it as consisting of four closets “full of dried plants, each on a leaf of gray paper.”²⁴ Tournefort intended his herbarium to be, after his death, what he created it for: a research tool on paper.

So, what about Plumier? Were his images intended to replace the headache of making, transporting, and storing an herbarium? It is not clear whether the friar constituted some sort of “dried garden,” large or small, of his own. What we do know is Lister’s reporting that the friar “was more than once Shipwreckt, and lost his *Specimens* of all things.” However, a 1722 catalog of the library of the convent of Minims at Place Royale listed, among Plumier’s materials, 8 volumes of “dried plants” (*plantes desseichées*). When the friar’s collection was claimed by the Bibliothèque du roi, the keeper of the print’s cabinet inventoried nine cardboard or parchment folio folders of a certain “Herbarium vivum” or “Phitoxeron”—from the Greek φυτόν, “plant,” and ξηρόν, “dried thing”—among his papers. The plants collected, however, were probably not from the Americas but a work done at the Jardin du roi, for the keeper described it as “desiccated plants collected from the Paris Royal Garden by Charles Plumier” (*Herbarium vivum seu Phitoxeron vel Plantae dissicatae ex Hortu regio Parisiensi collectae studio et opera Car. Plumier*).²⁵ Each folder was listed by the name of the first and last plants included: the first folder beginning with *Mandragora folio rotundo* (the first species of the first genus of the first section of the first class in the 1694 *Éléments*) suggests that it was arranged according to

²³ Bernard Le Bovier de Fontenelle, “Éloge de M. de Tournefort,” in *Histoire de l’Académie royale des sciences. Année MDCCVIII* (Paris: par la Compagnie des Libraires, 1708), 146: “Il n’appartient pas à tout le monde de comprendre que le Plaisir de les voir en grand nombre, bien entières, bien conservées, disposées selon un bel ordre dans de grands Livres de papier blanc, le payoit suffisamment de tout ce qu’elles lui avoient coûté.”

²⁴ G. Dupart, “Les manuscrits de Tournefort conservés au Muséum national d’Histoire naturelle,” in G. Becker *et al.*, *Tournefort* (Paris: Muséum national d’histoire naturelle, 1957), 207-38; H. W. Lack, “Die frühe botanische Erforschung der Insel Kreta,” *Annalen des Naturhistorischen Museums in Wien* 98 B Suppl. (1996), 198; Lamy and Pelletier, “Herbier de Tournefort,” 22-3. The quotation from the notaries is from AN Minutier central des notaires de Paris, ET/LVII/247, quoted in Lamy and Pelletier, “Herbier de Tournefort,” 23.

²⁵ It is by the name of “Herbarium vivum,” however, that the entire corpus of drawings by Plumier was mentioned by some authors during the second half of the eighteenth century and the nineteenth century, for instance by Piganiol de la Force in his *Description de Paris, de Versailles, de Marly, de Meudon, de S. Cloud, de Fontainebleau*, vol. 4 (Paris: chez Charles-Nicolas Poirion, 1742), 360.



Fig. 4.2. (left) A specimen of *Filix aurea*, *pinnulis rotunde incisive divisa* collected by Plumier and conserved in Tournefort's herbarium. (Muséum nationale d'histoire naturelle, Paris.) (right) The engraving of the same specimen included in Plumier's *Traité des fougères*. (Biblioteca histórica "Marqués de Valdecilla," Universidad Complutense de Madrid.)

Tournefort's method. Whether issued from a hypothetical personal collection or not, some American specimens collected and dried by Plumier can also be found in several herbaria in Paris, mostly Tournefort's, but also Vaillant's, Jussieu's, and Danty d'Isnard's, all of them at the Jardin du roi. Researchers have been able to establish correspondences between Plumier's printed and unpublished images of ferns, on the one hand, and specimens at these herbaria, on the other (fig. 4.2): some of them were labeled in the friar's own handwriting, with references to his *Traité des fougères* and the same naming used for those plants in his book. Several other specimens gathered and prepared by Plumier also found their way into English collections, such as Sloane's herbarium in London.²⁶

²⁶ Lister, *Journey to Paris*, 73; Maz. MS 4147 "Catalogue alphabétique de la bibliothèque des Minimes de la Place Royale, à Paris." For Plumier's dried specimens in other naturalist's herbaria at the Muséum national d'histoire naturelle and correspondences to his manuscript and printed images, see Georges

The comparison of Plumier’s manuscript depictions or the plates of his botany books with the contemporary practice of herbaria allows us to highlight the importance that seriality played in the work of naturalists around 1700. The parallels between the one and the other methods of collecting are certainly striking at times: the friar’s images come immediately to mind upon reading about Tournefort’s archive of plants “affixed very properly on paper, with their names & their histories in the bottom.” Just like Plumier’s images, Tournefort’s herbarium stood halfway between the culture of collecting and the practices of information management on which natural history was based. Several points of similarity can be established between a “dried garden” and a “drawn” one. To start with, they both enabled two of the main tasks of the naturalist, inventory and identification, by presenting one plant per page, carefully named and described. The pages thus served as both a repository of work and a curiosity worth a visit.²⁷ Draftsmanship offered a viable alternative to the bothersome task of drying and conserving plants overseas—at least for those blessed with such a skill or able to afford a draftsman. For scholars like Plumier and Tournefort, therefore, it seems that herbaria and images were two of the principal means for establishing evidence in botanical knowledge: captured on paper in one way or another, they constituted the sources on which the work of identification and inventory could be accomplished. Take as an example the letter of Tournefort to the English naturalist William Courten (1642-1702), also known as Charleton:

I would be very grateful if you could send me as soon as possible all the species of gramen [Secale] and *Muscus* that Mr Raius has named or described, for I intend to give them new names, given that in Mr Raius’s descriptions they cannot be distinguished as exactly as I would wish. It is not that this great man has not described them very regularly, but you know that this sort of plants need to be properly engraved or must be compared with the dry specimens.²⁸

Cremers and Cécile Aupic, “Spécimens de Charles Plumier déposés à Paris dans les collections de ptéridophytes américains de Tournefort, Vaillant, Danty d’Isnard et Jussieu,” *Adansonia*, 3rd ser., 29, no. 2 (2007), 159-93. For Plumier’s specimens in English herbaria, such as Sloane’s, see below ch. 6. On the difficulties of specimen conservation and transport in the eighteenth-century French and English Atlantic exchange of natural specimens, see Christopher M. Parsons and Kathleen S. Murphy, “Ecosystems Under Sail: Specimen Transport in the Eighteenth-Century French and British Atlantics,” *Early American Studies* 10, no. 3 (2012), 503-29.

²⁷ For the social place of Plumier’s collection of drawings, see below in this chapter.

²⁸ Tournefort to Charleton [William Courten], Paris, June 25, 1699, in BL MS Sloane 4062, fol. 317-8: “Vous m’obligerez tres sensiblement de m’envoyer au plutot toutes les especes de gramen et de Muscus que Mr Raius a nommées ou decrites, parce que j’apprehende de les nommer sous d’autres noms, veu

“Soit en dessein, soit en nature”: either “engraved” (or simply drawn, for that matter) or “the dry specimens.” Thinking about images as a collection helps us to understand Plumier’s making and gathering of drawings on the West Indian flora and fauna in relation to the practices of knowledge by which nature was by that time studied. The friar understood his own natural historical work in terms of seriality, and very often referred to his printed volumes and some of his compilations of manuscript drawings with the term *recueil*.²⁹ *Recueil* was a common word for referring to volumes in which several different works were bound together, but especially to collections, usually of curiosities—Furetière’s first definition of it was a “collection, a heap, an assemblage of several things,” and his examples referred to the king’s cabinet (“a *recueil* of the most beautiful, rarest curious things”) and to cabinets in general (“a *recueil* of the most beautiful medals, of the most beautiful paintings, the most beautiful prints of Europe”).³⁰

It is not clear by which exact modalities images such as those by Plumier stood for the objects they represented: were images treated *as if* they were real specimens in terms of epistemic practices? What seems pretty clear is that a series of parallels, especially at the level of practices, can be drawn between the collection of drawings and that of naturalia. One of these—a crucial one actually—is the possibility of comparing different specimens. The use of analogous modes of representation for the depiction of different animals and plants in Plumier’s images reinforced the factuality of the specimens represented. Take, for instance, the drawings of seashells. Seashells were a coveted object of collection for both amateurs and naturalists, not only in actuality but also in the form of paper collections. The abovementioned case of Bonnani is a good example, for the author announced his book as a source of recreation for both the eye and the mind (“É si curiosa, e si dilettevole la cognitione della natura[!]”), and his book was openly

qu’on ne les sauroit distinguer avec l’exactitude que je souhaite sur les descriptions de Mr Raius. Ce n’est pas que ce grand homme ne les ayt decrites fort regulierement mais vous savez que ces sortes de plantes doivent estre gravées proprement ou bien il faut les comparer avec des exemplaires secs.”

²⁹ “Je ne doute pas que ce recueil . . . des fougères, capillaires, &c. que j’ay découvert . . . ne fasse que plaisir aux curieux” (BCMNH MS 32, unpaginated), or “j’avois mesme resoulu de faire un nouveau pinax, ou recueil générale des plantes” (*Description*, sig. ã iii). The Secretary of State of the Navy also described Plumier’s work with the same term (“il a raporté un recueil de ce qu’il a fait dans l’isle de la Martinique,” AN MAR B² 66, fol. 252), as did some of the official documentation (“Sa Majesté envoyant aus Isles de l’Amérique le Père Charles Plumier . . . pour continuer le recueil qu’il a commencé des graines, plantes et arbres desdites isles et en composer un de poissons, oyseux et autres animaux de ce pays,” ANOM COL B¹⁴, fol. 95).

³⁰ Antoine Furetière, *Dictionnaire universel, contenant generalement tous les mots françois tant vieux que modernes, & termes des sciences et des arts*, 2nd ed. (The Hague: Arnoud and Reineier Leers, 1701), vol. 3, sig. [Nnn3^v].



Fig. 4.3. Two views of the same white seashell. (Bibliothèque centrale du Muséum national d'histoire naturelle, Paris.)

addressed to “*curiosi* who invested in the commerce of curiosities.”³¹ A good number of the drawings of shells among Plumier’s corpus might well have not been primarily aimed at neither publication, nor the constitution of a “working collection” in the way of Montafaucon’s or Peiresc’s (or in fact most of Plumier’s own) *recueils*, for they are too exquisitely drawn: their complex patterns and colors well-rendered, their exterior shaded, their suppositious shadows depicted, and the imaginary surface on which they lay painted so as to accentuate the light, whitish tones of some of them (fig. 4.3). In such cases, only occasionally did written notes stain the delicate beauty of the depiction. Of another kind were those figures in which the friar delineated the shells by pencil or ink: these were rarely painted, but included written comments to indicate the colors of each part of the structure (“fonds couleur de chair avec quelques touches couleur de rose, taches longues noires, le cul fauve foncé”), as well as to identify the species and to add some descriptions. These might as well have been preparatory designs for paintings. The

³¹ Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: The University of Chicago Press, 2014), 55.



Fig. 4.4. Two- or three-view images of five seashells. Note that each shell is depicted from several views and following the same pattern, from the body whorl to the aperture (Bibliothèque centrale du Muséum national d'histoire naturelle, Paris.)

rendering was often no less deftly executed: their wavy or coiled calcareous outsides were finely depicted only by the means of ink or graphite (fig. 4.4).³²

Carefully colored or not, Plumier's figures most often adopted a mode of exposition persistent in seventeenth- and eighteenth-century images of seashells: two views of the specimen were presented (the body whorl or the bulged "back" of the carapace, and the aperture or the "mouth"), sometimes even three or four, as if the object was turning on its own axis.³³ It is difficult to be sure of these drawings' intended audience—perhaps, as almost any of the friar's images, appreciation of their aesthetic qualities was coextensive with recognition of their standing for matters of fact. What is clear is that this mode of exposition, along the representational style described above, highlighted the "factuality" of Plumier's seashells. If there was any "paper museum" within Plumier's corpus, the bunch of drawings on shells was it.

³² BCMNHN MS 26 "Conchilia Americana Authore Patre Carolo Plumier Minimo," and MS 31 "Poissons et Coquilles dessinés par le Pere Plumier Minime." On shells as objects of art and nature in eighteenth-century Paris, see Bettina Dietz, "Mobile Objects: The Space of Shells in Eighteenth-Century France," *The British Journal for the History of Science* 39, no. 3 (2006), 363-82, and Charlotte Guichard, "La coquille au XVIII^e siècle: un objet frontière?" *Techniques & Culture* 59 (2012), 150-63.

³³ On the importance of the "patterns of specimen placement in the page" for the case of eighteenth-century conchilology books, see Emma Spary, "Scientific Symmetries," *History of Science* 42, no. 1 (2004), 1-46, and Margócsy, *Commercial Vision*, 29-73.



Fig. 4.5. Seashells in a comparative grid: different views of the same shell were presented in the same row, and each view of a shell (i.e. back, side, aperture) was compared with the equivalent of the other shells. (Bibliothèque centrale du Muséum national d'histoire naturelle, Paris.)

Another aspect of these depictions that deserves attention is the fact that this code of representation (i.e. two, three, or even four views of the same shell, as if it was rotating in its own axis) organized most of the figures, sometimes even in the space of the same page. The result was something like comparative tables: different views of the same shell were presented in the same row, and each view of a shell (i.e. back, side, aperture) was compared with the equivalent of the other. Plumier's depictions of American seashells, therefore, introduced a double seriality: first, a horizontal series of two, three or four views of the different sides of the same shell; second, a vertical series comparing different sorts of shells. The resulting grid thus presents the items in a very codified manner: the specimens are shown the axis up and the apex down, and the horizontal series all follow the same pattern, from a view of the body whorl (an abapertural view) to one presenting the aperture (an apertural view). The grid, by “turning” the different specimens according to a same pattern, imposes a sort of morphological comparison of the shells (fig. 4.5).

Another case in point are Plumier's drawings of fishes. Here again, a closely similar iconographic scheme was applied to the large majority of drawings on the same category of animals: fishes were presented sideways, along with a cross-section so as to document



Fig. 4.6. (above) “*Draco marinus sive Araneus Rondeletii*. L.X C.XI 301. Gallice La Vive,” a species of weeverfish. This is one of the nearly 300 extant drawings of fishes by Plumier. (left) Three drawings of Caribbean fishes: note the cross-sections, the abundant notes, and the implicit comparative approach. (Bibliothèque centrale, Muséum national d’histoire naturelle, Paris.)

the width and girth of the beast. Latin and French names were added to the manuscript images, usually accompanied by their bookish references (i.e. “*Thrissa seu Alosa, Rondel. L.VII C.XV 200,*” or Rondelet’s *Libri de piscibus marinis*, book 7, chapter 15, page 200³⁴). A certain number of Plumier’s drawings of fishes are colored, and it is likely that most of them are depicting the animals in their real size (fig. 4.6).³⁵ This serial collector’s approach was also not new in the study of fishes. The two most salient scholarly references in the field, Guillaume Rondelet’s *Libri de piscibus* (1554) and Pierre Belon’s *La nature et diversité des poissons* (1555), were along similar lines. Both Rondelet’s and Belon’s illustrated accounts were still highly influential at the end of the seventeenth century. Both

³⁴ Although it was actually page 220.

³⁵ BCMNHN MS 24 “Poissons, oiseaux, lézards, serpens et insectes, dessinés par le Père Plumier,” MS 25 “Poissons d’Amérique,” and MS 31. Theodore W. Pietsch, an ichthyologist himself, is the reference for Plumier’s work on fishes: “Charles Plumier (1646-1704) and his Drawings of French and American Fishes,” *Archives of Natural History* 28, no. 1 (2001), 1-57; “Charles Plumier’s Drawings of French and American Fishes: Concordance with Equivalent Illustrations found in the Vellums of Aubriet and Published Works of Gautier d’Agoty, Bloch, Lacepède, Bloch and Schneider, and Cuvier and Valenciennes,” *Archives of Natural History* 28, no. 2 (2001), 261-8, and “Plumier’s Passion,” *Natural History* 119, no. 7 (2011), 30-6. See also Michel Thireau, François J. Meunier, Marie-Louise Bauchot, Aline Hamonou-Mahieu, and Théodore W. Pietsch, “L’oeuvre ichtyologique de Charles Plumier aux Antilles (1689-1695),” in *Explorations et voyages scientifiques de l’Antiquité à nos jours*, ed. Christiane Demeulenaere-Douyere (Paris: Éditions du Comité des travaux historiques et scientifiques, 2008), 47-56.

physicians by training, Belon and Rondelet made extensive use of dissection in their respective studies of animals; more important, they espoused an explicitly comparative approach to anatomy. Rondelet, who was actually a regius professor of medicine at Montpellier and skilled in botany as much as anatomy, stressed that even accidents and external forms were important in establishing differences between species of fishes. His book boasted about 250 woodcuts of “marine fishes,” broadly understood, organized in typologies: “crustacea,” “cetacei,” “plani pisces” (or “flat” fishes) and so forth.³⁶ Belon was originally an apothecary—although he ended up studying medicine, too—who, at some point, found himself traveling through the Eastern Mediterranean and compiling abundant natural observations en route. In the years following his return to France, Belon published not only his travel accounts, but also a series of major, generously illustrated works on the natural history of birds, fishes, and plants.³⁷ Two of them played foundational roles in the early modern natural history of animals: the two treatises in vernacular on fishes and birds, respectively, both printed in 1555.³⁸ The former, *La nature & diversité des poissons*, was an octavo volume on diverse animals that fell under the category of “fishes”—from cods to whales, hippopotamuses, and lobsters—and included about 170 “naïf portraits drawn from the natural,” also in the form of woodcuts.

Although both Rondellet and Belon announced with fanfare the veracity of their depictions (“verae Piscium effigies expressae sunt”; “avec leurs pourtraicts, representez au plus pres du naturel”), a good number of them were actually drawn from bookish sources.³⁹ Yet the two books, and especially the images, were to have a long-lasting

³⁶ Guillaume Rondelet, *Libri de piscibus marinis, in quibus verae piscium effigies expressae sunt* (Lyon: apud Matthiam Bonhomme, 1554), and Pierre Belon, *La nature & diversité des poissons, avec leur pourtraicts, representez au plus pres du naturel* (Paris: chez Charles Estienne, 1555). On Rondelet’s importance on accidents in his books on fishes, see Ian Maclean, “White Crows, Graying Hair, and Eyelashes: Problems for Natural Historians in the Reception of Aristotelian Logic and Biology from Pomponazzi to Bacon,” in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge, MA: The MIT Press, 2005), 165.

³⁷ *Les observations de plusieurs singularités et choses memorables, trouvées en Grece, Asie, Indée, Egypte, Arabie, & autres pays estranges, redigées en trois livres* (Paris: Georges Corrozet, 1553).

³⁸ Belon, *Nature et diversité des poissons*, and *L’histoire de la nature des oyseaux, avec leurs descriptions, & naïfs portraits retiréz du naturel* (Paris: Gilles Corrozet, 1555), another issue of which appeared the same year, also in Paris, by Guillaume Cavelleta. There is a modern critical edition of the former, with a useful preliminary study: *L’histoire naturelle au XVI^e siècle. Introduction, étude et critique de La nature et diversité des poissons de Pierre Belon (1555)*, ed. Philippe Glardon (Geneva: Librairie Droz, 2011). On Belon’s study of fishes, see E. W. Gudger, “The Five Great Naturalists of the Sixteenth Century: Belon, Rondelet, Salviani, Gesner and Aldrovandi: A Chapter in the History of Ichthyology,” *Isis* 22, no. 1 (1934). As for the study of birds, see Philippe Glardon, “Les comparaisons et les monstres: figures structurales de la description zoologique dans *L’histoire de la nature des oyseaux* de Pierre Belon du Mans,” *Anthropozoologica* 13 (1990), 27-43.

³⁹ Which was not necessarily uncontradictory: in this regard, see William B. Ashworth, “The Persistent Beast: Recurring Images in Early Zoological Illustration,” in *The Natural Sciences and the Arts*, ed. Allain Ellenius (Uppsala: Almqvist & Wikell, 1985), 46-66.

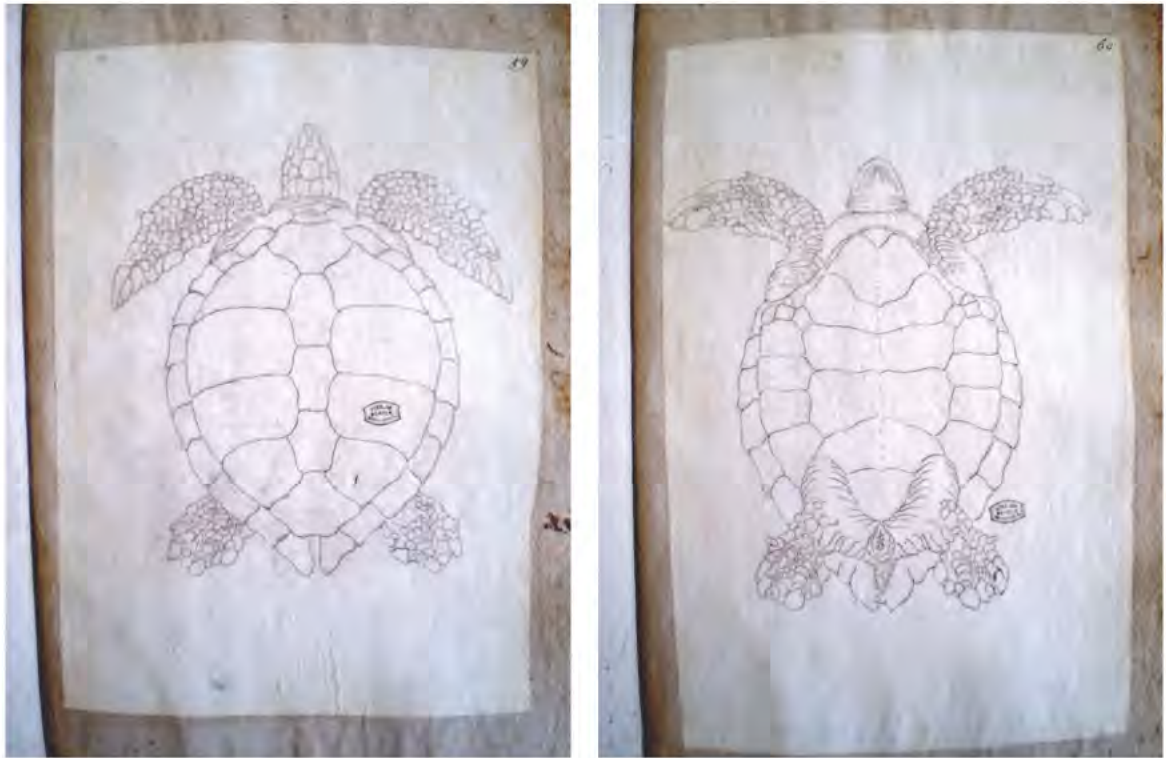


Fig. 4.7. Comparison of the woodcuts of the sea turtle in Belon's *La nature et diversité des poissons* (above) with Plumier's manuscript drawings of the same (opposite). (Bibliothèque nationale de France, Paris, and Bibliothèque centrale du Muséum national d'histoire naturelle, Paris.)

influence on the study of animals through the entire early modern period. Copies of the two books were available at the library of the Parisian Minims,⁴⁰ and references to both pervaded Plumier's documents: in BCMNHN MS 24, to take but one example, 50 out of the 121 drawings of fishes refer to Rondelet—although only 7 to Belon, and 9 to Georg Marcgraf, the reference in American fishes, whose book was also profusely illustrated. The two Frenchmen's serial approach to the depiction of animals is certainly to be found in the volumes of Plumier's manuscripts devoted to birds and fishes: Belon's two depictions of the sea turtle, in supine and prone position, can easily be compared with the manuscript drawings by Plumier of the same animal (fig. 4.7).

More important, however, was the fact that visual seriality—in Plumier's drawings as in Belon's and Rondelet's woodcuts—entailed a comparison of the animals in their forms. By drawing such a number of the same kind of animals—be they fish, shells, or birds—under similar representational codes, the anatomies of the depicted specimens could be correlated. The extent to which we can speak of a comparative anatomy here is an entirely different question. Yet if there was not a comparative anatomy as it was to be shaped by Cuvier, Owen, or Huxley in the nineteenth century, a good number of early

⁴⁰ Maz. MS 4147 "Catalogue alphabétique de la bibliothèque des Minimes de la Place Royale, à Paris," from 1722: by "Rondeletius," there was "De Piscibus marinis in fol. 1 v." and "Le même ouvrage en françois in fol. ibide.," by Belon, "La nature et diversité des poissons in 12° 1 v. et in 8° 1 v.," as well as "Sept livres de la nature des oyseaux in fol. 1 v." Belon's *La nature et diversité des poissons*, in its Paris edition of 1555 (that of Charles Estienne) was also among the quarto "Derelicti libri" (abandoned books) in Maz. MS 4149 "Index generalissimus omnia librorum bibliothecae conventus patrum minimorum Parisiensi" from 1776 (perhaps the is the same volume than the 1722 catalog).



modern authors used the visual form to correlate the anatomy of different animals, sometimes even contrasting them with that of humans.⁴¹ The story of the Minim friar Jean Germain’s *Breve e sostiantiale trattato intorno alle figure anatomiche delli pieu principali animali terrestri, aquatili, et volante* (1625) has already been recounted in the previous chapter; here, it suffices merely to remember that Germain’s book brought together the depicted skeletons of beasts as miscellaneous as pigeons, turtles, dogs, mice—and men. Belon, too, famously correlated the skeleton of birds with that of men in his *L’histoire de la nature des oyseaux*.⁴² The project for the anatomy of animals at the Paris Academy of Sciences provides yet another late-seventeenth-century example of this comparative approach to natural history by means of visual depiction. The different engravings that resulted from the work of Perrault’s circle presented a similar mode of representation: the entire animal, as if it was alive, was represented below, and some anatomical parts of each beast were exposed above. Admittedly, however, there were no specific parts correlated between the different animals and plates in the volumes of the *Histoire des animaux*: for the lion, its skull and main organs were presented; for the chameleon, the skeleton and

⁴¹ On the relation between anatomy and classification before the mid-eighteenth century, see Henri Daudin, *De Linné à Lamarck. Méthodes de classification et idée de série en botanique et en zoologie (1740-1790)* (Paris: Éditions des archives contemporaines, 1983 [1926]), 48-65.

⁴² On the comparison of animals’ and men’s anatomies, see Daudin, *De Linné à Lamarck*, 108-9.

the lungs; for the dromedary, the tongue, the penis, and the heart; for the bear, the stomach, the paws, and the kidneys, and so forth.⁴³

So, can Plumier's series of drawings of fishes (or those on shells, birds, or ferns) be seen as a sort of comparative seriality? Comparative anatomy might well not have existed by 1700 as we understand it today, but the expression was used at least once in a way that may help us understand the rationale behind our friar's depictions. A remarkable case of seventeenth-century so-called "comparative anatomy" (perhaps the only one) is to be found, not in a majestic volume on exotic animals, but in a small octavo book on botany. Nehemiah Grew's *Comparative Anatomy of Trunks* (1675) aimed, as the author's previous *Anatomy of Plants* (1680), at extending to the vegetable world anatomical approaches that were mostly applied then to animals: "those things," Grew asserted, "are little less admirable within a Plant, than within an Animal." The *Comparative Anatomy of Trunks* comprised twenty-four copperplates, of which sixteen depicted identical sections (one per plate) of different trees' trunks, thus visually comparing them to each other: "that as the Variety of the parts (as to Size, Number, and Position) in every species; so their Regularity and Constancy in the individuals of each, are this way, much more clearly and certainly represented. All which [you] will best observe, by comparing our several Figures together" (fig. 4.8). By following the same visual code, a triangular slice of their cross section, Grew's images on the anatomy of trunks presented a straightforward visual correlation of both the "constancies" and "varieties" between the internal parts of the different kinds of trunk. Keeping the same graphic mode of representation was central, since the botanist set out to show "not only what their several *Parts* are . . . but also by a comparative prospect, in what respects they are specifically distinguished one from another."⁴⁴

The plates in Grew's arresting little book sheds an interesting light on Plumier's use of consistent modes of representation in the depiction of broad natural groups of plants and animals. In the drawings by the friar, landscapes and environmental contexts, for

⁴³ Jean Germain, *Breve e sostantiale trattato intorno alle figure anatomiche delli piu principali animali terrestri, aquatili, et volatili, con la simpatia et convenienza che hanno, o in parte, o in tutto, con il corpo humano con maturi et succinti discorsi dalle loro naturali proprietà di geroglifici, et moralità più curiosi, cavati* (Naples: per Domenico Maccarino, 1625), and [Claude Perrault, ed.] *Mémoires pour servir à l'histoire naturelle des animaux* (Paris: de l'Imprimerie royale, 1671). On comparative anatomy before the mid-eighteenth century, see Francis Joseph Cole, *A History of Comparative Anatomy: From Aristotle to the Eighteenth Century* (London: Macmillan, 1944); Andrew Cunningham, *The Anatomist Anatomis'd: An Experimental Discipline in Enlightenment Europe* (Farnham: Ashgate, 2010), esp. 295-359; 375-80, and Anita Guerrini, *The Courtiers' Anatomists: Animals and Humans in Louis XIV Paris* (Chicago: The University of Chicago Press, 2015), 57-63.

⁴⁴ Nehemiah Grew, *The Comparative Anatomy of Trunks, Together with an Account of their Vegetation grounded thereupon; in Two Parts* (London: printed by J. M. For Walter Kettilby, 1675), sig. [A2^v], sig. a, and 2.

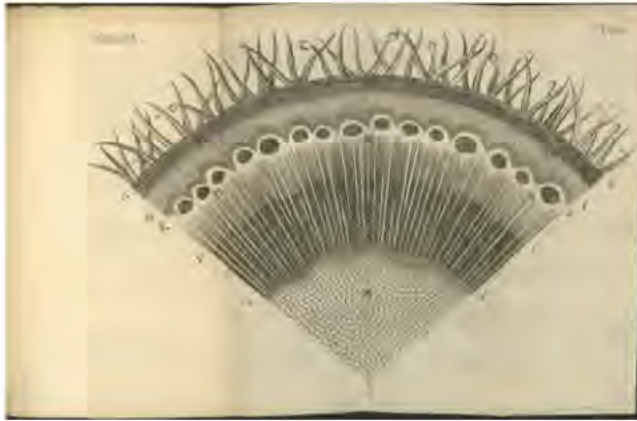


Fig. 4.8. Copperplates of the sumac’s and the walnut tree’s trunks in Grew’s *Comparative Anatomy of Trunks*. Grew’s booklet is an example as surprising as exciting of the ways in which images were used by naturalists to establish the anatomical “constancies” and “varieties” between different plants and animals. (Bibliothèque nationale universitaire, Strasbourg.)

instance, were omitted from the depictions; fishes were presented in profile, mostly with a cross-section of the creature; for shells, at least two views were pictured; larger animals were progressively anatomized along several drawings; plants were usually drawn in their real size, with details of the flowers and seeds, and so forth. Just like Grew’s trunks, such visual strategies highlighted differences and correlations—mainly in form—between similar sorts of animals and plants. Consider, once again, the friar’s anatomical depictions of reptiles and amphibians: the figures of the crocodile, it has been said, are included in a volume with anatomical drawings of five other beasts: a snake, a lizard, a sea turtle, a tortoise, and a frog.⁴⁵ That these different sets of drawings ended up bound in the same volume is perhaps due to the rearrangements to which the corpus was subjected when it entered the Bibliothèque du roi in the mid-eighteenth century. Yet striking similarities exist in the manner in which these sets of images put the animals on paper. Just as those of the crocodile, the drawings of these five other creatures also followed the process of their dissection—from the picturing of the entire beast, as if it was alive, to that of their successive anatomical layers to that of some selected parts of their bodies. Most

⁴⁵ BCMNHN MS 30 “Tétrapodes dessinés par le Père Plumier Minime.”

importantly, by following a similar mode of representation, these manuscript drawings highlighted the differences and correlations in form between the anatomies of these various animals—or, in Grew’s terms, the “Variety” as much as the “Constancies.”

Needless to say, comparative anatomy as we know it did not exist back then, but comparison was one of the possibilities offered—and aims sought—by textual or graphic seriality. And comparison was not absent from the work of naturalists by 1700. In 1702, for instance, Plumier submissively requested to Bégon to “have a sardine of Royan drawn, in its real size and natural form, by some of your draftsmen. I asked one of my friends in Marseille to have one of Provence drawn for me, because I would be glad to see their differences & whether they have both the same characters.”⁴⁶

The gargantuan number of drawings made and gathered by Plumier was representative of a series of contemporary developments of an intellectual, social, and cultural nature—or simply artistic. I will survey the contemporary culture of print making and collecting in the next chapter, but for the moment, it is useful to note that one of the main categories of the print market was the *recueil d’images* or *recueil d’estampes* (or simply *recueil*): collections or compendia of prints, usually by a single artist, that could be highly specialized. Take the *suites* or series: sets of prints around a same theme, which invited comparative contemplation. (In 1747, for instance, the artist Jacques François Saly published a *recueil* of thirty etchings of vases.)⁴⁷ At the same time, naturalists by 1700 were increasingly specialized stockpilers and collectors: not only because their field was partially dependent on the broadly-shared culture of collecting, but also because the widely held perception of an information overload incentivized scholars to develop increasingly sophisticated techniques for managing bookish and observational facts.⁴⁸ Tournefort’s herbarium or Ray’s ambitious *Historia plantarum* are but two further examples of this. In the case of Plumier, however, his iconographic work might well seem all-embracing, but it was not unrestricted.⁴⁹ The flora and fauna represented by

⁴⁶ MMC MS 867 “Recueil de pieces,” fol. 151v: “Vous me pardonnerez bien la liberté que je prens de vous prier de me vouloir faire dessiner une sardine de Royan en toute sa grandeur et forme naturelle par quelques uns de vos dessineurs. J’ay priés un de mes amis de Marseille de m’en faire dessiner une de celles de Provence, je suis bien aise d’en voir leur différence & si elles ont toutes les deux les mesmes caractères.”

⁴⁷ Elizabeth M. Rudy, “On the Market: Selling Etchings in Eighteenth-Century France,” in Perrin Stein *et al.*, *Artists and Amateurs: Etching in Eighteenth-Century France* (New York: The Metropolitan Museum of Art, 2013), 41-67. See esp. 49-55 for the *recueil* and the *suites* and series of prints.

⁴⁸ Ann Blair, “Reading Strategies for Coping with Information Overload, ca. 1550-1700,” *Journal of the History of Ideas* 64, no. 1 (2003), 11-28, and Blair, *Too Much To Know: Managing Scholarly Information Before the Modern Age* (New Haven, CT: Yale University Press, 2010).

⁴⁹ Neither was that of Belon, for instance: “ie me suis addōné ces ans passez a nous en chercher [poissons], & monstrier par figures ce peu que i’en ay peu autresfois veoir en divers ports & plages, tant en

Plumier was explicitly circumscribed to that of a specific, relatively small geographical area. It is to this question that we now turn.

Islands of knowledge

Unlike Tournefort’s and Ray’s natural historical projects, Plumier’s work had very definite geographical contours: the books and most of the manuscript material he accumulated over time aimed at embracing a very limited spatial area: that of a number of islands in the West Indies under French sovereignty. But how many islands did the friar explore? Which were those islands? How was his work in the field organized? The sources allowing for a reconstruction of Plumier’s activities and life in the West Indies are extremely scarce, though some spatial considerations of his botanical work on the islands can be traced in both his printed works and some of his manuscript notes. His written descriptions of plants, for instance, were usually organized into a similar structure: after a general descriptive account of the vegetables in question followed some lines on the history of its name and occasionally on which authors had previously written about them; the whole was often closed by some remarks on the locations in which Plumier found and described the plant under consideration. The written descriptions included in the *Description* and the *Traité des fougères* offer a fair indication of the friar’s principal areas of activity across the West Indies; they allow us to sketch a cartography of exploration that happened to be mainly circumscribed to three islands: Martinique, Saint Domingue and, to a much lesser extent, Tortuga.

It is no surprise that the first two (along with Guadeloupe, only mentioned once) were the jewels in the crown of France’s Caribbean dominions. On each island, too, Plumier seems to have privileged certain specific locations. In Martinique, for instance, the friar mentions two particular areas. The first was the Cabsterre (or Capsterre, or still Cabesterre), the northeastern half of the island labeled by Du Tertre as the “savages’ land” (*la demeure des sauvages*); Plumier refers in particular to the basin of Sainte-Trinité and the peninsula of Caravelle, as well as the “morne” or hill named Calebasse (probably the one nowadays known as Mont Pelée), described by the friar as “one of the most beautiful places I have ever been due to the large number of plants, and especially ferns, that grow

Asie, qu’en Europe, & principalement de Cōstantinoble, Rome, Venise, Genes, Aquitaine, Flâdres, & Angleterre: & es lacs, estangs, & fleuves d’iceulx.”



Fig. 4.9. Map of Martinique by Guillaume Delisle. Along with Saint-Domingue and, to a lesser extent, Tortuga, Martinique was one of the few Caribbean islands to which Plumier actually plied his trade. (Bibliothèque nationale de France, Paris.)

there.”⁵⁰ On the southwestern half of the island, the Basseterre (more densely inhabited by French settlers), he referred to coastal areas in the peninsula of the Grande-Anse, mainly between the bays of Arlet and Diamant (fig. 4.9 and 4.10).⁵¹ Saint-Domingue was a French colony in the western half of the island of Hispaniola—the eastern part, known as Santo Domingo, was in the hands of the Spaniards. Like Martinique, the geography of the French part of Hispaniola was mainly characterized by an indented coastline and strings of small islands facing it. (Tortuga was one of these, a piece of land in front of the Port-de-Paix in Saint-Domingue.⁵²) Plumier mentioned especially the northern coast of the island around Port-de-Paix and in front of Tortuga, as well as the northern part of

⁵⁰ Plumier, *Traité des fougères de l’Amérique* (Paris: de l’Imprimerie royale, 1705), 3: “un des plus beaux endroits que j’aye jamais vue pour le grand nombre de belles Plantes qu’il produit, sur tout à l’égard de Fougères de plusieurs espèces.”

⁵¹ In the *Description*, Plumier mentions the following places of Martinique: Fort Saint-Pierre (including the garden of the Jesuits), the Cabsterre, the Morne de la Calebasse, Fort-Royal, the Anse de l’Arlet and the Anse du Diamant (close to the house of M. de l’Orange), the Mont Noël (close to Fort Saint-Pierre), the paroisse de Sainte Marie (between Fort Saint-Pierre and the Cabsterre, and including the house of M. de la Calle), Cul-de-sac de la Trinité, and the quartier de la rivière du Lamentin. In the *Traité des fougères*, apart from those already mentioned in the *Description*, he refers to the Grand-Cul-de-Sac François, the quartier du Prescheur, and the vallon du Morne Rouge.

⁵² See James E. McClellan III, *Colonialism and Science: Saint Domingue in the Old Regime* (Chicago: The University of Chicago Press, 2010 [1992]), esp. 23-107. In the little island of Tortuga (opposite Port-de-Paix in Saint-Domingue), Plumier mentions the paroisse de Mirebalai, the house of a certain M. la Franchise, the valley La Ravine de la roussière, and Port-de-Paix (all of them mentioned in the *Description*).



Fig. 4.10. “Veüe des deux anses d’Arlet de chez Monsieur d’Orange.” (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

the Tiburon Peninsula, between Petit-Goâve and Léogâne (where he dissected the crocodile).⁵³ In the book of ferns, Plumier also made few references to territories other than these three islands, namely Saint Vincent and Guadeloupe.⁵⁴

The question remains, however, of the gap between the locations that the naturalist publicly advertised in his printed books and the actual geography of his explorations—territories, for instance, that were not under French rule and, therefore, should have been left unmentioned. Yet even by considering the spatial references scattered across his printed books alone, it should immediately become clear that Plumier plied his trade to a very restricted number of islands—mostly two, in fact.⁵⁵ This allowed him to delimit

⁵³ For Saint-Domingue, Plumier alludes in the *Description* to the Massacre (close to Port-de-Paix), Leogane, Petit-Goive, the Tapion, the Moustique (“environ à dix lieües du Port-de-Paix”), the river Trou du precipice (or Precipice du trou), lake Miragoan, Marsennou (owned by M. de Cussi-Tarin, former governor of the island), and la Grande-Orterie. In the *Traité des fougères*, he mentions also la Montagne ronde (as it is called by buccaneers), the Fond de Baudion (close to Leogane), the mount of Musique (as it was called by buccaneers), the Savane de la Fougère (from the Anses à Pitre to Leogane through the Grand-Cul-de-Sac, and according to the name given to it by buccaneers), the Fond épineux (as named by buccaneers), the Etang Somache (as named by buccaneers), and the Rivière froide.

⁵⁴ Plumier, *Traité des fougères*, 108 and 111 for Saint Vincent (more specifically, in the latter, “le long d’un ruisseau du quartier que les Caraïbes appellent *Oullion*”) and 130 for Guadeloupe.

⁵⁵ This was not unusual: during his journey in the West Indies, Hans Sloane rarely moved far from Spanish Town (the residence of the governor) or out of St. Catherine Parish in Jamaica: “A Specialist’s Guide to the Sloane Database,” <http://www.nhm.ac.uk/resources-rx/files/sloane-specialist-guide-128098.pdf>

discrete units of analysis in his colossal task of natural recension. And yet, the American aspirations of his natural history were boasted not only in the titles of his three printed books on botany (“Description of the plants of America,” “New genera of American plants,” “Treatise of the ferns of America”), but also in those of a good number of his manuscript works, such as the six volumes of his “*Botanicum americanum, seu historia plantarum in Americanis insulis nascentium*” (American herbal, or history of plants growing in the American islands), the “*Botanographia Americana*,” the “*Solum, salum, coelum Americanum*” (American land, sea and sky).⁵⁶ That the islands’ flora and fauna stood synecdochically for much—if not all—of the American nature was an idea clearly articulated by some authors. In his *Histoire générale des isles de S. Christophe, de la Guadeloupe, de la Martinique, et autres dans l’Amérique* (1654), Plumier’s near-contemporary Jean-Baptiste Du Tertre openly argued that, “even if here I deal only with some particular islands of the Americas, you have to judge both the *terre ferme* and the other islands that are between the Tropics as though they were the same; for it is the same temperature, the same soil, the same plants, & the same animals.”⁵⁷

But the association by Plumier of his work with the American continent by and large can also be seen as a sign of the tension underlying the project of natural history in the late seventeenth and early eighteenth century between the local scale in which it was practiced and the universal ambitions of projects that aimed at classification in one way or another—or, at the very least, at inventory. Two deceptively opposed ideas are at stake in the spatial dimension of Plumier’s work. On the one hand, it summons the geographical and conceptual entity of America as a unit—in line with Renaissance natural histories identified with the “Indies,” such as Oviedo’s *Historia general y natural de las Indias* (1535-49) or José de Acosta’s *Historia natural y moral de las indias* (1590), to name but two of the most representative. On the other hand, Plumier limited his explorations to specific, well-defined areas, participating in the secular perception of a surfeit of natural information that required to be tackled in parts. In the preface of his unpublished

⁵⁶ BCMNHN MS 2-7, 21, and 23 respectively. I have used manuscripts whose titles were identical in a catalog of Plumier’s corpus elaborated in the mid-eighteenth century, since the collection had a complex story after the death of the author (it was reorganized several times during the eighteenth and nineteenth centuries) and it is difficult to establish with certainty which titles were by the friar himself or by the reorganizers of his archive.

⁵⁷ Jean-Baptiste Du Tertre, *Histoire generale, des isles de S. Christophe, de la Guadeloupe, de la Martinique, et autres dans l’Amérique* (Paris: chez Jacques Langlois et Emmanuel Langlois, 1654), sig. [a4^{r-v}]: “Je t’avertis aussi, mon cher Lecteur, qu’encore bien que je traite seulement icy de quelques isles particulieres de l’Amerique, tu dois jugar sur le mesme pied, tant de la terre ferme, que des autres isles qui sont entre les deux Tropics; car c’est la mesme temperature, le mesme terroir, les mesmes plantes, & les mesmes animaux, exceptez quelques singes, & quelques bestes feroces qui ne se rencontrent pas dans les isles.”

“Solum, salum, coelum Americanum,” the friar wrote on the contemporary perception of a hitherto unprecedented amount of information on the natural world: “the countless number of Nature’s works is a fact as certain as the brevity of human life . . . what is confirmed in the smallest island of the West Indies, for a single one of them produce so great and numerous marvels to admire that the life of a single man entirely devoted to these concerns is not enough, no matter how many are the efforts made.”⁵⁸

Plumier’s geographically restricted practice of natural history was not new. Regional natural histories were a remarkably extended phenomenon all over Europe during the seventeenth and eighteenth centuries. Although mainly composed by physicians and apothecaries, these sorts of studies were also published by numerous renowned seventeenth-century botanists: Gaspard Bauhin, for instance, printed a catalog of plants growing in the vicinity of Basel in 1622; Jan Commelin, one on the plants of the province of Holland in 1683; Johann Jakob Dillenius, a catalog of the flora in the region around Giessen in 1719, as well as his better-known *Hortus Elthamensis* on the plants growing around Eltham, near London (1732).⁵⁹ In England, naturalists became particularly prolific in this genre around 1700: John Ray gave a catalog on the vegetation of the Cambridgeshire in 1660—but also one on that of the entire country in 1677. This sort of regional floras was no less usual in seventeenth- and early eighteenth-century France. Contemporaries of Plumier were perhaps among the most representative cases. In 1686, the botanist Pierre Magnol (1638-1715) authored a *Botanicum Monspeliens, sive plantarum circa Monspelium nascentium* (Montpelierite Herbal, or plants growing around Montpellier), which consisted of an alphabetical “index plantarum” with descriptions and some images of plants growing wild in the area around his city. A decade later, Tournefort printed his well-known *Histoire des plantes qui naissent aux environs de Paris* (History of the plants growing around Paris) and another Aixois botanist and friend of his, Pierre-Joseph

⁵⁸ BCMNHN MS 23, fol. 2: “de vitae humanae brevitate, deque naturae openim innumerabilitate certior factus [est].. utpote quae nec multi insimul viri quantum liber studiosi per totum vitae curriculum perfecte tractare potentes adquam existant. Huic sententiae me ex insulis antillanis minima confirmat solidatque, tot etenim tantarumque rerum mirabilium ferax conspicitur ut in ipsis discutiendis post multos adhibitos labores vita unius viri non sufficiat.”

⁵⁹ Gaspard Bauhin, *Catalogus plantarum circa Basileam spontè nascentium cum earumdem Synonymiis & locis in quibus reperiuntur* (Basel: Johan Jacobi Genathii, 1622); Jan Commelin, *Catalogus plantarum indigenarum Hollandiae* (Amsterdam: H. & viduam T. Boom, 1683); Johann Jakob Dillenius, *Catalogus plantarum sponte circa Gissam nascentium* (Frankfurt-am-Main: J. Maximilianum à Sande, 1719) and *Hortus Elthamensis* (London: sumptibus auctoris, 1732).

Garidel, gave a similar work in 1715 for the flora around this city and some other parts of Provence.⁶⁰

Most of these regional natural histories shared two aspects that need to be stressed. First, they materialize a geographical approach for the study of nature and (more important) a logic of fragmentation. Plumier's painstaking documentation of the nature of the West Indies needs to be understood not only against the backdrop of a tradition of European natural histories of the Americas (as it has been discussed in chapter 1), but also in relation to local floras as a genre. It is important to note that, as Alix Cooper has observed, this renewed fascination for the study of local floras in spaces such as the Italian peninsula, France, England, the Netherlands, and the Holy Roman Empire was partly a reaction to the growing presence of the exotic in European societies.⁶¹ When these catalogs of regional natural riches began to be written, their object was European floras (and to a lesser extent faunas), rather than colonial ones. But this region-by-region quest for the nature of the nation was eventually pursued overseas as well. Hans Sloane is a well-known example: the wealthy botanist published not only his *Voyage to the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica* (1707-1725), but also a catalog of plants naturally growing in the latter (1696).⁶² The remark is useful in nuancing all-too-easy modern divisions between the natural research of Europe and that of the rest of the world—all the more so given that, as Emma Spary has pointed out, there was not a systematic distinction between exotic and indigenous plants in the work of authors like Tournefort.⁶³

This principle of spatial regionalization in the study of nature was not unrelated to the logic of fragmentation in anatomy discussed in chapter 3: both were based on the

⁶⁰ Pierre Magnol, *Botanicum Mospeliense. Sive plantarum circa Mospelium nascentium index. In quo plantarum nomina meliora seliguntur: loca, in quibus plantae sponte adolescent, tum à prioribus Botanicis, tum ab Authore observata indicantur: & praecipuae facultates traduntur* (Montpellier: ex officina Danielis Pech, 1686); Tournefort, *Histoire des plantes qui naissent aux environs de Paris, avec leur usage dans la medecine* (Paris: de l'Imprimerie royale, 1698); Pierre-Joseph Garidel, *Histoire des plantes qui naissent aux environs d'Aix, et dans plusieurs autres endroits de la provence* (Aix-en-Provence: chez Joseph David, 1715).

⁶¹ Alix Cooper, *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007).

⁶² Ray, *Catalogus plantarum circa Cantabrigiam nascentium* (Cambridge: excudebat J. Field, 1660), and *Catalogus plantarum Angliae, et insularum adjacentium: tum indigenas, tum in agris passim cultas complectens* (London: typis Andr. Clark, impensis Joh. Martyn, 1677), and Sloane, *Catalogus plantarum quae in insula Jamaica sponte proveniunt, vel vulgo coluntur, cum earundem synonymis & locis natalibus* (London: impensis D. Brown, 1696) and *A voyage to the islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, insects, Reptiles, &c. of the last of those Islands* (London: printed by B. M. for the author, 1707-1725).

⁶³ E. C. Spary, "Peaches Which the Patriarchs Lacked?: Natural History, Natural Resources, and the Natural Economy in France," *History of Political Economy*, Annual Supplement 38 (2003), 26.

intellectual assumption that the wholeness should be tackled part by part.⁶⁴ Islands of natural knowledge (whether actual islands like Martinique or imagined ones like the area around Paris) offered an epistemic strategy to cope with the overabundance of information in the realm of botany at the turn of the eighteenth century: they allowed to draw clearly circumscribed areas to which the inventorying, all-embracing endeavor of natural history could be applied. Frank Lestringant has suggested that the island constituted both a geographical reality and a mode of thought at the dawn of the Enlightenment: “a laboratory extended to the dimensions of geography where the productions of nature, as well as human and social singularities, are reviewed and placed under the magnifying glass within a series of closed units.”⁶⁵ Naturalists had their eye on the part and their mind on the ever-escaping totality of nature. In other words, the delimitation and fragmentation of the spaces of inquiry was not in contradiction to the universalizing aspirations of the field, but its necessary corollary. The authors of local floras usually highlighted the preliminary character of these natural histories, meant to be only the pieces of a broader picture. With his natural history of the Parisian region, for instance, Tournefort aimed at setting the foundations of a wider project: the idea was to contribute to “the particular history of the Plants growing in the principal areas of the Kingdom, so that we can have a general history thereafter.”⁶⁶ Furthermore, Tournefort’s catalog was in turn arranged into a series of “herborizations,” identified with specific spaces in which he had divided the Parisian region: “along the river,” “in the Bois de Boulogne,” “around Surène, Saint Clou & Sève,” and so forth. Islands and regions offered a space of thought as much as an order of discourse that projected a vision of nature with a strong geographical component. Just like the regional histories of plants mentioned above, the work of Plumier in the West Indies was comprehensive and encyclopedic within the realm of a well-delimited geographical area.

⁶⁴ A longstanding analogy linked anatomy and cartography in the early modern period. See, for instance, Caterina Albano, “Visible Bodies: Cartography and Anatomy,” in *Literature, Mapping, and the Politics of Space in Early Modern Britain*, ed. Andrew Gordon and Bernhard Klein (Cambridge: Cambridge University Press, 2001), 89-106, and Rafael Mandressi, “Livres du corps et livres du monde: chirurgiens, cartographes et imprimeurs, XV^e-XVI^e siècle,” in Christine Bénévent, Isabelle Diu, et Chiara Lastraioli, eds., *Gens du livre et gens de lettres à la Renaissance* (Turnhout: Brepols, 2014), 209-30.

⁶⁵ Frank Lestringant, *Le livre des îles: Atlas et récits insulaires de la Genèse à Jules Verne* (Geneva: Droz, 2002), 331: “c’est un laboratoire élargi aux dimensions de la géographie, où sont passées en revue et placées sous la loupe, en autant d’unités closes, les productions de la nature, mais aussi bien les singularités humaines et sociales.” See especially chap. 9 “L’insulaire expérimental au temps des Lumières,” on Tournefort’s herbal of the Levantine islands. I thank Stéphane Van Damme for bringing this brilliant book to my attention.

⁶⁶ Tournefort, *Histoire des plantes qui naissent aux environs de Paris*, sig. a3^r: “qu’on travaille à l’histoire particuliere des Plantes qui naissent dans les principaux endroits du Royaume, afin qu’on puisse avoir dans la suite une histoire generale de celles qui se trouvent parmi nous.”

The genre of regional natural histories was partly an ingenious solution to the burning issue of information management in the practice of natural history, as the feasibility of a universal inventory of all plants began to break down. This did not mean that naturalists disowned any global approach to the study of flora, but this had to take new forms by the turn of the century. Plumier himself had more universal aspirations in his early years as a botanist. Upon his return from Rome in the 1680s, where he spent most of his formative years, Plumier settled in Southern France and was granted permission by his superiors within the order of Minims to travel around Provence and the Alps for his botanical work. According to his own account in the preface of the *Description*, he was then occupied with composing “a new *pinax*, or general *recueil* of plants, with figures of which I had already a considerable number drawn.”⁶⁷ But Plumier abandoned the project of an iconographic *pinax* of plants soon thereafter, when the opportunity to travel to the Caribbean islands came in 1687 for the first time from the hand of Michel Bégon.

What was then a *pinax*, as opposed to the regional natural history of the West Indies to which he eventually dedicated his life? The word has its roots into the ancient Greek term *πίναξ*, which carried two main meanings: first, a wooden or metal board usually used as a drawing or writing table and, more generally, any sort of plate drawn or engraved (for example for a map or a votive table); second, a table in the sense of a list or catalog, regardless of its physical support.⁶⁸ Clay *pinakes* were purportedly used in the famous library of Alexandria to inventory and organize into categories its holdings, thus offering “a systematic order of knowledge,” as Markus Krajewski put it.⁶⁹ Active in Alexandria by the middle of the third century was Callimachus, a scholar to whom the authorship of another *Pinakes* is attributed, this time a sort of reference text based on the collections of the fabled library. Its subject was the body of Greek literature, onto which Callimachus’s work imposed a systematic order.⁷⁰ The term *pinax*, in other words, was understood to denote a means for information management since antiquity.

⁶⁷ Plumier, *Description*, sig. a3^r: “L’obeissance m’ayant rappelé dans ma Province, j’obtins de mes Superieurs la permission de parcourir les costes de Provence, & les Montagnes des Alpes, pour y decouvrir ce qu’il y a de plus curieux en matiere de plantes: j’avois mesme resolu de faire un nouveau *pinax*, ou recueil general des plantes, avec les figures, & j’en avois déjà un nombre considerable de dessinées.”

⁶⁸ Christian Jacob, “From Alexandria to Alexandria: Scholarly Interfaces of a Universal Library,” http://dc-mrg.english.ucsb.edu/conference/2002/documents/christian_jacob.html

⁶⁹ Markus Krajewski, *Paper Machines: About Cards & Catalogs, 1548-1929* (Cambridge, MA: The MIT Press, 2011 [German ed. 2002]), 6n8.

⁷⁰ Blair, *Too Much to Know*, 17.

In the early modern period, the fortunes of the word became closely connected to the milieu of naturalists without losing its original reference to a form of list or reference tool: *pinax* came to designate a catalog of names of plants, regardless of the criteria—if any—used for ordering. So was called the most influential (and probably also the first) work in this botanical genre: the *Pinax theatri botanici* by the Swiss Gaspard Bauhin, first published in Basel in 1623. (Not by accident, Bauhin had been professor of Greek at the university of that city before being appointed to the chair of botany and anatomy.) Bauhin’s *Pinax* represented a relatively new way of dealing with the natural world: around 1550, botanical publications had been characterized by a claim to encyclopedism that was no longer tenable by the seventeenth century due to the surfeit of information on new plants. Although more than a century had by then elapsed since notice of a Western new world first began to spread throughout the continent, unheard-of species of plants still kept on reaching European shores. General or encyclopedic histories of plants in the fashion of, say, Leonhart Fuchs’s *De historia stirpium* (1542) had become by Bauhin’s time a nearly impossible task, at the very least as editorial enterprises. As Brian Ogilvie has argued, the quest for comprehensive, all-embracing approaches in botany was not abandoned: it took, according to him, the form of *pinakes*—that is, reference works listing and sometimes organizing into categories the names of plants.

Central to Bauhin’s *Pinax*, therefore, is the problem of synonyms. Before Linnaeus succeed in imposing his system of nomenclature in the mid-eighteenth century, the same plants had often been described by various authors who had given to them different names in sometimes different languages; the establishment of correspondences tackling this “*confusio verborum*”—that is, identifying when, for instance, two names by two different authors were actually referring to the same plant—came then to be perceived by authors like Bauhin as a crucial preliminary step for any comprehensive endeavor in botany.⁷¹ The problem was one of identification: what Bauhin did in his *Pinax* was to offer a list with the names (including correspondences when these differed among authors for the same species) of all known plants, as well as precise bibliographical references to the authors and works these names were drawn from. Bauhin’s *Pinax* stood as one of the cornerstones of the study of plants until well into the eighteenth century; by 1700, however, it was no longer up-to-date, to the point that the ambition of Plumier to

⁷¹ Brian W. Ogilvie, “Encyclopaedism in Renaissance Botany: From ‘Historia’ to ‘Pinax,’” in *Pre-Modern Encyclopaedic Texts: Proceedings of the Second COMERS Congress, Groningen, 1-4 July 1996*, ed. Peter Binkley (Leiden: Brill, 1997), 89-99.

compose a “new *pinax*” was by then far from original. Many were the naturalists who then aspired to complete this noble project; one of the better known—and undoubtedly one of the better placed financially to achieve it—was the English William Sherard (1659–1728), a contemporary of Plumier and quite an influential figure in the world of botany. A student of Tournefort in Paris in his youth, Sherard had good connections that earned him the position of consul in Smyrna for nearly fifteen years. There, he amassed a fortune and became, upon his return, a patron of noted naturalists such as the Italian Paolo Boccone (of whom Plumier was a disciple in Rome), Sébastien Vaillant (the publication of whose 1727 *Botanicon Parisiense* Sherard was closely involved with), or the German botanist Dillenius (the first holder of the chair of Botany that Sherard endowed at Oxford). As said, Sherard’s most ambitious plan consisted of completing, updating, and even replacing Bauhin’s *Pinax*—which may well have been outdated by then, but still offered the main intellectual framework for the study of the natural world. The project, however, never came to fruition, despite his efforts and those of some of his *protégés*. By the turn of the century, such a thoroughly encyclopedic impetus was probably only achieved by the two thousand pages of John Ray’s *Historia plantarum*, which also aspired to tackle the disorder reigning in botanical knowledge by offering an immensely erudite catalog of all known plants, purified, so to speak, of all mistakes and repetitions.

If Plumier really aspired to compose a *pinax* “or general *recueil* of plants” during the 1680s, he was surely unaware of the real extent of the venture. Our friar was far from being as well placed as Ray or Tournefort for collecting the colossal amount of information required for such a project. As chance would have it, the opportunity of joining a crown-sponsored journey to the French West Indies came up; in the end, his relative celebrity would be built upon those islands’ flora and fauna. Yet the spirit was somewhat the same: to make an exhaustive natural inventory. For, at the time, making natural history consisted to a large extent of crafting lists.

The lure of the list

Alongside a geographically delimited scope, the second important aspect of the regional natural histories I reviewed above is that most of these local surveys actually took the form of list-like inventories. Material practices of inventorying, such as the making and collecting of lists and serial images, were salient in the project of natural history by 1700. Among the works previously mentioned, those by Commelin, Ray, Magnol, and Garidel consisted of single, alphabetically-arranged continuous lists. Bauhin’s, Tournefort’s, and Sloane’s catalogs (as well as the latter’s *Voyage*) were also lists,

but organized according to other principles. Dillenius listed and described the species and genera depicted on the plates of his catalogs on the floras of Giessen and Eltham. A good case in point of the degree to which inventorying was a cornerstone of naturalists’ practices can be found in the account that John Ray gave of his 1663 tour through Europe (“a Voyage beyond the Seas”) in the company of three of his disciples. The book, published ten years later, consisted of a five-hundred-page, blow-by-blow account of the journey and more than one hundred pages of a “Catalogue of Plants not Native of England, found Spontaneously growing in those Parts [“the Low-Countries, Germany, Italy, and France”], and their Virtues.” In the preface, however, Ray unabashedly admitted that his initial plan was the publication of the catalog alone—the number and diversity of plants found “exceeding my expectation,” yet again. But “considering the paucity of those who delight in studies and enquiries of this nature, to advantage the Catalogue I have added thereto a brief Narrative of our whole Voyage.”⁷² If we believe Ray, then, this well-known account of his travel was but an editorial arrangement to have his beloved inventory printed.

All in all, the materiality of the botanical text usually took the form of a list by Plumier’s time, along the lines of the earlier meaning of the Greek *pinax* as enumeration or catalog. The originality of Plumier was his images. Written lists certainly pervaded his manuscript papers and printed books alike, but it was through the iconographic form that he set out to catalog nature from the very early project of a *pinax* or general history of plants (“I had already a considerable number [of figures] drawn”). Nevertheless, it is my contention here that Plumier’s graphic seriality needs to be seen as part of a mode of organization of knowledge in natural history that materialized also—and actually more often—in other forms, such as the written list.⁷³

The making and use of lists—and also, I will argue, of serial images—was concomitant to the collective endeavor of information gathering and management. As James Delbourgo and Staffan Müller-Wille recently reminded us, “no form of writing

⁷² John Ray, *Observations Topographical, Moral, & Physiological; Made in a Journey Through part of the Low-Countries, Germany, Italy, and France* (London: John Martyr, 1673).

⁷³ The term “catalogue” referred by that time to specific forms of lists. Richelet, in 1680, defined it as a “list of several names in succession”; the Academy, by 1694, said a catalog was a “liste, denombrement,” and gave as examples the “catalogue des Saints” and that of a library: books and saints. The association of the notion of catalog with these two specific forms is not fortuitous: both library catalogs and martyrologies are probably among the oldest and surely among most popular forms of list genres. Just as catalogs and lists of plants, those of books and saints had the ambition of settling nomenclatures and limiting variety—identification and inventory.

appears more matter-of-fact, unrhetorical, and innocent than the list.”⁷⁴ Lists proliferated as a pervasive written device firmly tied to the accumulative logics of the culture of collecting across different fields, from natural history to antiquarianism. Their uses in Paris, for instance, ranged from inventories of the curiosities gathered in a cabinet to the enumeration of those cabinets to better inform curious people of the landmarks of the city. Stéphane Van Damme has shown that there was a proliferation of lists of antiquarians, bookstores, and scholars in Paris around the late seventeenth century. The practice of list-making connected scholarly activity to a geography of curiosities in the capital and grew more specialized as the eighteenth century progressed: Dezallier d’Argenville, the lawyer passionate for conchology, published in 1742 a list of the principal collections of natural history in the city, and the mathematician Jean Bernouilli gave in 1776 a *Liste des astronomes connus actuellement vivans* (List of the renowned astronomers currently alive), in which the reader found not only the scholars ordered alphabetically, but also their addresses.⁷⁵

In the domain of natural history, lists materialized the need to cope with the perceived information overload resulting from the increase in the number of both new species and written accounts dealing with them.⁷⁶ List-like paratextual devices, such as indexes and tables, became ubiquitous in books on botany and on the history of animals. Plumier’s *Description des plantes de l’Amérique* includes an “Index plantarum” and a “Table de plantes” listing alphabetically, in both Latin and French, the names of the plants mentioned in the work (including some that were not the object of a description and a plate): each of the entries refers to the page of text and, if any, to the engraving of the species in question. These two research engines (or rather a single bilingual one) is completed by a one-page “Table de matières” (Table of contents) that enumerates not the contents of the book, but a series of keywords arranged alphabetically and related to illnesses and disorders, from acid reflux to viper bites, that the listed plants served to treat, along with the pages of the book on which those plants were described. The *Traité*

⁷⁴ James Delbourgo and Staffan Müller-Wille, “Introduction,” in “Listmania,” special issue, *Isis* 103 (2012), 711. Although not focused on the history of science, see also the interesting contributions in Gregorio Salinero and Christine Lebeau, eds., “Pour faire une histoire des listes à l’époque moderne,” special issue, *Mélanges de la casa Velázquez* 44, no. 2 (2014), 9-179.

⁷⁵ For the use of lists in the Parisian culture of collecting, see Stéphane Van Damme, “‘The World is Too Large’: Philosophical Mobility and Urban Space in Seventeenth- and Eighteenth-Century Paris,” *French Historical Studies* 29, no. 3 (2006), 287-8.

⁷⁶ On the use of lists in early modern botany, see Ogilvie, *Science of Describing*, 192 and 208; Cooper, *Inventing the Indigenous*, 74-5; Valentina Pugliano, “Specimen Lists: Artisanal Writing or Natural Historical Paperwork?” *Isis* 103 (2012), 716-26; James Delbourgo, “Listing People,” *Isis* 103 (2012), 735-42.



Fig. 4.11. One of the indexes in the *Traité des fougères*; the specimens are listed alphabetically, with indications of the plate on which each is depicted and the page in which it is described. (Bibliothèque nationale de France, Paris.)

des fougères de l'Amérique also contained an “Index filicum et aliarum plantarum in America nascentium, quae in hoc volumine continentur” (Index of ferns and other American plants included in this volume), as well as its French counterpart (“Table des fougères et autres plantes de l'Amérique, qui sont contenuës dans ce Volume”) (fig. 4.11). The entries in both of these indexes referred the reader to, first, the plate on which the plant was represented and, second, the page of their written description. The same kind of index appeared in the *Nova plantarum Americanarum genera* (1703), also indicating page and plate in the volume for each genus.

Lists, usually of botanical names, were an equally central device in the manuscript workaday practices of the naturalist, from fieldwork to the cabinet.⁷⁷ Tournefort's teaching notes, for instance, contained interminable indexes of names: the extant drafts he used for his “botanical demonstrations” or lectures at the Jardin du roi in the year 1691 consisted, in fact, of long lists of plant names organized into thirty-one *démonstrations*. Each of them was accompanied by references to the authors who had

⁷⁷ On lists in the field, see John Law and Michael Lynch, “Lists, Field Guides, and the Descriptive Organization of Seeing: Birdwatching as an Exemplary Observational Activity,” *Human Studies* 11 (1988), 271-303.

previously designated and described those specific species, as well as marginal commentaries by the professor on, for instance, the etymological origins of the nomenclature used.⁷⁸ The case of Tournefort offers a good example of the place that the making and managing of lists occupied in the manuscript economy of the scholar's life: his papers contain, among other things, lists of correspondents living abroad or in the French provinces and their addresses, an inventory of his collection of portraits (in *grand* and *petit papier*), a "catalog of my books" organized thematically, different accounts of the expenses which he incurred during his herborizations in Spain, a good number of minute registers of the dried plants and seeds he sent to colleagues over the years (not only during his time in Paris, but also while journeying abroad), as well as a monthly household expense and an enumerative "state of my linen" (featuring, among other things, a couple of good damask tablecloths and no less than nine bedsheets).⁷⁹ These disparate, mundane list-like documents highlight the centrality of recording and data management through paperwork in the daily life and work of the learned community—an aspect that has not yet received sufficient attention, partly because the notes and lists accumulated by these scholars have not survived to our day due precisely to their seemingly provisional nature.⁸⁰

Although neither lists of portraits nor the "state of my linen" can be found among Plumier's papers, lists and list-like documents are pervasive in his naturalist work. To start with, his books can be seen as a juxtaposition of various forms of lists. The friar's three printed botanical volumes—*Description*, *Traité des fougères*, and *Nova genera*—were organized according to an identical serial structure: they were all composed of roughly two parts, the first listing the descriptions of plants, the second gathering, in the same

⁷⁸ Tournefort, "Démonstrations botaniques," BCMNHN MS 76.

⁷⁹ Tournefort, "Régistre de Tournefort," BCMNHN MS 253. The inventory of his book collection was divided in "Medici et ad rem medicam spectantes," "Libri philosophi et Mathesim spectantes," and "Libri miscellanei." The lists of plant specimens sent to colleagues in France and abroad were "Plantes seches que j'ay donné a Mr Maurin, docteur de la faculté de Paris," "Semences que j'ay envoyé en Portugal à Mr Vannertinge marchand à Lisbonne sur la fin de janvier 1690," "Semences que j'ay remis à Monsieur Breman apres mon voyage d'Espagne et de Portugal de 1 decembre 1689 sans conter celles que j'avois envoyé de Madrid et de Cádiz," "Semences que j'ay envoyés a Monsieur Mappus professeur en botanique a Strassbourg le 25 mars 1690," "Semences des plantes que j'ay envoyé à Monsieur Magnol a Montpellier 1683 le 25 7bre," "Semences que j'ay envoyé à Mr Hermans professeur a Leyde le 6 janvier 1684," "Semences reües de Dantzinc de Mr Breyn le 2 avril 1684," "Semences receües de Leyde de Mr Hermans le 5 avril 1684," "Plantes seches que j'ay envoyé au Pere de Beze de suite à Siam, 1687," and "Semences envoyés à Mr Hermann professeur des plantes à Leyden 1690 le 5 janvier de Paris par la poste."

⁸⁰ The manifold documents by Tournefort mentioned here were bound after the professor's death into a single volume (BCMNHN MS 253). Valentina Pugliano has addressed this sort of "practical scribblings, with a short life and rough immediacy" and, in particular, the specimen list: Pugliano, "Specimen Lists," 716-26.

order, the engravings illustrating them. The division into these parts was to a great extent a printing commonplace for heavily illustrated books, especially when images were made by means of copperplates rather than woodblocks, due to the division of labor in the production of books rather than the wish of the author. (The printing of texts and copperplate engravings required two different sorts of press and were consequently carried out in different workshops—even when the books were produced in the very same building, such as in the case of the *Imprimerie royale*.)⁸¹ For this reason, finding devices such as indexes, tables of contents, and catalogs in Plumier’s books were placed after the pages of text and before the plates, each of these two parts usually being printed on different paper. The plates could potentially work as a *recueil* on their own, independently from the textual part. Whether the choice of the author or an imposition of the common usage in book production, the division of the books into text and images made more evident the composition of these books as a juxtaposition of lists: there was a series of written descriptions on the one hand, a series of engravings on the other, and an array of indexes, tables, and catalogs (types of enumerations after all) between them. This was the case of the *Description*: the preface was followed by a list of “authors quoted in this volume,” the pages of descriptions, an index of plants in Latin, another in French, a so-called “table of contents” (the said index of medical uses in actuality), and the series of copperplates. The *Traité des fougères* was slightly more narrative—the preface was longer (twenty pages), as were the descriptions—but the serial organization remained basically the same: a first section enumerated short accounts of the medicinal properties of some ferns, before turning to the series of botanical descriptions. In contrast to the *Description*, however, the *Traité des fougères* was more strongly organized around the images: the object of the written descriptions, for instance, was not the plants in question but the plates themselves (the headings, in consequence, did not indicate the Latin or French name of the species first, but the number of the engraving; furthermore, some of the descriptions were not narrative, but consisted of a further level of lists enumerating and identifying the different figures included on the plate). The *Nova genera* followed this structure, too: the list of genera descriptions (each of which was followed by another enumeration of the species comprised by that genus) was mirrored by the series of engravings, both parts of the book being separated by an index and a catalog of American plant species.

⁸¹ For more on the production of Plumier’s printed books, see below, chap. 5. On the division of labor between typographic and copperplates printers, see Roger Gaskell, “Printing House and Engraving Shop: A Mysterious Collaboration,” *The Book Collector*, 53 (2004), 213-51.

The juxtaposition of list-like structures was by no means limited to the printed medium. Consider now the “Synopsis botanica,” Plumier’s manuscript volume analyzed in the previous chapter: it was accompanied by an incomplete index of the botanical genera inventoried in it, each entry referring to the pages in question and, in only some cases, to the plates.⁸² The “Synopsis botanica” was actually bound together with three other unrelated documents (also by the hand of Plumier) in a single red morocco codex with the coat of arms of Napoleon I on the spine: whether gathered in the nineteenth century or not, the various documents in the volume are also a good example of the role that inventory-making played in the manuscript natural historical work of the Minim.

The first of these documents, with the title of “Botanicon parisiense” (Parisian herbal), consists of an alphabetical list of plant species that runs for twenty-one pages in two columns and encompassed references to the taxonomic literature. Unsurprisingly, the works quoted in these included Bauhin’s *Pinax*, Tournefort’s *Institutiones*, Clusius’s *Rariorum plantarum historia*, de l’Obel’s *Icones stirpium*, and Dodoens’s *Stripium historiae pemptades* (e.g., “Angelica pratensis, Apii folio inst.,” or “Daucus vulgaris Clus. Hist. CXCVIII”). A small slip inserted between pages announces that the plants in the “Botanicon Parisiense” had been observed by Tournefort around Paris. The list, however, did not appear in Tournefort’s *Histoire des plantes des environs de Paris* (1698), but in one of the best-known works by Sébastien Vaillant, bearing the same title as Plumier’s manuscript document: Vaillant bequeathed the draft of his herculean *Botanicon Parisiense* to Hermann Boerhaave, who edited and published it for the first time in 1723. The list in Plumier’s manuscript can be found in extended form in Vaillant’s book, and other handmade copies other than Plumier’s have also been conserved, which suggests that the inventory of plants elaborated by Vaillant (perhaps in collaboration with Tournefort) largely circulated in manuscript form and in different states of composition during the decades prior its publication—and that our friar copied it in whole or in part.⁸³

The “Botanicon parisiense” was followed in the volume by two so-called dictionaries (fig. 4.12). The first, an eight-page “Dictionarium Gallicum Plantarum Agri Parisiensis” (French dictionary of plants in the Parisian countryside) in two columns,

⁸² BCMNHN MS 10, “Synopsis botanica.”

⁸³ BCMNHN MS 10, fol. 1^r-12^r: “Botanicum parisiense, seu catalogus plantarum quas in agro parisiensi circa [illegible] parisiense observavit Clarissimus D. Joseph Pitton Tournefort Academia Regiae Scientiarum Socii et in horto regio professoris regius Botanices anno [illegible]” Tournefort, *Histoire des plantes qui naissent aux environs de Paris*; Sébastien Vaillant, *Botanicon Parisiense. Operis majoris prodituri prodromus* (Leiden: apud P. Vander Aa, 1723). Apart from Plumier’s, there are other two manuscript copies of the “Botanicum parisiense” in the BCMNHN: MS 1178 by Bernard de Jussieu and MS 1449, also by Vaillant.



Fig. 4.12. Dictionaries gathered in the manuscript volume of the “Synopsis botanica.” They offered equivalences between French and Latin of species and genera names, including references to the authors from which those names were drawn. Dictionaries of botanical names such as this one were a crucial reference tool in the work of naturalists by 1700. For Plumier, this may also have been a device to find his way through his couple of thousands of images of plants, which were usually labelled with the names he gave to them. (Bibliothèque centrale de Muséum national d’histoire naturelle, Paris.)

gave the compound Latin equivalents (with the usual bookish references) of French names for botanical species (e.g., the *asperge*, or asparagus, was the Latin “*asparagus sylvestris, tenuissimo folio*” and referred to “Pin. 490,” or Bauhin’s *Pinax*, page 490). This was followed by a thirteen-page “*Dictionarium Generum Plantarum Latino-Gallicum et Gallico-Latinum*” (Dictionary of plants’ genera Latin-French and French-Latin), offering a double set of equivalences from one language to the other, and vice-versa (e.g., the Latin “*Auricula ursi*” was the French “*Oreille d’ours*,” and the French “*Echalotte*” corresponded to the Latin “*Cepa alcalonica*”).

The “*Synopsis botanica*,” the lengthiest document of the volume (303 pages), was in itself a list of numbered, short, and distinct descriptions (up to 806) of botanical genera, each of them accompanied by a hand-made drawing, frequently on the opposite page, of their most distinctive parts, most usually the flowers and seeds. After the “*Synopsis*” came two reference documents: a 307-page list of species organized by their classes—

and, in all probability, partly drawn from Tournefort's *Institutiones*⁸⁴—and a seven-page index of the plants' genera illustrated in the "Synopsis" and referring to the page of the manuscript on which the image of each genus was to be found.⁸⁵

Indexes and "dictionaries" are ubiquitous in printed and manuscript catalogs of plants, such as those by Plumier and other contemporary naturalists. Bauhin's catalog of Basler plants included a fifteen-page index listing the names of the genera and the pages on which they were enumerated; Dillenius' book, a two-page index; and Ray's third volume of the *Historia plantarum* proudly announced on its title page that "a copious index of genera is added to summarize the work" (*addito ad Opus consummandum Generum Indice copioso*). Tournefort's *Éléments* encompassed two indexes, one in Latin and one in French, with references in each entry to page and plate. The Latin extended edition of the book, published six years later as *Institutiones rei herbariae*, incorporated four of them: a Latin index of subjects to the "Isagoge re herbariam" (the introduction to botany printed at the beginning of the first volume) including authors (e.g., "Fuchsius," "Plumerius"), parts and typologies of plants (e.g., "corona," "flos monopetalos"), and general topics (e.g., "leges in generum institutione servandae"); two indexes of botanical genera (with references to pages and plates), one in French and another in Latin, and an index of name equivalences. It is worth pausing on this last finding device in Tournefort's *Institutiones*: this seven-and-a-half list in two columns at the very end of the book bore the title "Index nominum plantarum, quae in propriis locis quaeri debent," or "index of plant names that have to be sought in a particular place." The list gave the reader the equivalences, in Tournefort's nomenclature, of those plants that had received different names by other authors. Take the case of Tournefort's *Mitella*, an American genus whose name Linnaeus kept and we still use nowadays. The *Mitella* had received a series of quite varied names before Tournefort: *Sanicula* or *Cortusa* by Denis Joncquet or Christian Mentzel (the latter drawn from Theophrastus), *Orleana* or *Orellana* by Paul Hermann, *Urucu* by Piso, *Medicina tingendo apta* by Hernández, and *Roucou*. All these denominations were listed in the alphabetical index, and each referred the reader to the same page: that on which the *Mitella* (Tournefort's name) was described. To put it another way,

⁸⁴ BCMNHN MS 10, fol. 205r-357r. Apart from the "Synopsis botanica," this is the only text signed by Plumier, on page 357r: "Frater Carolus Plumier Minimus B.[otánico] R.[egio] Parisiis. An.[us] D[omi]ni. 1703," after a quotation from Daniel 3:76 used in the Catholic canticle Benedicite: "Benedicite universa geminantia in terra Domino" (Everything growing on the earth, bless the Lord).

⁸⁵ BCMNHN MS 10, fol. 358r-361r: "Index Generum Plantarum prior numerus genera cum figuris, secundus vero genera cum speciebus, indicant."



Fig. 4.13. Annotation at the bottom of one of Plumier’s drawings reading “*Ammis majus* C.B. pag. 159,” in reference to Gaspard Bauhin’s *Pinax*, page 159. Note also Plumier’s signature (“Fr. C. Plumier Minimus B[otanicus] R[egius]”). In the large majority of his drawings, the plants or animals are identified by name and by abbreviated references to the authors from which these names were drawn. (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

Tournefort was aiming here at making his nomenclature the definitive one, and imposing it upon all his predecessors. The obscure field of botanical nomenclature was, as we will see below, a scientific battlefield.

Tournefort’s “Index nominum plantarum, quae in propriis locis quaeri debent” is also a good case in point for understanding the place that material techniques such as list-making occupied in the work of natural history around the turn of the eighteenth century. Finding devices of the kind that I have reviewed here (tables, indexes or the so-called “dictionaries”) were usual paratextual tools in early modern scholarly publications, as Ann Blair has proven.⁸⁶ These devices were also to be found in manuscript media, where they served the naturalists’ goal of managing the increasing flow of available information that came from overseas. More important, it allows us to relocate Plumier’s series of drawings into the broad context of the material practices of inscription by which European scholars around 1700 undertook the herculean project of making a comprehensive inventory of the natural world.

Tournefort’s index also points towards the philological aims of botany at the turn of the century, an aspect of this story that we have been encountering all along this chapter. Here again the opposition of texts and images is deceptive: names were at the very center of the naturalist’s vocation, also for one as skilled in drawing as Plumier. Virtually all of the friar’s images, manuscript and printed alike, included a written inscription indicating the name given to it, and a reference to the scholar from whom he had drawn the

⁸⁶ Ann Blair has largely been the moving force behind the renewed interest in the material techniques of information management in the early modern scholarly world. For her study on finding devices in early modern reference genres, see her *Too Much To Know*, 132-60.

appellation, when he did not invent it himself (fig. 4.13). These inscriptions were by no means extraneous to the images: they demonstrate not only the central purpose of the images themselves, but also the function that Plumier's archive as a whole aimed at fulfilling in the study of the natural world. It is time now to turn to names.

The infinity of names

"So many false genera! So many bad names! So much confusion!" complained Linnaeus in 1737.⁸⁷ The sort of naming used by naturalists like Plumier, Tournefort, or Sloane was the main feature of early eighteenth-century botany against which Linnaeus furiously reacted thirty years later. Consider, for example, Plumier's discussion of a species of *Lonchitis* (a fern) in his *Traité des fougères*:

Mr Pluk.[enet] doubts whether or not this *Lonchitis* [called by Plumier *Lonchitis pulvurenta, pinnulis obtuse dentatis*] is the same Plant as the one he calls *very beautiful rock Fern with pointed leaves, or Capillary from Madeira with Fern-like leaves, and small, whitish stem* [in his] *Almag.[estum] Bot.[anicum (1696)] [page] 150 & [the] phytog.[raphia] Plant.[arum] [Phytographia, sive stirpium illustrium & minus cognitarum icones (1691)] [page] 204. fig. 4. I rather think that this *Lonchitis* is the plant that he names *Fern from Jamaica, non-branchy, cut in the front with eared leaves, & with a root in small filaments.* *Almag. Bot. 150. & phytog. Planche 283. fig. 1.* The pinnules of this do not truly seem serrated as the pinnules of the one with which I deal, perhaps due to the smallness of the figure or to the fact of having been drawn from a dried plant in which the serration [of the leaves] is no further recognizable as a result of the alteration.⁸⁸*

This was the usual disquisition that one could find in written descriptions of plants, both in printed and manuscript form, by Plumier and the large majority of his contemporary fellow botanists. The fragment touches on several major trends in the work of botany around 1700. To start with, it shows that botanical names at that time were much more descriptive than nominal, as expressed by Tournefort in the notes for

⁸⁷ Carl Linnaeus, "Ratio operis," *Genera plantarum eorumque characteres naturales secundum numerum, figuram, situm, & proportionem omnium fructificationis partium* (Leiden: Apud Conradum Wishoff, 1737), translated by Staffan Müller-Wille and Karen Reeds, "A Translation of Carl Linnaeus's introduction to *Genera plantarum* (1737)," *Studies in History and Philosophy of Biological and Biomedical Sciences* 38 (2007), 566.

⁸⁸ Plumier, *Traité des fougères de l'Amérique / Tractatus de filicibus Americanis* (Paris: Imprimerie royale, 1705): "Le Sr Pluk. doute si cette *Lonchite* ne seroit pas la mesme Plante que celle qu'il appelle *tres belle Fougere des rochers à feuilles pointuës, ou Capillaire de Madere à feuilles de Fougere, à tige menuë blanchastre.* *Almag. Bot. 150. & phytog. Plant. 204. fig. 4.* Je croirois plutôt que cette *Lonchite* est la plante qu'il appellee *Fougere de la Jamaïque non rameuse, découpée assez avant par des feuilles oreillées, & dont la racine en gazon pousse plusieurs pedicules.* *Almag. Bot. 150. & phytog. Planche 283. fig. 1.* Veritablement les pinnules de celles-cy ne paroissent pas dentelées comme les pinnules de celle dont je traite, peutestre à cause de la petitesse de la figure, ou pour avoir esté dessinée après quelque plante désechée, dont les dentelures ne paroissent plus par l'alteration qui y est survenuë."

his teaching at the Jardin du roi: “the names of plants are also definitions in which we signify first the genus and then the difference of each plant in particular.”⁸⁹ Before Linnaeus’s binomial system began to reign, botanical names were not limited to a fixed number of words: it adopted on occasion gargantuan lengths that made it all the more difficult to establish equivalences between the different denominations given to them by different authors.⁹⁰

This is the second point that this fragment by Plumier showcases. A crucial part of the work of the naturalist was by then of a “philological” character, so to speak: it crucially required drawing correlations between different authors and collating written and graphic information to establish clear botanical identities. John Ray voiced such concerns in a letter to Sloane in 1696, asking for his help with determining equivalences between some species described by Plukenet that “are not referred to F. Plumier’s” and those in Sloane’s own inventory of Jamaican plants: “I find such a multitude denominated of Jamaica that I am quite confounded with them, and unable to reduce them (I mean so many of them as are probably the same) to those of your Catalogue.”⁹¹ Botany at Plumier’s time was not so much a problem of classification as one of identification and inventory. It is by considering the issue of naming that we can fully understand the role that Plumier aimed his images to fulfill in securing natural historical knowledge across distance.

Issues of inventory and identification troubled a field busy puzzling out not only how many separate plants there were, but also how many were actually already known. For the naturalist, the central problem of the work with names was, therefore, as bookish as it was empirical: to correctly establish correspondences between different languages and even, or especially, within the very same language.⁹²

⁸⁹ Tournefort, “Demonstrations botaniques,” BCMNHN MS 76, unpaginated: “Les noms des plantes sont comme autant de définitions, dans lesquelles on exprime d’abord le genre et ensuite la différence de chaque plante en particulier.”

⁹⁰ For Lorraine Daston, “the shift between the prolixity of the Parisian botanists to the parsimony of Linnaeus”—in other words, the evacuation of details from natural historical description—“is emblematic of a far broader transformation in the ideals and practices of scientific description that curred circa 1660 and 1730.” Namely, a shift in the meaning of what a “fact” itself was and from “local specificity” to the “laborious project of universalizing nature.” Lorraine Daston, “Description by Omission: Nature Enlightened and Obscured,” in *Regimes of Description: In the Archive of Eighteenth Century*, ed. John Bender and Michael Marrinan (Stanford, CA: Stanford University Press, 2005), 11-24.

⁹¹ Ray to Sloane, Black Notley, July 22, 1696, in *Correspondence of John Ray*, 298.

⁹² Peter N. Miller has recently reminded us about the power of names, especially of proper names, in historical research and history writing in his brilliant *Peiresc’s Mediterranean World* (Cambridge, MA: Harvard University Press, 2015), 20-3 and 143-52.

A good example of the salience of the lexical component of the practice of natural history is the 1682 index of botanical names composed by Prussian physician Christian Mentzel (or rather by his son, on whom he imposed this monumental task so to have him learn botany) with a fanciful Greek title, *Πίναξ Βοτανώνυμος Πολύγλωσσος Κατολικός*, or “Universal polyglot botanical dictionary.” Mentzel was probably as right as immodest when remarking that “this work is really necessary,” for it provided naturalists with a formidable three-hundred-page list of plant names’ correspondences across different languages and the bookish references for each of them—the *Lonchitis*, if we want to take an example dear to our friar, was the Latin name first found in Pliny and known in English as “splenewort,” in Italian as “lonchite,” and in “Belgian” (i.e. Dutch) as “Brachtvaaren.”⁹³ Most of the time, though, the problem was not the equivalences across different languages, but within Latin itself—or within the same language, for that matter. This was the important challenge that lay behind Plumier’s cumbersome paragraph on the *Lonchitis*, as well as his manuscript dictionaries of species and genera names bound together with the “Synopsis botanica.” Equivalences of botanical names were a fundamental tool in the making of the knowledge of plants, and a major feature of the technical literature of the field since the early eighteenth century. Tables of “synonyms” were visibly advertised in the title pages of catalogs of regional floras. Bauhin’s catalog of the plants growing around Basel was announced to come “with their synonyms, and the places in which they can be observed, so as to serve for the medical school that is in Basel” (*cum earumdem Synonymiis & locis in quibus reperiuntur: in usum Scholae Medicae, quae Basileae est*), and offered for each of the species listed the potential alternative naming given by other authors (e.g., “Chamaemelum inodorum: Chamomilla fatua & 4. Trag. Bupthalmum, Fuch. Cotula, Tab. alba non foetida, Dod.,” in reference to the names given to the same species by Hieronymus Bock, aka Tragus; Leonhart Fuchs, and Rembert Dodoens).⁹⁴ Similarly, the third volume of John Ray’s *Historia plantarum* (1704) promised on its title page to come “with necessary synonyms” (*cum synonymiis necessariis*) to identify identical species that had been named differently.⁹⁵ The same equivalences were

⁹³ *Πίναξ Βοτανώνυμος Πολύγλωσσος Κατολικός* [Pinax Botanonymos Polyglottos Katholikos] *Index nominum plantarum universalis* (Berlin: Officina Rungiana, 1682), sig. a^r-v.

⁹⁴ Bauhin, *Catalogus plantarum circa Basileam*, 41;

⁹⁵ Ray, *Historia plantarum*, vol. 3, eg. 541: “Apocyno affine Gelseminum Indicum hederaceum tetraphyllum, folio subrotundo acuminato, *Sloan. Cat. Jamaic.* Clematis quadrifolia, flore Digitatis luteo, claviculis aduncis *Plumier* P. 80. Fig. 94. Clematis Myrsinites amplioribus foliis Americana, fortè Tetepoteiba Brasiliensibus seu Vitis arbustiva *Pis.* p. 250. An Clematis tetraphylla alia pulcherrima ex Guyana *Breyn.* prod. 1, p. 30?”

announced in Hans Sloane’s 1696 catalog of Jamaican plants (“with their synonyms, and the places where they grow,” *cum earundem Synonymis & locis natalibus*): Sloane’s work organized the items into broad categories (e.g., *Arbores flore à fructu sejuncto*, or “Trees with flowers separated from the fruit”), and devoted exhaustive paragraphs, sometimes page-length, to enumerating the synonyms in the existing literature for every species.⁹⁶

Tournefort stated the importance of the naming of plants very clearly in his *Éléments de botanique* (1694), where he laid the ground for his proposed “method to know plants”: “Botany, or the Science treating Plants, has two parts that need to be differentiated with care: the knowledge of plants, & that of their virtues.” The first “is precisely to know the names that have been given to [plants] in relation with the structure of some of their parts.” This structure, he continued, “is the basis of the character that distinguishes in essence one plant from another. The idea of this character has to be inseparably linked to the name of each plant.”⁹⁷ Tournefort reiterated these views four years later in his history of Parisian plants, and this lexical component of natural history came down to Linnaeus who, as ever with him, put it resolutely: “he is *botanist* who knows to call similar vegetables with similar names and distinctly different plants with distinctive names, intelligible to everyone.”⁹⁸ Yet this approach to botany was far from undisputed, at least outside of the realms of the scholarly world. The second edition of Furetière’s dictionary put very clearly that “a person who contents himself with knowing the name of plants is just half a *Botanist*,” for a proper student of flora is the one who not only is “devoted to the knowledge of plants,” but also to their uses “for the healing of illness.”⁹⁹ The definition, certainly not by a practitioner of natural history, highlights the conflicting views of botany as either subordinate to medicine or as a field in itself. It confirms nonetheless the correlation announced by Tournefort, and crucial at the turn of the century, between the knowledge of plants and that of their names. At a more basic level,

⁹⁶ Sloane, *Catalogus plantarum quae in Insula Jamaica sponte veniunt*, eg. 196. Yet another example of contemporary work with synonyms can be found in James Petiver, “A Catalogue of Some Guinea-Plants, with Their Native Names and Virtues,” *Philosophical Transactions* 19 (1695-1697), 677-86.

⁹⁷ Tournefort, *Éléments*, 1: “La Botanique ou la Science qui traite des Plantes, a deux parties qu’il faut distinguer avec soin: La connoissance des plantes, & celle de leurs vertus. / Connoître les plantes, c’est précisément savoir les noms qu’on leur a donné par rapport à la structure de quelques-unes de leurs parties. Cette structure fait le caractere qui distingue essentiellement les plantes les unes d’avec les autres.”

⁹⁸ Tournefort, *Histoire des plantes qui naissent aux environs de Paris*, sig. a4^r; Linnaeus, *Genera plantarum*, trans. in S. Müller-Wille and K. Reeds, 565.

⁹⁹ Antoine Furetière, *Dictionnaire universel, contenant generalement tous les mots François, tant vieux que modernes, & les termes de toutes les sciences et des arts*, 2nd ed. (The Hague: Arnoud & Reinier Leers, 1701), vol. 1, 256-7: “Botanist. s. m. Celui qui s’applique à la connoissance des plantes, & qui s’en sert pour la guerison des maladies: car une personne qui se contente de sçavoir le nom des plantes, n’est *Botaniste* qu’à demi.”

it reflects that the work with names was indeed one of the central components of botany (although sometimes a disputed one).¹⁰⁰

So it was for a naturalist like Plumier. Naming—that is, determining the names already given to plants and establishing new denominations for unknown species—was not only a central practice of his work as a naturalist, but also one firmly tied to the function that he intended his printed and manuscript images to fulfill. For the case of our friar, two aspects of this tie between the practices of naming and image-making need to be stressed. The first is related to the material practices of storing and managing memory (and consequently order): naming, listing, and stockpiling visual depictions played a tightly interdependent role in this respect. The second has to do with naming as a double-edged instrument of credit: new names (and new images) for previously unseen plants were used as dedicatory offerings, as much as they turned into disputed means for establishing one's own authority. I turn now to these two problems.

Material practices of memory

Behind the knotty question of naming lay the problem of order in natural history. Engulfed by the anxiety of an immensely varied and often seemingly patternless flora and fauna, naturalists in the late seventeenth century became increasingly unsatisfied with unordered and merely cumulative descriptive approaches. Although a key component of natural history by 1700 was of a bookish nature (as I examined in chapter 1), scholars located the origins of this perceived information overload in their fabled turn of attention from the little books of men to the great Book of Nature. For the anonymous reviewer of Tournefort's *Institutiones* in the *Histoire de l'Académie royale des sciences*, this was one of the pitfalls of modernity in the field: when “reason came finally back to the world with the Sciences,” he declared, naturalists began “to study Nature as much as Books, & to seek Plants in the countryside”; but then, he went on, “Botany immediately became more extended, & it augmented from day to day,” to the point that “this immense quantity of Plants, all different from each other, began to overwhelm Botanists.” Interestingly, this issue was not perceived as just a theoretical puzzle, but also (in fact, mainly) as a practical pickle. The anonymous author made this point clear: “What

¹⁰⁰ The preoccupation for etymology was far from limited to the field of natural history. In antiquarianism, for instance, it was just as central and controversial a point as it was in the study of flora and fauna. Montfaucon, for instance, discussed the concern for naming in antiquarian studies, which he branded as “rarely necessary, and most of the time frivolous, as well as one of the main reasons for too many and too long writings on that subject.” Montfaucon, *Antiquité expliquée et représentée*, iv.

memory could suffice for so many names, or retain all the new names that were needed?”¹⁰¹

Naming, especially of genera, was intertwined with the practicalities of memorial or archival practices in natural history—that is, of storing and managing natural information. Even before Linnaeus’s two-part (genus-species) system of nomenclature was widely adopted, naming functioned as a means for arranging the information accumulated. “The distribution of Plants in their genera facilitates their naming,” wrote the anonymous reviewer quoted above: “They have first the generic & common name, to which those specifying them is added, so that their name is a sort of definition.” Fontenelle (perhaps the author of the review) gave a similar perspective in his panegyric to Tournefort: the latter’s system was meant to alleviate the burdened memory of the naturalist, for “what if one should learn immediately those 8,846 species” hitherto inventoried by the professor, “& with all the different names Botanists amuse themselves with giving to them?”¹⁰² The method allowed “to put order into the prodigious number of Plants, spread so confusedly on Earth . . . and to distribute them into Genera, & Species, so as to facilitate its knowledge, & prevent the memory of the Botanist to be overwhelmed by the weight of an infinity of different names.”¹⁰³ Fontenelle’s assertions on order and method as relievers of memory in botany echoed ideas that were conventional at the time in the world of scholarship by and large. The Swiss theologian Jean Le Clerc (1657-1736) famously referred to memory as a “Treasure or Store-house” in a little book on commonplace writing and keeping published by John Locke. In it, Le Clerc advised the reader that, “lest the Memory should be Oppressed, or Over-burthen’d by too many Things, Order and Method are to be called in to its Assistance.”¹⁰⁴

¹⁰¹ *Histoire de l’Académie royale des sciences, année 1700. Avec les Mémoires de Mathématiques & de Physique, pour la même Année*, 2nd ed. (Paris: chez Gabriel Martin, Jean-Baptiste Coignard & Hippolyte-Louis Guérin, rue S. Jacques, 1761), 71: “Il n’étoit pas possible qu’enfin la raison ne revînt au monde après les Sciences. On se mit à étudier la Nature aussi-bien que les Livres, & on osa chercher les Plantes dans les campagnes. Aussitôt la Botanique devint plus étendue, & elle s’accrut de jour en jour. / Mais d’un autre côté cette immense quantité de Plantes toutes différentes les unes des autres, commença à accabler les Botanistes. Quelle mémoire pouvoit suffire à tant de noms? où prendre même tous les nouveaux noms dont on avoit besoin?”

¹⁰² Fontenelle, “Éloge de Tournefort,” 143.

¹⁰³ Bernard Le Bovier de Fontenelle, “Éloge de M. de Tournefort,” in *Histoire de l’Académie royale des sciences. Année MDCCVIII* (Paris: par la Compagnie des Libraires, 1708), 147-8: “il est fait [the book of the *Éléments*] pour mettre de l’ordre dans ce nombre prodigieux de Plantes, semées si confusément sur la Terre, & même sous les Eaux de la Mer, & pour les distribuer en Genres, & en Especies, qui en facilitent la connoissance, & empêchent que la memoire des Botanistes ne soit accablée sous le poids d’une infinie de noms differens.”

¹⁰⁴ Jean Le Clerc, “Monsieur Le Clerc’s Character of Mr Lock’s Method with his Advice about Use of Common-places,” in John Locke, *A New Method of Making Common-Place-Books* (London: printed for J.

Francis Bacon is probably the best known of those who thought about the connection between memory and natural history. In *The Advancement of Learning* (1609), he associated the main divisions of knowledge that he had defined with the principal human faculties or “the three parts of Man’s Understanding”: poetry to imagination, philosophy to reason, and “History to his Memory.”¹⁰⁵ It was precisely in this work that Bacon offered one of the most famous and longstanding conceptualizations of natural history and indicated the place it should occupy in the general economy of knowledge.¹⁰⁶ In Bacon’s thought, natural history played a foundational role for the whole architecture of natural knowledge: from the subordinate position in which Bacon perceived it had hitherto been with respect to natural philosophy (the knowledge of the causes of natural phenomena), natural history was rather to be thought of as its unavoidable foundation, its “primary matter.” For Bacon, the reason for this lay in natural history’s object (i.e. natural “facts,” understood as nuggets of experience) and method (based on observation and description of particulars and their subsequent cataloguing and organization). It was only on the grounds of this collection and classification of secure material that the interpretative and generalizing powers of natural philosophy could work.¹⁰⁷ As pointed out by Ann Blair, “for Bacon, the sheer bulk of accumulation was a valuable step on the path toward mastery and knowledge of nature”—whether by means of objects or data.¹⁰⁸

The perception of an information overload distressing so many naturalists by 1700 was, therefore, the unavoidable corollary of an understanding of natural history as formulated by Bacon. But for natural history to be the basis of natural philosophy, it required some methodical ordering, rather than an arbitrary gathering of particulars.¹⁰⁹

Greenwood, 1706), i-ii. On this text by Le Clerc, see also Richard Yeo, *Encyclopedic Visions: Scientific Dictionaries and Enlightenment Culture* (Cambridge: Cambridge University Press, 2001), 112n46.

¹⁰⁵ Francis Bacon, *The Advancement of Learning*, in *The Works of Francis Bacon*, ed. James Spedding, Robert L. Ellis, and Douglas D. Heath, 14 vols. (London: Longmans, 1857-74), vol. 3, 329-33.

¹⁰⁶ On the role of natural history in Bacon’s thought, see Paula Findlen, “Francis Bacon and the Reform of Natural History in the Seventeenth Century,” in *History and the Disciplines: The Reclassification of Knowledge in Early Modern Europe*, ed. Donald R. Kelley (Rochester, NY: The University of Rochester Press, 1997), 239-60. Compare with Peter Anstey, “Francis Bacon and the Classification of Natural History,” *Early Science and Medicine* 17, no. 1-2 (2012), 11-31. Bacon’s works, however, offered neither a totally new and revolutionary definition of natural history, nor a single and coherent one, as argued by Dana Jalobeanu, “Francis Bacon’s Natural History and the Senecan Natural Histories of Early Modern Europe,” *Early Science and Medicine* 17 (2012), 197-229.

¹⁰⁷ Alexis Tadié, *Francis Bacon. Le continent du savoir* (Paris: Classiques Garnier, 2014), 92-4. In Bacon’s thought, however, natural history and philosophy were not as hermetically distinct as disciplines as it has sometimes been suggested: see Anstey, “Classification of Natural History.”

¹⁰⁸ Ann Blair, *The Theater of Nature: Jean Bodin and Renaissance Science* (Princeton: Princeton University Press, 1997), 227-30.

¹⁰⁹ Bacon, *Novum organum*, in *The Works of Francis Bacon*, 127: “First of all, we must prepare a *Natural and Experimental History*, sufficient and good; and this is the foundation of all. . . . But [it] is so various and

Apart from a cognitive capacity, memory (the human faculty associated with history) was an array of material practices.¹¹⁰ Among these, the making of written lists and series of images were closely intertwined in Plumier’s series of drawings and copperplates. For late seventeenth-century authors like him, then, the problem that we would now be tempted to define in terms of natural classification was, first and foremost, an issue of practical information management. This came out in print with a particular intensity. Denis Dodard voiced the question in the preface to his *Mémoires pour servir à l’histoire des plantes*. The book, published in 1676 (that is, eighteen years before Tournefort publicly announced his system in the *Éléments*), was conceived as the first of several illustrated volumes on the history of plants, but the author acknowledged that “we cannot yet say in which order are we arranging the Plants; whether we are following the order of letters [alphabetical], of genera, of flavors, of the main virtues, of some principal circumstances, or of their shapes, or of the most considerable of their parts, such as the seeds, in line with the opinion of Cesalpino and Prospero Alpini.”¹¹¹ Plumier also had to face the practical problem of ordering plants in print when composing his *Description*, and he solved it following his own intuition: “I divided this volume in three groups [*genres*] of plants; the first in *Ferns, Hermionites, Polyposes, Hart’s Tongues & Capillaries*; the second in *Arum & Dracontium*, & the new genus of *Saururus*, & the third in *Periploques*, that is, in plants that climb to trees.”¹¹²

diffuse, that it confounds and distracts the understanding, unless it be ranged and presented to view in a suitable order. We must therefore form *Tables and Arrangements of Instances*, in such a method and order that the understanding may be able to deal with them.”

¹¹⁰ For a convincing case about the role of different media of communication (i.e. speech, visual images, and written texts) in practices of knowledge and memory, see Fernando Bouza, *Comunicación, conocimiento y memoria en la España de los siglos XVI y XVII* (Salamanca: Seminario de Estudios Medievales y Renacentistas, 1999), which has appeared in English translation as *Communication, Knowledge, and Memory in Early Modern Spain*, trans. Sonia López and Michael Agnew (Philadelphia, PA: Pennsylvania University Press, 2004). On the link between memory and inscription, I found useful the reading of Roger Chartier’s *Inscrire et effacer. Culture écrite et littérature (XI^e-XVIII^e siècle)* (Paris: Le Seuil, 2005), as well as his reading of Ricoeur in “Memory and Writing,” in *The Author’s Hand and the Printer’s Mind* (Cambridge: Polity, 2015), 123-34. For the link between memory, paperwork, and natural history in particular, see Richard Yeo, “Between Memory and Paperbooks: Baconianism and Natural History in Seventeenth-Century England,” *History of Science* 45 (2007), 1-46.

¹¹¹ Denis Dodard, *Mémoires pour servir à l’histoire naturelle des plantes* (Paris: de l’Imprimerie royale, 1676), 52: “Nous ne pouvons encore dire selon quel ordre nous rangerons les Plantes; si nous suivrons l’ordre des lettres, des genres, des saveurs, des principales vertus, de quelques circonstances principales, ou de leur figure, ou des plus considerables de leurs parties, commes les graines, suivant la pensée de Caesalpinus & de Prosper Alpin.”

¹¹² Plumier, *Description*, sig. [A4^v]: “Enfin j’ay divisé ce volume en trois genres de plantes; le premier en *Fougères, Hermionites, Polyposes, Langues-de-cerf & Capillaires*; le second en *Arum & Dracontium*, & en ce nouveau genre de *Saururus*, & le troisième en *Periploques*, c’est-à-dire, en plantes, qui montent en grim pant sur les arbres.”

In the wake of Tournefort's method for the ordering of botanical names, Plumier understood such a distribution of vegetable species into broader groups primarily as a way of comforting the distressed memories of naturalists and readers: what the ordering of species into genera (and then into classes) offered was clarity. Rather than the quest for what Linnaeus would eventually call a "natural system" of classification, order in Tournefort's method (and in Plumier's practice) was oriented towards the organization of the information collected.¹¹³ Plumier was not far from this line of thought when he upheld, in the preface to the *Description*, his having created new species and genera names: "I decided, *for the greater satisfaction of curious people*, to arrange [these plants] under known genera and to give them Latin names according to their genera."¹¹⁴ Similarly, around the same time, Ray praised Sloane for having "done botanists [a] great service in distributing or reducing the confused heap of names, and contracting the number of species."¹¹⁵ The French word *méthode*, used by Tournefort to define his system ("Méthode pour connoître les plantes") was actually associated at the time with the idea of ordering for better knowing, and defined as a "rule, ... [an] art to arrange things in a way *so that they can be understood more easily*, either to discover the truth when this is unknown to us, or to prove it to others."¹¹⁶

Then, how was one to order plants? For Tournefort and those who espoused his system (like Plumier), "it is absolutely necessary to combine into groups those plants which resemble one another, and to separate them from those which they do not resemble. This resemblance [*resemblance*]," continued Tournefort, "should be deduced solely from the closest sign of a relationship, i.e., from the structure of one of the parts of the plant, and must pay no attention to more distant signs of relationship that can be found between certain plants, such as the possession of similar [medicinal] virtues, or the place in which they grow."¹¹⁷ (fig. 4.14)

¹¹³ This hinges on the distinction between "artificial" and "natural" methods of classification, first established by Linnaeus and developed later by—a distinction that did not exist in Plumier's time. On these prickly questions, see two classics: Daudin, *De Linné à Lamarck*, 19-33; Phillip R. Sloan, "John Locke, John Ray, and the Problem of the Natural System," *Journal for the History of Biology* 5, no. 1 (1972), 1-53, and Staffan Müller-Wille, "Systems and How Linnaeus Looked at Them in Retrospect," *Annals of Science* 70, no. 3 (2013), 305-17.

¹¹⁴ Plumier, *Description*, sig. [a3^v-a4^r]: "J'ay voulu aussi, pour la plus grande satisfaction des curieux, les ranger sous des genres connus, & je leur ay donné des noms Latins convenans à leurs genres." My emphasis.

¹¹⁵ Ray to Sloane, Black Notley, June 23, 1696, in *Correspondence of John Ray*, 295-6.

¹¹⁶ Furetière, *Dictionnaire*, vol. 2, sig. [Xxxxx4^r]: "Méthode. s. f. Regle; art de disposer les choses d'une maniere qu'on les puisse faire comprendre avec plus de facilité; soit pour decouvrir la verité quand nous l'ignorons, soit pour la prouver aux autres." My emphasis.

¹¹⁷ Tournefort, *Éléments*, vol. 1, 13, trans. Sloan, "Natural System," 40.

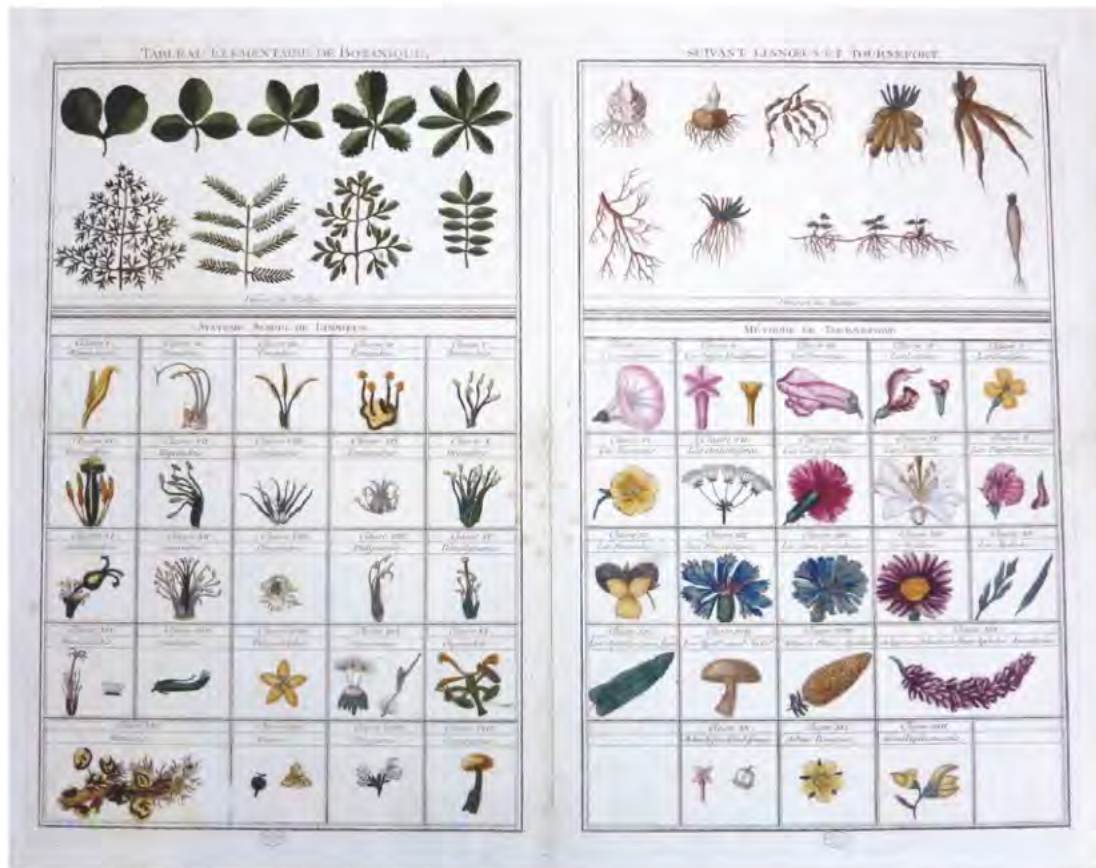


Fig. 4.14. “Elementary table of botany,” probably made during the late eighteenth century (it was among the papers of Antoine-Laurent Jussieu). The table visually compares Linnaeus’ and Tournefort’s systems of botanical classification through the main categories on which they were based. For Tournefort, the convenience of a system was partly that “the study of plants does not tire the imagination when undertaken with method.” (Bibliothèque centrale du Muséum national d’histoire naturelle, Paris.)

For those accepting these premises, visual representation would prove particularly useful for the cataloging of closely resemblant species—say, ferns. Ferns were Plumier’s signature plant: not only were they the exclusive subject of his *Traité des fougères* (a unique work of its kind, for it seems that no other book of such characteristics devoted to a single sort of plant was ever published before),¹¹⁸ but also most of his previous *Description* was devoted to these vegetables; the empire of ferns extended also beyond his printed volumes, and Lister noted that, in 1698, ferns were undoubtedly “of all others the most numerous” among the hundreds of drawings collected by the friar in his Parisian cell.¹¹⁹ Plumier overtly used the term (*fougères* in French, *filix* in Latin) to designate not only

¹¹⁸ The only one similarly specialized that I could find is John Ellis’s *An Essay Towards a Natural History of the Corallines* (London: printed for the author, and sold by A. Millar, 1755).

¹¹⁹ Lister, *Journey to Paris*, 74.

those specifically known as ferns and encompassed within a single genus, but also flowerless plants by and large.¹²⁰ He referred specifically to those plants included in Tournefort's sixteenth class, the one concerning "herbs of which we do not know their flowers"—one of the professor's two hodgepodge classes jumbling plants that daringly escaped his classificatory commandments, based on the flowers.¹²¹ Furthermore, because of their close resemblance, ferns were complicated plants for establishing genera, if not species themselves. (One of Ray's preoccupations, as we saw earlier, was about collating Plukenet's Jamaican ferns with those described by Sloane and Plumier, for he believed Plukenet had been confusing different specimens with separate species.)¹²²

Visual representations allowed naturalists to better determine the differences between species, thus enabling them to clearly arrange them into separate groups and to name them accordingly. The order of nature was, in the hands of a naturalist like Plumier, the order of images.¹²³ Indeed, the arrangement of the *Traité des fougères* was not entirely random: the copperplates (and, therefore, the species themselves) were organized into a series of consecutive genera: *Filix* (ferns strictly speaking), *Lonchitis*, *Trichomanes*, *Polypodium*, *Adiantum*, *Lingua cervina*, *Hemionitis*, *Osmunda*, and *Ophioglossum*. (The whole was closed by a number of fungi and mosses—for, after all, they had no flowers either.) Interestingly, Plumier determined the ascription of plants to each genus by means of their physical appearance (*le port de chacune*). The friar criticized Plukenet (who begins to look like a rather scorned authority as far as ferns are concerned) for having confused all genera under the all-embracing umbrella of "ferns," because "nature," said Plumier, "has distinguished all these plants *in their particular appearances*?" (*par des ports tous particuliers*). In

¹²⁰ He made this clear in the preface of his *Traité des fougères*, v: "J'ay cru ne pouvoir donner à mon livre un meilleur titre que cely qu'il porte, non pas que je n'y traite specialement que du genre propre des Fougères, j'y parle aussi des autres contenus dans la seizième classe des Institutions Botaniques que j'ay crû pouvoir comprendre sous le titre general des Fougères, puisque la nature les a fait naître toutes avec le même caractère de ne produire aucune fleur, & de ne donner que des semences; outre que les Fougères proprement appellées Fougères sont la partie la plus noble de cette seizième classe, comme en étant le premier genre & les plus remarquable de tous." For the sixteenth class, see Tournefort, *Éléments*, 22, 428-38.

¹²¹ Linnaeus also kept a residual grouping for cryptograms, or plants that have neither fruits nor seeds: Lisbet Koerner, *Linnaeus: Nature and Nation* (Cambridge, MA: Harvard University Press, 1999), 15.

¹²² Ray to Sloane, Black Notley, July 22, 1696, in *Correspondence of John Ray*, 298, and Margócsy, *Commercial Visions*, 52-3. Ferns would also become controversial later in the study of fossils, as Juan Pimentel kindly pointed out to me: on this, see Martin J. S. Rudwick, *The Meaning of Fossils: Episodes in the History of Paleontology* (Chicago: The University of Chicago Press, 1985 [1976]), 83-6, 145-9; Rhoda Rappaport, *When Geologists Were Historians, 1665-1750* (Ithaca: Cornell University Press, 1997), 215, and Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago: The University of Chicago Press, 2005), 64, 262-4.

¹²³ Compare with Linnaeus's case as studied by Staffan Müller-Wille and Isabelle Charmantier, "Natural History and Information Overload: The Case of Linnaeus," *Studies in History and Philosophy of Biological and Biomedical Sciences* 43 (2012), 4-15, as well as their "Carl Linnaeus's Botanical Paper Slips (1767-1773)," *Intellectual History Review* 24, no. 2 (2014), 215-38.

this, he avowedly followed Ray and Tournefort, who established “as many genera as different appearances there are.”¹²⁴

In his preface to the *Description*, Plumier summarized the main problems reviewed above regarding the inventorying of a far-flung flora: “I do not pretend at all,” the friar went on, “to take the due glory away from those authors who wrote about American plants before me. I have greatly benefited from their knowledge; but I think the reader would be pleased to find [the plants] arranged into known species and genera of Botany, for most of [those authors] have not given to these plants other names than those in the vernacular of those countries, which makes very difficult their identification for those who have never seen them in nature.”¹²⁵ A naturalist like him, exploring the largely untapped natural world of the French Caribbean islands, was directly confronted by the naming of plants that were either poorly familiar or altogether unknown: “I was forced, however, to establish new genera for some particular plants, for there were not known genera in which I could include them.”¹²⁶ Novelty sprang up as an issue to tackle, but also as an opportunity for social and intellectual credit.

Plants as instruments of credit

When new genera had to be invented, new names for them were required. The void left in nomenclature by new species of plants was soon seized by naturalists as an opportunity for advancing their social and intellectual authority. This was seemingly not yet in Plumier’s mind at the time of his *Description*, in which he grouped some unknown species of fern into some inventive but forgettable genera, such as the “*Saururus*, because they resemble the tail of a lizard, and σαύροϋς means *lizard*, & οὔρα means *tail*.”¹²⁷ By the turn of the century, however, the naming of new genera appeared to him as a potential tool for intellectual authority. A stunning case in point is Plumier’s *Nova plantarum genera*

¹²⁴ Plumier, *Traité des fougères*, v-vi: “le sieur Plukenet sans distinction d’aucun port les unes d’avec les autres, à confondu presque tous les genres de cette mesme classe sous ce nom general de *Fougeres*. . . . Mais puisque la nature a bien voulu distinguer toutes ces plantes par des ports tous particuliers, je trouve la conduite de Messieurs Tournefort & Ray bien meilleure, lorsqu’ils ont établi autant de genres differens qu’elles ont de differens ports entr’elles.” My emphasis.

¹²⁵ Plumier, *Description*, sig. [a3^v-a4^r]: “Je ne pretends point oster aux Auteurs qui ont écrit avant moy des plantes de l’Amérique, la gloire qui leur est deüë. J’avouë que j’ay profité de leurs lumieres; mais comme la pluspart n’ont donné les noms de ces plantes, que dans le langage vulgaire de ce pais-là, ce qui fait que ceux qui ne les ont jamais veües en nature ont beaucoup de peine à distinguer de quel genre elles sont, je crois que le Lecteur me sçaura quelque gré de les avoir reduites sous des genres & sous des especes connuës dans la Botanique.”

¹²⁶ Plumier, *Description*, sig. [a3^v-a4^r]: “J’ay pourtant esté obligé d’établir un nouveau genre pour quelques plantes particulières, n’en trouvant point de ceux qui sont connus, sous lequel je pusse les ranger.”

¹²⁷ Plumier, *Description*, sig. [a4^r]: “je leur ay donné le nom de *Saururus*, à cause de leur ressemblance avec la queue d’un lezard, car σαύροϋς signifie *lezard*, & οὔρα signifie *queue*.”

Americanarum (1703), the book in which the friar announced the new botanical species he had discovered in the West Indies throughout his three journeys. In it, Plumier organized these plants into 106 genera, a good number of which were also new and thus innominate. He explained his naming choices in the Latin preface to the volume:

In favor of both curious people and botanists, I have assigned known genera to plants that were uncertain according to the disposition of their flowers and fruits, and adopting either the nomenclature (*nomenclatura*) already given by botanists of the Indies in their books, or creating a new one from the names of famous botanists and botany-lovers (*Botano-philorum*), for Justice so wills it that men worthy of praise shall outwit death and be crown with laurels for their merits.¹²⁸

Indeed, Plumier drew a good number of names from either scholarly or popular nomenclature already in use (fig. 4.15). He used Native American or even Asian names for thirty-five of the genera. Some of these denominations had already been consecrated by authors, mainly Piso and Marcgraf, but also Oviedo, Hendrik van Rheede, Clusius, and Giacomo Zanoni; some others were in common usage among Spanish settlers (*Hispanicum seu apud Hispanicus Americam incolentes vulgare*), natives of the islands like the Caribs (*Americanum apud Caribas vulgare*), or Europeans (*satis apud Europam notum*).¹²⁹ The friar also invented a few metonymical appellations, such as with the abovementioned *Saururus* (or lizard-tail), and the *Bucephalon* (from the Greek βούς, ox, and κεφαλή, head, due to the resemblance of part of the flower with two horns). But about two thirds of the genera names in the volume (sixty-nine out of the hundred-odd) were derived “from the names of famous botanists and botany-lovers” (*ex celebriorum quorundam Botanicorum, aut Botano-philorum nominibus*). For each of them, Plumier gave a paragraph-long biographical note after the list of species included in each genera.

¹²⁸ Plumier, *Nova genera*, sig. a3r: “Libuit itaque curiosorum & Botanicorum ergo, plantas incertas certis generibus insignire, iis characterem generis ex florum, & fructuum constitutione imprimendo, ac nomenclaturam generum, partim ex Indicorum Botanicorum Libris, partim etiam ex celebriorum quorundam Botanicorum, aut Botano-philorum nominibus desumendo; sic namque potenti placitum justitiae, dignos laude viros chartis vetare mori, ipsorumque comamcingere quaesita meritis lauro.” The expression “potenti placitum justitiae” comes from Horace’s *Odes* (2:17 addressed to Maecenas), as well as “comam cingere quaesita meritis lauro” (3:30).

¹²⁹ Namely *Caraguata*, *Mangles*, *Tapia*, *Caapeba*, and *Cururu* are borrowed from Piso; *Arapabaca*, *Inca*, *Nhandiroba*, *Cuiete*, *Camara*, and *Iabotapita* from Marcgraf; *Cainito*, *Guazuma*, *Ceiba*, *Guanabanus*, and *Mamei* from Oviedo; *Isora* and *Kodda-pail* from the *Hortus malabaricus*; *Persea* from Clusius; *Bonduc* from Zanoni, and *Palma*, *Karatas*, *Roioc*, *Musa*, *Vanilla*, *Guaiacum*, *Calaba*, *Sapota*, *Icaco*, *Monbin*, *Courbaril*, *Arachidna*, *Mançanilla* and *Hypericoides* from commonly used names.

Fig. 4.15. Botanical dedications by Plumier in his *Nova plantarum americanarum genera* (Paris: Jean Boudot, 1703).

<i>Name of the genus</i>	<i>Dedicatee</i>	
1. <i>Borbonia</i>	Gaston d'Orléans (1608-1660)	35. <i>Cortusa</i> Giacomo Antonio Cortuso (1513-1603)
2. <i>Güdonia</i>	Guy-Crescent Fagon (1638-1718)	36. <i>Alpina</i> Prospero Alpini (1553-1617)
3. <i>Pitonina</i>	Joseph Pitton de Tournefort (1656-1708)	37. <i>Genera</i> Conrad Gessner (1516-1565)
4. <i>Brossaea</i>	Guy de La Brosse (1586-1641)	38. <i>Colymnea</i> Fabio Colonna (1567-1650)
5. <i>Ximenea</i>	Francisco Ximénez (1666-ca.1729)	39. <i>Caesalpinia</i> Andrea Cesalpino (1519-1603)
6. <i>Hernandia</i>	Francisco Hernández de Toledo (1514-1587)	40. <i>Besleria</i> Basilius Besler (1561-1629)
7. <i>Pisonia</i>	Willem Piso (1611-1678)	41. <i>Dorstenia</i> Theodor Dorsten (1492-1552)
8. <i>Margaritana</i>	Georg Marcgrave (1610-1644)	42. <i>Castorea</i> Castore Durante (1529-1590)
9. <i>Coccoloba</i>	Hippocrates of Cos (ca.460-ca.370 BC)	43. <i>Gerardia</i> John Gerard (1545-ca.1612)
10. <i>Eresia</i>	Theophrastus of Eresos (ca.371-ca.287 BC)	44. <i>Barleria</i> Jacques Borelier (1606-1672)
11. <i>Dioscorea</i>	Dioscorides (ca.40-ca.90 BC)	45. <i>Bontia</i> Jacobus Bontius (1592-1631)
12. <i>Plinia</i>	Pliny the Elder (23-79 AC)	46. <i>Cornutia</i> Jacques-Philippe Cornut (1606-1651)
13. <i>Valdia</i>	Gonzalo Fernández de Oviedo y Valdés (1478-1557)	47. <i>Ian-Raiia</i> John Ray (1627-1705)
14. <i>Ruellia</i>	Jean du Ruel (1474-1537)	48. <i>Serjania</i> Philippe Sergeant (n.d.)
15. <i>Brunfelsia</i>	Otto Brunfels (1488-1534)	49. <i>Pereskia</i> Nicolas-Claude Fabri de Peiresc (1580-1637)
16. <i>Cordia</i>	Valerius Cordus (1515-1544)	50. <i>Bocconia</i> Paolo Boccone (1633-1704)
17. <i>Tragia</i>	Hieronymus Bock, aka Tragus (1498-1554)	51. <i>Morisona</i> Robert Morison (1620-1683)
18. <i>Fuchsia</i>	Leonhart Fuchs (1501-1566)	52. <i>Suriana</i> Joseph-Donat Surian (d.1691)
19. <i>Rondeletia</i>	Guillaume Rondelet (1507-1566)	53. <i>Renalmia</i> Paul Reneaulme (1560-1624)
20. <i>Turnera</i>	William Turner (d.1568)	54. <i>Zanonia</i> Giacomo Zanoni (1615-1682)
21. <i>Matthiola</i>	Pier Andrea Mattioli (1501-1577)	55. <i>Magnolia</i> Pierre Magnol (1638-1715)
22. <i>Marantia</i>	Bartolomeu Maranta (1500-1574)	56. <i>Breynea</i> Jacob Breyne (1637-1697)
23. <i>Lonicera</i>	Adam Lonicer (1528-1586)	57. <i>Triumfetta</i> Giovann Battista Trionfetti (1656-1708)
24. <i>Dalechampia</i>	Jacques Dalechamps (1513-1588)	58. <i>Mentzelia</i> Christian Mentzel (1622-1701)
25. <i>Tabernaemontana</i>	Jacobus Theodorus, aka Tabernaemontanus (1525-1590)	59. <i>Muntingia</i> Abraham Munting (1583-1658)
26. <i>Cameraria</i>	Joachim Camerarius the Younger (1534-1598)	60. <i>Oldenlandia</i> Henrik Bernard Oldenland (ca.1633-ca.1697)
27. <i>Rauwolfia</i>	Leonhard Rauwolf (1535-1596)	61. <i>Cupania</i> Francesco Cupani (1657-1710)
28. <i>Bellonia</i>	Pierre Belon (1517-1564)	62. <i>Vanrheedia</i> Hendrik van Rheede (1636-1691)
29. <i>Dodonaea</i>	Rembert Dodoens (1517-1585)	63. <i>Malpighia</i> Marcello Malpighi (1628-1694)
30. <i>Clusia</i>	Charles de l'Écluse, aka Carolus Clusius (1526-1609)	64. <i>Bromelia</i> Olof Bromelius (1639-1705)
31. <i>Lobelia</i>	Matthias de l'Obel, aka Lobelius (1538-1616)	65. <i>Plukenetia</i> Leonard Plukenet (1641-1706)
32. <i>Penaea</i>	Pierre Pena (n.d.)	66. <i>Rivinia</i> Augustus Quirinus Rivinus (1652-1723)
33. <i>Bauhinia</i>	Johann (1541-1613) and Gaspard Bauhin (1560-1624)	67. <i>Commelina</i> Jan Commelin (1629-1692)
34. <i>Parkinsonia</i>	John Parkinson (1567-1650)	68. <i>Sloanea</i> Hans Sloane (1660-1753)
		69. <i>Petiveria</i> James Petiver (ca.1665-1718)

Among the *botanophili* that Plumier acknowledged, there were at least three patrons of natural history. One was quite an obvious choice: the *Guidonia* aimed at immortalizing Guy-Crescent Fagon, the all-powerful king's "first physician" and superintendent of the Jardin du roi from 1699 to 1718. The other, however, was less plain, for it acknowledged the late Gaston, duc d'Orléans, uncle of Louis XIV, passionate collector, and munificent patron of the first half of the seventeenth century. Plumier, who obviously never met the duke, nevertheless praised his sponsorship of natural knowledge: in this, Gaston was certainly a noted figure, since he was the promoter of the botanic gardens in Blois (once directed by the English naturalist Robert Morison) and of the sumptuous collection of paintings of plants and animals initiated by Nicolas Robert (later to be known as the *velins du Roi*). The choice may seem risky, though: after all, Gaston's uncertain loyalties during the Fronde earned him an exile for life to his Blois domains by Mazarin. Interestingly, however, the name by which Plumier honored Gaston was not his own, but that of his dynasty: he baptized that genus as *Borbonia*.¹³⁰ The move was smart. Back in 1693, the friar attempted to dedicate his *Description des plantes de l'Amérique* to Louis XIV, just as Tournefort would do in his 1694 *Éléments de botanique*. He even wrote the dedication to the monarch, never to see the light of day: it was assuredly not accepted. But by consecrating the *Borbonia* to the late duke, Plumier was glorifying the king tangentially: for, as he learned, he was not sufficiently well placed to do it directly, nor could he extol the Sun King among artisans and savants.

Indeed, most of Plumier's dedications of botanical genera were not to patrons and political figures, but to *botanici*, botanists from Plumier's past and present, or simply learned men who, through history, had something significant to say about plants. There were eminences from antiquity, like Hippocrates, Theophrastus, Dioscorides, and Pliny the Elder; from the Renaissance, like Francisco Hernández, Oviedo, Clusius, Fuchs, Mattioli, and Rondelet; from the seventeenth century, like the Bauhin brothers (Gaspard and Johann), Piso, Marcgraf, Peiresc, and Morison; and from Plumier's own time, like

¹³⁰ Plumier's biographical note on the Duc d'Orléans runs as follows: "Serenissimus Princeps Gasto Borbonicus, Regius sanguis, Magnorumque Regum genus, Henrici Magni filius, Magnique Ludovici patruus, inter caeteras virtutes Regias tanto Botanicis delectabatur amore, ut apud Blesas & Parisios, Hesperideos hortos, plantas scilicet totius Orbis rariores immensis sumptibus transtulisset, quasve ne hyeme absentes sibi abessent, peritissimi Pictoris, Nicolai Roberti Blesensis manu in membranas transferri, nativis nempe coloribus ad vivum depingi amplis etiam sumptibus curabat. Miraris in tanto Principe tantum erga Botanicem amore? Mirare tot Principum, totque Magnatum tam raros apparere nantes in tam vasto innocentium deliciarum gurgite, non animos obruente, sed oblectante. Quid etenim plantas intueri delectabilis & innocentius? Quid tandem plantis utilius? Plantae nos nutriunt, plantae nos sanant, plantae nos tuentur; Achemenio costo, Mygdoniis opibus, Phyrigio lapide, purpurarum sidere clariores: earum usus nos deliniunt dolentes." Plumier, *Nova genera*, 4.



Fig. 4.16. Plate of the *Begonia* in Tournefort's *Institutiones*. Although the genus' name was a dedication by Plumier to Bégon, it did not appear in the *Nova genera* but in Tournefort's book. (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.)

Surian, Ray, Magnol, Plukenet, Rivinus, Sloane, and even Petiver. This was the friar's original plan, as he expressed in a letter to Bégon soon before the publication of the *Nova genera*: “I have a hundred and two genera and, because I do not have the name of most of them, I will give them the names of some famous Botanists[:] *Baubina*, *Caesalpina*, *Pittonia*, *Columnnea*, &c. It will have thirty-eight copperplates. . . . After the Genus and all the Species I could find of it, I add a small accolade of the person after whom I name it.”¹³¹

Plumier was not alone in offering botanical nomenclature to colleagues and patrons. Three years earlier, Tournefort took advantage of the appendix he added to his *Institutiones* at the last moment to name several genera after some contemporary personalities: *Poinciana* after Philippe de Longvilliers de Poncy (1584-1660), governor of the American isles; *Garidelia* after Pierre-Joseph Garidel, his fellow Aixois botanist; *Hermania* after Paul Hermann, his student in the late 1680s at the Jardin du roi—and *Plumeria*, after “the Illustrious Plumerius, Royal Botanist, who enriched Botany by so many and such great plants.”¹³² Anecdotally, it was in Tournefort's *Institutiones* (and not in

¹³¹ Plumier to Michel Bégon, Paris, March 6, 1703, in MMC MS 867 “Recueil de pièces,” fol. 147r: “J’auray cent et deux genres et parce que je n’ay pas le nom de la plus grande partie, je les nommeray du nom de quelque célèbre Botaniste *Baubina*, *Caesalpina*, *Pittonia*, *Columnnea*, &c. J’auray trente et huit Plantes [sic: Planches], je vous envoie par avance l’épreuve de deux. Après avoir mis le Genre et toutes les Espèces que je puis avoir de ce genre, je fais un petitéloge de Celui dont je mes le nom.”

¹³² Tournefort, *Institutiones rei herbariae* (Paris: Ex Typographia Regia, 1700), vol. 1, 659: “*Plumeria*, ab inventore Clariss. Plumerio, Botanico Regio, qui tot tantisque plantis Botanicem locupletavit.”

the *Nova genera*) that Plumier's most famous botanical dedication was made public: the *Begonia*, a genus of subtropical plants with delicate, colorful flowers discovered by the friar in the West Indies, immortalized the name of his life-long patron and protector, Michel Bégon (fig. 4.16).¹³³

By the turn of the century, botanical dedications had become a standard practice, albeit a highly disputed one. When the English James Petiver named some plants after several of his providers, gentlemanly naturalists responded with outrage: for Linnaeus, the way in which a simple apothecary liberally offered the “highest honor that mortal man can desire” not to gentlemen, but to “the uneducated”—“florists, monks, relations, friends, and the like”—was “a derision and scandal.”¹³⁴ In Linnaeus hand's, however, the use of affixing proper names to genera and plants as an instrument of credit reached its fullest: with cheeky aplomb, Linnaeus modified slightly a good many of Plumier's genera names (e.g., he turned Plumier's *Pittonia* into *Tournefortia*) and thus appropriated them.

Unlike Tournefort's handful of dedicatory names hastily inserted in the appendix to his *Institutiones*, Plumier's botanical dedications in the *Nova genera* worked as a whole, and displayed several original features. First, a good deal of the book's originality came from having two thirds of the hundred-odd new genera named after botanists: by mapping the principal past and present authors on whose shoulders the study of plants had stood by 1700, Plumier was drawing the contours of a disciple yet to be and, by the same token, attempted to place himself within it. As James Delbourgo has recently reminded us, “listing people,” especially when this was publicly advertised through print, “was an art of self-construction through collective association: the production of a self defined by a collectivity.”¹³⁵ The move echoed those of scholars like Erasmus: the 1520 Basel edition of his *Adagia* (*Proverbiorum chiliades*) bore a title page portraying not the author himself, but a series of twenty-one ancient Greek and Roman celebrities, from Herodotus and Solomon to Pliny and Livy; those the humanist aspired “to be remembered for interacting with” (fig. 4.17).¹³⁶

¹³³ Tournefort, *Institutiones*, vol. 1, 660: “*Begonia* est plantae genus, autore Clariss. Plumerio. . . . *Begoniam* appellavit Clariss. Plumerius tanquam perenne observantiae suae monumentum erga Illustriss. virum D D. *Bégon*, Regi ab intimis consiliis & Rei nauticae Praefectum in orâ Santonum.”

¹³⁴ Carl Linnaeus, *The “Critica Botanica” of Linnaeus*, trans. Arthur Hort (London: Ray Society, 1938), 54, quoted in Delbourgo, “Listing People,” 741.

¹³⁵ Delbourgo, “Listing People,” 735-42. Delbourgo's object of inquiry is another published list of proper names: James Petiver's list of suppliers printed in his *Musei Petiveriani* (1695-1703).

¹³⁶ I am drawing this example and the quotation from Ann Blair, “Hidden Hands: Amanuenses and Authorship in Early Modern Europe,” A.S.W. Rosenbach Lectures in Bibliography, University of



Fig. 4.17. Title page of Erasmus’s *Adagia* (*Proverbiorum chiliades*) in the 1520 Basel edition. Erasmus portrayed on the title page the scholars with whom he aspired to be associated with. (Rotterdam Public Library.)

Second, by presenting his invention of these names as a necessity—“because I do not have the name of most of them”—and extoling a rather undisputed body of authorities, including a good number of living contemporaries, Plumier not only stressed (once again) his almost unequalled access to the flora of the French West Indies, but also advanced the novelty of his botanical findings and attempted to present himself as a discoverer in front of the international intellectual community. The botanical dedications in the *Nova genera* were a scientific commemoration not only of those he honored by naming genera after them, but also of his own activity as an explorer, naturalist, and draftsman.¹³⁷ As Mario Biagioli emphasized apropos of the Medicean Stars, discovery and invention are tightly bound.¹³⁸ Third, by including engraved images (even if not of the plants in their entirety, but—in line with Tournefort’s prescriptions—of the definitional “characters” allowing for the identification of broader genera within the infinity of species), the *Nova genera* materialized these dedications into something more substantial

Pennsylvania Libraries, Philadelphia, PA, March 17, 18, 20, 2014, podcasts on <http://repository.upenn.edu/rosenbach/8/>.

¹³⁷ I use the notion of scientific commemoration found in Neil Safier, *Measuring the New World: Enlightenment Science and South America* (Chicago: The University of Chicago Press, 2008), 12.

¹³⁸ See Mario Biagioli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: The University of Chicago Press, 1993), esp. chap. 2.

than mere words: images stood here for factual gifts—many of them to individuals whose dead hands would not have allowed them to accept them otherwise—and made the offering public by means of print.

That the politics of scientific naming was tightly bound up with the production and circulation of imagery has been clear to scholars for several decades, especially to historians of astronomy and cartography. Galileo's dedication of the satellites of Jupiter to the Medici is perhaps the best-known example.¹³⁹ More enlightening for our case is probably the story of the mapping and naming of the moon during the first half of the seventeenth century. Consider the famous map by Michael Florent van Langren, or Langrenus (1612-1675), printed in 1645 as *Plenilunii Lumina Austriaca Philippica*. As the title alone suggests, van Langren's map was unabashedly political: the lunar features were carved (and thus baptized) not only with the names of contemporary celebrities like Rubens and Galileo, but primarily also with those of the principal European political figures—thus reflecting both the geopolitics of the time and van Langren's own patronage networks within them.¹⁴⁰ Soon after van Langren's *Plenilunii* appeared, a controversy over the mapping and naming of the moon's cartography opposed Johannes Hevelius and the Jesuit Giambattista Riccioli. Hevelius mirrored the terrestrial geographic nomenclature onto the lunar surface—a deceptively neutral move that actually sought to foster the still controversial Copernican views. The latter, Riccioli, named a good number of lunar features after astronomers and philosophers who had dealt with the topic, partly as a way to highlight the worldly nature of selenographic knowledge—and, therefore, to undermine those same Copernican views.¹⁴¹

Whether lunar craters or American plants, naming was a means for pursuing novelty, stabilizing it as discovery, and—ironically enough—affixing one's own name and views onto it.

¹³⁹ And probably the best-known account of this is Biagioli's sophisticated account in his *Galileo, Courtier*. See also his *Galileo's Instruments of Credit: Telescopes, Images, Secrecy* (Chicago: The University of Chicago Press, 2006).

¹⁴⁰ For instance, his patron Manuel de Moura, a Portuguese agent of the Spanish king, found a prominent place in the picture; in contrast, John IV of Portugal, a rebel and usurper in the eyes of Spain, was not even mentioned. On this, see Fernando Bouza, "Realeza, aristocracia y mecenazgo (del ejercicio del poder *modo calamo*)," in *Mecenazgo y Humanidades en tiempos de Lastanosa: Homenaje a Domingo Ynduráin*, ed. Aurora Egido, José Enrique Laplana Gil (Huesca: Instituto de Estudios Altoaragoneses-Institución Fernando el Católico, 2008), 79-80. I thank Fernando Bouza for calling my attention to Van Lagren's map.

¹⁴¹ On this, see Ewen A. Whitaker, *Mapping and Naming the Moon: A History of Lunar Cartography and Nomenclature* (Cambridge: Cambridge University Press, 2003), esp. 45-6, and Bouza, "Realeza, aristocracia y mecenazgo," 79-80. On the controversy between Hevelius and Riccioli, see Janet Vertesi, "Sicily or the Sea of Tranquility? Mapping and Naming the Moon," *Endeavour* 28, no. 2 (2004), 64-8.

Authorship and authority in a visual archive of nature

Whether it can be explained in relation to a Baconian program of knowledge or not, the collection of such a vast quantity of “(drawn) facts” by Plumier stems from the enduring cultural practice of collecting. From the Renaissance onwards, cabinets of exotica shaped not only the descriptive study of nature, but also natural knowledge as such. First, collections of curiosities spurred the emergence in natural philosophy of what Lorraine Daston called “the ideal of factuality,” or an empirical and “factual sensibility”—in other words, the value of “facts,” in their individuality and variety, as valid objects for building up a solid knowledge of the natural world and, therefore, of careful and minute “inspection of Particulars” as the desired moral economy of the students of nature.¹⁴² Second, cabinets brought together *artificialia* and *naturalia*, objects of art and objects of nature, and helped blur the boundaries (if any by then) between the two of them and understand both the creations of man and those of nature as belonging to one and a single realm.

The collection of drawings by Plumier stood at the crossroad of the natural—which it represented—and the artificial—which it was. The piles of drawings heaped in his cell in the convent at Place Royale were a specific sort of collection, one that served the purposes of stockpiling observational information on far-flung animals and plants. The constitution by a scholar of a visual archive of images, texts or objects on which (natural) historical writing could be based was not limited to the study of nature, and antiquarian studies have offered an enlightening comparison: lists, dictionaries of name correspondences, and series of drawings served, there too, the purpose of inventory and identification, partly to discard errors transmitted by authors from observable realities. Accumulating, whether series of drawings or items in a list, allowed a “cautious empiricism and [the] avoidance of futile (because insoluble) controversies.”¹⁴³

The comparison of archives such as Plumier’s with antiquarianism also highlights the social aspect of this sort of collection, which came to be a source of intellectual authority for scholars. The hundreds of drawings and other sorts of manuscripts kept by Plumier in his cell at the convent of the Minims might well not have enjoyed the same

¹⁴² Lorraine Daston, “The Factual Sensibility,” *Isis* 79, no. 3 (1988), 452-67. On the important notion of “moral economy” in the sciences, see her “The Moral Economy of Science,” *Osiris* 10 (1995), 2-24, as well as the two enlightening commentaries by Stéphane Van Damme in the French translation: “Lorraine Daston et la nouvelle histoire intellectuelle des sciences” and “Nous n’avons jamais été désintéressés: les sciences entre moralisation, éthique et affects,” in *L’économie morale des sciences modernes* (Paris: La Découverte, 2014), 7-18 and 65-108.

¹⁴³ Francis Haskell, *History and Its Images* (New Haven, CT: Yale University Press, 1993), 132.

sort of circulation as his printed books, but they certainly had a traceable social life, however limited this might have been. Part of this becomes more obvious when one recalls Lister's visit to the friar in 1698: "I was not better pleased with any Visit I made," the Englishman wrote, "than with that of F. Plumier, whom I found in his Cell in the Convent of the *Minimes*." Plumier showed Lister his "several *Books in Folio*, of Designs and Paintings of *Plants, Birds, Fishes, and Insects* of the *West-Indies*," and the Englishman described them with certain detail: "he had designed and Dissected a Crocodile; one of the Sea Tortoises; a Viper, and well described the Dissections"; "his birds also were well understood, and very well painted in their proper colors"; "among the Insects there was a *Scolopendra* of a foot and an half long, and proportionably long . . . also the *Julus* very elegantly painted, which I had seen before in Dr. *Turnefort's* Collection."¹⁴⁴

Lister was not the only scholarly tourist who frequented the Parisian private collections of natural wonders: David Krieg (ca. 1669-1710), a German physician settled in Riga and well connected to the English botanical circles, took advantage of his time in Paris to pay a visit to the Minim and his paper collection of American curiosities. A well-traveled naturalist of his own—he had been herborizing in Maryland some years earlier—Krieg encountered the friar in 1702, in one of the meetings that Parisian naturalists frequently held at the Bibliothèque du roi in rue Vivienne, along with the botanist Sébastien Vaillant and the apothecary Étienne-François Geoffroy, both professors at the Jardin du roi. Krieg reported to Petiver on his meeting with the friar: "Pere Plumier is [the] most friendly & sincere man I met with in this country. He shew'd me . . . a great quantity of his designs of plants, fowls, lizards, snails etc." Four months later, Krieg visited the friar in his cell, where the entire collection was stored, he wrote: "Yesterday I was at the convent des Minimes & spoacke with pater Plumier. He is a very civil & curious man & designed very well. He sheu'd me a vast quantity of his designing viz plants & animals." Receiving learned guests was one of the few means of diffusion that Plumier's drawings were enjoying at the time, for putting them into print was proving more difficult than expected: "he designs to have them printed in a little some," wrote Krieg; but the printing of the book of ferns had by then been delayed for almost a decade.¹⁴⁵ Yet there was a good deal of scholarly authority to be drawn from the visits of people like Krieg and Lister, as well as from a form of circulation that did not go through

¹⁴⁴ Lister, *Journey to Paris*, 73.

¹⁴⁵ David Krieg to James Petiver, Paris, March 20, 1702 and Paris, July 11, 1701/2, in BL MS Sloane 4063, fol. 139. See also fol. 11, 42, 112, and 147.

print. A good case in point is the “incomparable” Peiresc who, according to Montfaucon, “supplied materials to most of the scholars in Europe.”¹⁴⁶ It is difficult to measure, however, the exact extent of Plumier’s corpus’ manuscript circulation. We know at least that Lister left Paris with a couple of copies from the friar’s drawings in his luggage.¹⁴⁷

The collection of drawings amassed by Plumier in his cell at the convent of Place Royale appealed to a public that was broader than one composed of physicians and shell-lovers. It certainly appeared in several of the printed guides that flourished in Paris during the late seventeenth century to offer amateurs and curious people advice on the most remarkable places to visit in the city, including private collections of natural history and rarities coming from afar. In 1692, the *Livre commode des adresses de Paris* (The Convenient Book of the Addresses of Paris) by Nicolas de Blegny briefly informed of a certain “Tournesol” (i.e. Tournefort) who was “particularly knowledgeable about the culture of medicinal plants,” as was “a Father Minim at Place Royale.”¹⁴⁸ In another guide from 1698, the *Description nouvelle de la ville de Paris* (New Description of the City of Paris), the little-known teacher Germain Brice referred to the friar more at length:

Father Plumier, who lives still, is the first man of the century for Botany. He made very long-distance voyages in different Parts of the world, particularly in America, in order to discover extraordinary plants, of which no one had noticed before him so many different species. He has composed several volumes on this science that show not only his deep knowledge of Botany, but also the fatigues and efforts that he had to suffer in crossing the large Regions, and the deserts even, with the purpose of informing himself of what is exposed in his works.¹⁴⁹

¹⁴⁶ Montfaucon, *Antiquité expliquée et représentée*, vol. 1, viii.

¹⁴⁷ Lister, *Journey to Paris*, 74.

¹⁴⁸ Abraham du Pradel [Nicolas Blegny], *Le livre commode des adresses de Paris pour 1692*, ed. Édouard Fournier, 2 vols. (Paris: Paul Daffis, 1878 [1692]), vol. 2, 280: “M. Tournesol, demonstrateur au Jardin du Roy, entend particulièrement la culture des plantes medicinales. Aussi fait un des Pères Minimes de la Place Royale.”

¹⁴⁹ Germain Brice, *Description nouvelle de la ville de Paris, ou recherche curieuse des choses les plus singulières & les plus remarquables qui se trouvent à présent dans cette grande ville*, 2 vols. (Paris: chez Nicolas Le Gras, Nicolas Le Clerc, Barthelemy Girin, 1698), vol. 1, 337-8: “Le Pere Plumier qui vit encore, est le premier homme du siecle pour la Botanique. Il a fait des voyages d’un tres-long cours, en différentes Parties du monde, particulièrement en Amerique, pour découvrir des plantes extraordinaires, dont personne n’avoit avant lui remarqué plus d’especes différentes. Il a donné quelques volumes sur cette science, qui font voir non seulement son profond sçavoir dans la Botanique, mais encore les fatigues & les peines qu’il a été obligé de supporter pour parcourir les grandes Regions, & les deserts même, afin de s’instruire des choses qu’il expose dans ses ouvrages.” Brice is an obscure figure, “qui fut l’homme d’un seul livre, mais constamment remis sur le métier”: see Sabine Juratic, “Le guide de Paris de Germain Brice,” *Patrimoine* (blog), *Service commun de la documentation. École normale supérieure*, May, 2013, <http://www.bib.ens.fr/mai-2013-Germain-B.675.0.html>.

Plumier's interminable series of drawings and lists of names were nothing new in the late seventeenth century: Rondelet's and Belon's respective books offer a clear example that this was a mode of representation that had been deeply rooted in the visual imagination of European naturalists since at least the Renaissance. Yet this alone cannot account for such an investment of time and effort (let alone the money coming from the king's pockets) in making as comprehensive an archive of drawings on the West Indies' nature as possible. The acute awareness and preoccupation of naturalists about the many mistakes riddling the literature, and the need to establish clear identifications and inventories, play an important role in this story. But they are not alone. From the review of the practices surrounding the corpus as a whole, or of the images as grouped into series, emerges the picture of a fragmented and elusive sort of authorship—or, to put it another way, of Plumier's attempts to shape his authorial identity and intellectual authority by means of his manuscript corpus as much as print. The previous consideration of the botanical dedications in Plumier's *Nova genera* offered a good case in point of the first, and the next chapter will explore more in depth the exchanges and negotiations that underpinned the printing of his images and, more generally, of his books. But what about his manuscript corpus? Did those heaps of papers not play any role in this story? Were they but a failed attempt to go public? Despite Plumier's purported assertion, recorded by Lister, that "these Drawings would make 10 Books, as big as" the *Description des plantes de l'Amérique*, many of the handmade images in the corpus were certainly not destined for the press. Even so, the manuscript medium could serve as much as the printed one for the shaping (successfully or not) of one's authority as a naturalist and scholar. This can be seen in at least two aspects of Plumier's corpus: the choice of some of its objects of study and its construal as a collection.

Let us begin with the first and consider, for instance, the series of animal drawings. Amid the hundreds of manuscript sketches and drawings, we find a crocodile and two turtles, a few insects here and there, and even an elephant—perhaps copied by Plumier from some book, or simply made by another hand and slipped into the friar's collection during its many relocations. Yet most of the series of fauna drawings by the friar are limited to shells, fishes, and birds. These choices were undoubtedly linked to the interests of scholars and curious people at the time, but not only to those: they also aimed for the attention of potential patrons, that is the agents who held in their hands the management of the king's patronage in its many forms—for, after all, they were a main arbiter of scientific utility. Remember the case of the draftsman Philippe de La Hire and the

anatomist Joseph-Guishard Duverney, who journeyed in 1679 and 1680 along the French West coast, particularly Brittany and Normandy, to dissect and draw fishes. Interestingly, they were sent to do so by minister Jean-Baptiste Colbert himself, who personally entrusted them “to seek together as many fishes as they can find in the coasts of Brittany and Normandy, to make their dissection, and to draw them, for I am convinced that this will be a very pleasant and very curious work, and that it will prove useful.”¹⁵⁰ Fish indeed may have seemed less sexy a naturalia to the refined, curious people of Paris than shells, but they were nonetheless the contested objects of another sort of attention at the time. Fish was the vital economic element in the Western coastal regions of France that La Hire and Duverney patiently roamed, pencil and scalpel in hand, on the orders of Colbert. It was precisely on the aegis of that minister that the government took an active interest in regulating and developing an industry that was already amid the most powerful in Europe: “in the mid-seventeenth century,” as James Pritchard put it, “the French fishing fleet comprised over 400 ships and almost 10,000 men”; France was the only European country by that time that had a fishery commissioner. Yet competition was harsh with the Dutch and, particularly, with the bellicose English who slowly but steadily pushed the French out of their traditional fishing areas.¹⁵¹ Furthermore, the star-crossed Nicolas Fouquet and then Colbert sought not only to develop fisheries (for instance, by promoting a colonial fishery in New France), but also attempted to control more tightly an activity as unregulated as reluctant to regulation.¹⁵²

Putting it another way, fish was a matter of political concern for late seventeenth-century politicians like Colbert. This is certainly part of the rationale that motivated the

¹⁵⁰ Jean-Baptiste Colbert to Jean Picard, Fontainebleau, September 21, 1679, in *Lettres, instructions et mémoires de Colbert. Publiés d'après les ordres de l'empereur sur la proposition de son excellence M. Magnét, ministre secrétaire d'État des finances*, ed. Pierre Clément, vol. 5, *Fortifications, sciences, lettres, beaux-arts, bâtiments* (Paris: à l'Imprimerie impériale, 1868), 403-4: “j'ay estimé bien nécessaire pour tous nos ouvrages d'envoyer le sieur Verney vous trouver, mon intention estant que le sieur de La Hire demeure avec luy et qu'ils recherchent ensemble tous les poissons qui se pourront trouver sur la coste de Bretagne et sur celle de Normandie, pour en faire les dissections et les dessiner, estant certain que ce sera un travail fort agréable et fort curieux, et qui apportera mesme de l'utilité.” Some of the drawings are in BCMNHN MS 244 “Dissections de divers poissons faites dans sur les costes de France pendant les années 1679 et 1680.” See also Aline Hamonou and François J. Meunier, “Les dessins ichtyologiques réalisés par J.-G. Duverney et P. de la Hire pendant leur voyage en Basse-Bretagne en 1679-1680,” *Cybius* 34, no. 1 (2010), 19-27, and Guerrini, *Courtiers' Anatomists*, 201-2.

¹⁵¹ A. R. Michell, “The European Fisheries in Early Modern History,” in *The Cambridge Economic History of Europe*, vol. 5, *The Economic Organization of Early Modern Europe*, ed. E. E. Rich and C. H. Wilson (Cambridge: Cambridge University Press, 1977), 133-84; James Pritchard, *In Search of Empire: The French in the Americas* (Cambridge: Cambridge University Press, 2004), 139-50.

¹⁵² Pritchard, *Search of Empire*, 145.

minister to personally encourage La Hire's and Duverney's intellectual undertaking on France's western coast. It was also perhaps one of the reasons for Plumier to invest particular effort in producing such an encyclopedic visual archive of the fishes of the West Indies—the friar held, after all, a prominent role in the communication between the colonial and metropolitan authorities as a promoter, on behalf of the former, of the islands' natural resources.¹⁵³ As it is shown in chapters 1 and 5, Plumier moved astutely enough in the world of patronage: he might have considered fishes as a topic worth the interest of some patrons in the government. It had not been a long time, after all, since an important book on fishes, Francis Willughby's *De historia piscium* (1686), had been printed posthumously on the other side of the Channel “at the order and expenses of the Royal Society” (*Jussu & Sumptibus Societatis Regiae Londinenses*). Including nearly 190 full-page engravings, this magnificent folio volume almost financially ruined the Society when it proved unsellable—its calamitous failure eventually became notorious because it partly provoked the Fellows' retraction from their initial engagement to fund Newton's *Principia*.¹⁵⁴

Before the world knew about the consequence of Newton's book, a book on fishes might have seemed like a pretty good idea to both the Royal Society in London and a French naturalist seeking patronage and recognition through his drawings—one, at least, aware of Colbert's commission to members of the Paris Academy of Sciences only a decade beforehand. Yet both flopped: the printing history of Willughby's book became infamous, and Plumier's numerous and carefully crafted drawings of fishes never made their way out of his cell in the convent of Minims, let alone into print, and did not attract the interest of a state besieged by debt and deficit—not, at least, during the friar's lifetime.¹⁵⁵

A second group can be identified as a potential target of Plumier's attempts to build up his scholarly authority (or, at the very least, to shape the presentation of his self as a naturalist) by means of the manuscript: the learned community of students and lovers of nature. Numerous were the sorts of genres that enjoyed a wide circulation in the

¹⁵³ As shown, for instance, in his reports to Pontchartrain on the “estat present de l'isle de St Domingue,” AAE Mémoires et documents, 5 (1690). See Philippe Hrodej, “Saint-Domingue en 1690. Les observations du père Plumier, botaniste provençal,” *Revue française d'histoire d'outre-mer* 84 (1997), 93-117.

¹⁵⁴ Francis Willughby, *De Historia Piscium Libri Quatuor*, ed. John Ray (Oxford: e Theatro Sheldoniano, 1686).

¹⁵⁵ But they will after the 1760s: see chap. 6.

manuscript format, from lyric poetry to transgressive texts.¹⁵⁶ Natural historical knowledge, and scholarly texts more generally, also were transmitted by non-printed means.¹⁵⁷ The collection of Plumier’s papers, however, did not circulate so widely after all, not even in manuscript form. In contrast, Montfaucon’s *recueils*, so painstakingly collected by the monk on his journey through Italy and France, saw the glorious light of print in no fewer than fifteen volumes, and Peiresc “supplied materials to most of the scholars in Europe” from the drawings or actual objects that he had gathered. But think about a collection that was not made of words and lines such as the herbarium, defined as a “a pile (*amas*) of dried plants that we conserve in boxes or books, so that we can examine them in detail during all the seasons of the year.” Perhaps Plumier’s drawings, just like Tournefort’s four closets of “dried plants . . . on gray paper,” were collected not only or primarily to be the object of as large a diffusion as possible, but to be “conserved” and “examined” as a factual collection would be, one in which beauty, exoticism, and botanical information were intertwined.

Regardless of the actual (if any) transmission of his manuscript drawings, lists, and descriptions, questions of authority and authorial identity were not absent from the heaps of papers stockpiled by the friar in his cell. The accounts of the corpus given by learned authors like Lister or Kriegg, as well as in guides addressed to broad audiences of curious people such as Blegny’s and Brice’s, can be seen as a form of circulation in itself: one attempting to establish a firm bond between a work (a visual history of the flora and fauna of the West Indies), a physical object (some heaps of papers with “Designs and Paintings . . . all done by him very accurately”), and a name (Charles Plumier, naturalist,

¹⁵⁶ The (rather reduced) list of classics includes Harold Love, *The Culture and Commerce of Texts: Scribal Publication in Seventeenth-Century England* (Amherst: University of Massachusetts Press, 1998 [1993]); François Moureau, ed., *De bonne main. La communication manuscrite au XVIII^e siècle* (Paris/Oxford: Universitas/Voltaire Foundation, 1993); Arthur F. Marotti, *Manuscript, Print, and the English Renaissance Lyric* (Ithaca: Cornell University Press, 1995); Miguel Benítez, *La face cachée des Lumières. Recherches sur les manuscrits philosophiques clandestins de l’âge classique* (Paris/Oxford: Universitas/Voltaire Foundation, 1996), and *Le Foyer clandestin des Lumières. Nouvelles recherches sur les manuscrits clandestins* (Paris: Honoré Champion, 2013); H. R. Woudhuysen, *Sir Philip Sidney and the Circulation of Manuscripts, 1558-1640* (Oxford: Oxford University Press, 1996); Peter Beal, *In Praise of Scribes: Manuscripts and their Makers in Seventeenth-Century England* (Oxford: Oxford University Press, 1998); Fernando Bouza, *Corre manuscrito. Una historia cultural del Siglo de Oro* (Madrid: Marcial Pons, 2002). New studies have also appeared more recently: two brilliant English works published in the last years are Daniel Starza Smith, *John Donne and the Conway Papers: Patronage and Manuscript Circulation in the Early Seventeenth Century* (Oxford: Oxford University Press, 2014) and Noah Millstone, *Manuscript Circulation and the Invention of Politics in Early Stuart England* (Cambridge: Cambridge University Press, 2016).

¹⁵⁷ See the work of Elizabeth Yale, and in particular her *Sociable Knowledge: Natural History and the Nation in Early Modern Britain* (Philadelphia, PA: University of Pennsylvania Press, 2016).

traveler in the French Caribbean islands, and image-maker).¹⁵⁸ The authorial identity, or the naturalist's self, was here constructed via a form of circulation that did not necessarily entail the actual transmission of the corpus (by means, say, of copy), but through the promotion of its sole existence.¹⁵⁹

Conclusion

This chapter sought to address Plumier's corpus as a whole and, in doing so, it revealed that lists (in written form, graphic series, or herbaria) stood as central elements in the world and work of the naturalist at the turn of the eighteenth century. The "order of nature" was, at Plumier's time, the order of images and of material records by and large. Graphic, textual, and factual seriality was a way for practitioners to grapple with the still growing number of vegetable and animal species. This expository mode allowed them to tackle the central problems of a description-oriented field, namely identification and inventory—rather than classification. Moreover, in the case of Plumier in particular, seriality allows us to understand the geographically delimited practice of natural history, as well as to grasp the importance of a deceptively superficial element in the friar's drawings: the names of plants written, or carved, onto the images. The names of plants, as we have seen, became in the hands of some scholars an instrument of authority, one with which Plumier tried to assert his place in the field. Finally, the analysis of this corpus as a single object of inquiry revealed that a manuscript archive—even one that did not circulate widely or at all—could become a means for defining and fostering the naturalist's intellectual authority.

¹⁵⁸ Roger Chartier, "Foucault's Chiasmus: Authorship between Science and Literature in the Seventeenth and Eighteenth Centuries," in *Scientific Authorship: Credit and Intellectual Property in Science*, ed. Mario Biagioli and Peter Galison (New York: Routledge, 2003), 28 and "The Order of Books Revisited," *Modern Intellectual History* 4, no. 3 (2007), 513-4.

¹⁵⁹ This form of construction of the "scholarly self" is better seen in the case of collections than in that of print. For a comparative case on Aldrovandi's construction of his identity as naturalist through his collection, see for instance Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press), 291-392.

5. Tinkering with Ferns

Printmaking and Natural History Books in Paris around 1700

In a letter dated 1701, Intendant Michel Bégon reported to a friend on that certainly active Father Plumier: the friar had been translating into Latin Charles Perrault's *Éloges*, a command by Bégon that never came to fruition; his book on turnery had just been printed, and two other publication projects occupied him now: one on usual plants, or simples, and a collection of plates on "extraordinary fishes, insects, and shells that he has seen on his voyages." In actual fact, Bégon wrote, the friar was by then "very solicited to go to Guinea on one of the ships of the *assiente*," the slave triangular trade connecting Europe, West Africa, and the Spanish Americas. The intendant, however, had doubts about the botanist accepting the assignment, since it was "much more convenient for him to have his works printed, which are ready, than leaving this care to other people who would not achieve the publication like him."¹

Bégon's assertion poses the question of the involvement of a scholarly author in the printing of his books, a problem all the more complicated when illustrated publications on far-flung natural phenomena were concerned. It points at the tension in which traveling naturalists (especially those, like Plumier, concerned with the making of images) might have been caught at the time, between fieldwork and the convoluted world of print. But no matter how implicated Plumier might have been in their printing, he would not see his books easily through the press. Take Lister's account of his visit to the friar in the Parisian convent of Minims in 1698:

He told me these Drawings would make 10 Books, as big as that he had publisht [the *Description des plantes de l'Amérique*]; and Two Books of Animals: He had been often at

¹ Michel Bégon to Esprit Cabart de Villermont, Rochefort, December 27, 1701, in "Lettres de Michel Bégon," ed. Louis Delavaud and Charles Dangibeaud, vol. 2, *Archives historiques de la Saintonge et de l'Aunis* 48 (1930), 101: "Le P. Plumier m'a envoyé la traduction qu'il a comencé de faire en latin des *Eloges* de Mr Perrault, je ne sçais s'il prendra la résolution d'aller jusqu'au bout. . . . Je suis persuadé [*desiré*] le livre du tour que ce Père vient de donner au public, il travaille aux plantes usuelles dont il m'a envoyé une feuille. Cet ouvrage est fort avancé, il en commence un autre dans lequel il y aura une infinie de planches sur les poissons extraordinaires, les insectes et les coquilles, qu'il a vû dans ses voyages, on le sollicite fort d'aller en Guinée sur l'un des vaisseaux de l'*assiente*, mais je ne crois pas qu'il accepte ce party, luy convenant beaucoup mieux de faire imprimer les ouvrages qu'il a prests que de laisser ce soin à d'autres qui ne s'en acquiteroient pas si bien que luy."

Versailles to get them in the Kings *Imprimerie*; but as yet unsuccessfully; but hoped e're long to begin the Printing of them. Note that the Booksellers at *Paris* are very unwilling, or not able to Print Natural History; but all is done at the Kings Charge, and in his Presses.²

Lister's reference to the reluctance of Parisian printers to publish books on natural history is not to be taken lightly, especially in the case of works as lavishly illustrated as those by Plumier. Intaglio images entailed a great expense in the printing of books, which further added to the difficulties of having works on natural history published, for accounts on flora and fauna were held to be a predominantly visual sort of publication. A tension thus existed between such a seemingly pervasive reliance of natural history on images, on the one hand, and the constraints of the book market, on the other. Around a decade after Plumier's death, another well-traveled Minim scholar born in Marseille, Louis Feuillée, a so-called disciple of Plumier, expressed similar troubles regarding the publication of accounts on natural history. Feuillée had explored South America and the Caribbean basin extensively, also "on the orders of the King," and came to exhibit, too, the title of *Botaniste du roi* in some of his printed works. He became mainly known among European scholars because of his astronomical observations and physical measurements, some of which earned Newton's objections for being seemingly faulty.³ Feuillée published an account of his journeys in two volumes, the *Journal des observations physiques, mathématiques et botaniques* (Paris, 1714-25). It opened with a declaration of intent concerning the four fields with which the author was concerned during his American journeys: astronomy, physics, natural history, and instruments. Regarding natural history, Feuillée listed four aims of his research concerning the natural world: first, to draw plants, to describe their history, and to discover their usages among the Indians; second, to draw animals and to represent them in their "natural colors" (*dans leurs couleurs naturelles*); third, to draw maps of ports and landscapes of the main cities and the lesser-known coasts; and fourth, to get informed about the more common illnesses among the Indians, their symptoms, and remedies. This ambitious research program notwithstanding, the friar ended up acknowledging that, as a matter of fact, there was but a small part devoted to natural history in his book, "because of the funds that would be

² Martin Lister, *A Journey to Paris in the Year 1698* (London: printed for Jacob Tonson, 1699), 74-5.

³ Simon Schaffer, "Newton on the Beach: The Information Order of the *Principia mathematica*," *History of Science* 47, no. 3 (2009), 264.

necessary for the engraving of the plates, which are numerous: this will more likely be executed in easier times, & after peace is happily brought back to Europe.”⁴

Feuillée’s explanation for the small place that natural history played in his book manifests the tension between the internal dynamics of a recomposing field of knowledge on the one hand, and the unsteady conditions of possibility for it to take a printed form, on the other. Feuillée was seemingly assuming that making the history of overseas flora and fauna rested to a large extent on a visual language—to draw plants, to draw animals, to draw maps. At the same time, however, the French book market at the turn of the eighteenth century was in a difficult situation. The scene was particularly arid regarding large formats and illustrated editions. Historians like Henri-Jean Martin have already pointed out the stagnation of the book trade in France during the last third of the seventeenth century, in part because of a generalized economic recession of the period further aggravated by Louis XIV’s endless war adventures.⁵ The book production in Paris entered a slow decline interspersed by punctual crisis after some brilliant years around the end of the 1660s—the peak of the seventeenth century was in 1671.

The printing crisis particularly affected large formats: Martin’s statistics for the period show that less than 10 percent of the volumes printed during the 1680s were folio format or larger, whereas around 80 percent were octavo or smaller.⁶ Furthermore, the years 1690 to 1710 have also been identified as a time of crisis in the French production of books, including woodcut or intaglio images.⁷ In other words, Martin concludes, large formats and illustrated editions were for several decades largely banned from the shelves of private booksellers and limited to prestige editions and official commands. Feuillée was precisely pointing to this same fact: the kind of books that natural history required—large, richly illustrated formats—was mainly limited to editions under the auspices of the

⁴ Louis Feuillée, *Journal des observations physiques, mathématiques et botaniques, faites par l'ordre du Roy sur les Côtes Orientales de l'Amérique Meridionale, & dans les Indes Occidentales, depuis l'année 1707 jusques en 1712*, vol. 1 (Paris: chez Pierre Giffart, 1714), 7: “1. De dessiner les Plantes le plus curieuses . . . d'en décrire l'histoire, & de tâcher par le moyen des Indiens d'en découvrir l'usage & les proprietez. / 2. De dessiner aussi tous les animaux que je trouverois, & de les représenter dans les couleurs naturelles. / 3. De lever le Plan des ports, dessiner les veües des villes principales & des côtes les moins connus, pour avoir par leur representation quelque connoissance des terres tout-à-fait utiles aux Pilotes, & à ceux qui voyagent sur mer. / 4. De tâcher de m'informer exactement des maladies ordinaires. . . . l'Histoire naturelle n'y aura que peu de part, à cause des fonds qu'il faudroit pour la graveure des planches qui sont en grand nombre: ce qu'on pourra executer dans des temps plus faciles, & au retour d'une heureuse paix dans toute l'Europe.”

⁵ Henri-Jean Martin, *Livre, pouvoir et société au XVII^e siècle*, vol. 2 (Geneva: Droz, 1999), and “Une croissance séculaire,” in *Histoire de l'édition française*, ed. Henri-Jean Martin and Roger Chartier, vol. 2 ([Paris]: Promodis, 1984), 95-103.

⁶ Martin, *Livre, pouvoir et société*, vol. 2, 1064.

⁷ Alain-Marie Bassy, “Le texte et l'image,” in Martin and Chartier, *Histoire de l'édition française*, vol. 2, 140-61.

crown, more often than not conflated with political projects aiming at the glorification of the king through the sponsorship of scientific enterprises and publications. In the first decades of the eighteenth century, when Feuillée was writing, the depletion of the state funds due to internal financial and economic crisis and external war exhaustion hindered the monarchy's support for the printing of illustrated natural history books that had been at its zenith in the last third of the previous century.

The printing of Plumier's books needs to be understood within this context. His beginnings as a published author may be interpreted in terms of an attempt to overcome the difficulties of the market by means of remaining outside the commercial sphere and integrating, instead, that of political propaganda of Louis XIV's monarchy. This is the case with two of his books, the *Description des plantes de l'Amérique* (Description of American Plants) and the *Traité des fougères* (Treatise on Ferns), both published by the Imprimerie royale in 1693 and 1705 respectively. In this chapter, my aim is to scrutinize the way in which Plumier, like other naturalists and scholars of his time, took part in the "whole system of communication," as Peter Burke put it, which the Sun King's government attempted to implement as a means of reinforcing a symbolic projection: lavishly illustrated accounts of overseas flora and fauna, like those authored by Plumier, saw the light of day under the auspices of the state because, for a certain time, they functioned as one more of its symbolic tools.⁸ Some points need to be made in this respect. First, the cultural and scientific sphere of this regime of political propaganda was far from coherent and straightforward, especially regarding illustrated accounts of overseas natures. In a period of increasing economic recession, the interest of the government in works of natural knowledge fluctuated: whereas the symbolic power of such representations still seemed quite clear in the eyes of the policymakers when the first of Plumier's books saw the light in 1693, signs of incertitude began to emerge shortly thereafter.

The publication of the *Traité des fougères* illustrates these growing doubts of the state not only regarding the role that scientific publications could have in its efforts to implement a certain image of the monarchy, but also related to the propaganda program itself. Furthermore, the book of ferns was conceived by its author as a sort of continuation of the *Description*, but its subject matter was far more specialized: it focused exclusively on a very particular group of genera, namely ferns and similar non-flowering

⁸ Peter Burke, *The Fabrication of Louis XIV* (New Haven, CT: Yale University Press, 1992), esp. chaps. 1 and 12.

American plants. This may well have been a compelling topic for his fellow botanists, then busy sorting out how to integrate plants with seemingly no flowers or fruits into their classificatory grids; but it certainly was at odds with the polite “goûts” of the courtly circles and the sphere of “curieux” in which a book of such formal characteristics—folio format and around two-hundred intaglio images—was intended to circulate. Admittedly, a point of caution is necessary at this point: as Antoine Schnapper warned in the case of art collecting, one should not confuse two all-too-often mixed phenomena that had very different dynamics and motivations, namely what has come to be called a “culture of curiosity,” on the one hand, and the state’s support of the arts, on the other.⁹ The same applies for books like the ones we have in hand: they were appreciated, no doubt, because of their eye-catching images, the exotic objects they represented, and the adventurous sort of erudite knowledge that was behind them. That being said, the heteroclitic social group constituted by amateurs, connoisseurs, collectors, or simply “curious people” was the target audience of such illustrated natural history books partly because it was also the one sought by the royal program of self-visualization. He hoped to attract an educated, in addition to a learned, readership so as to secure royal funding.

Eventually, the crown did not fail to grant Plumier the support for the printing of the *Traité des fougères* that he was seeking, but the numerous problems encountered along the way delayed its publications for around three or four years. This chapter is about the ways in which its author attempted to overcome these difficulties. More generally, it is about how Plumier had to negotiate with the changing social, cultural, and political circumstances of his time so as to get part of his work into print. Drawing inspiration from the approach of material bibliography, I argue that these negotiations affected both the contents and the formal qualities of those books, and therefore shaped the kind of natural knowledge they transmitted. The book of ferns, and particularly its images, show how the project of royal patronage offered naturalists like the Minim friar the opportunity for getting their works into print, but not without implicitly imposing certain characteristics onto them. The system of patronage in absolutist culture that enabled such publications can be traced in the precise manner in which visual information was traced out on the page. The same applies for the two books by Plumier that were not printed by Imprimerie royale: granted that royal patronage was probably the most

⁹ Antoine Schnapper, “The King of France as Collector in the Seventeenth Century,” in *Art and History: Images and Their Meaning*, ed. Robert I. Rotberg and Theodore K. Rabb (Cambridge: Cambridge University Press, 1986), 185-202.

obvious means for publishing natural history at the time, it was not the only. Both the *Nova plantarum Americanarum genera* (New genera of American plants) and the *Art de tourner* (Art of turnery) were published by private printers, and yet similar negotiations with their forms and contents were operated so as to make them publishable (fig. 5.1).¹⁰

The Imprimerie royale and the politics of print

Despite his complaints to Lister, Plumier was not an unpublished author by 1698. His first book, the *Description des plantes de l'Amérique*, had been printed five years earlier at the Imprimerie royale. The *Description* was the kind of work no Parisian printer would have dared to publish: a folio volume of more than a hundred pages of text, including no less than one 108 full-page copperplates on diverse samples of the West Indies' flora (fig. 5.2). Such a book had few possibilities to see the light of day outside the circuits of royal patronage or to get printed by presses other than those of the Imprimerie royale, the royal press housed at the Louvre Palace. In the preface of the *Description*, Plumier stated how much its printing was due to the same patrons that supported his travels to the Americas: whereas Secretary of State of the Navy Seignelay "obtained for me the liberality of the King for providing for the expenses of my travels," his successor Pontchartrain, the friar wrote, "had also the generosity of honoring me with the protection of His Majesty for the engraving and for the printing of this first volume."¹¹ His acknowledgement of the monarch's liberality was limited to these few lines at the end of the preface. Yet among Plumier's preparatory papers to the printing of the *Description* (proofs of the engravings and manuscripts drafts of the text), there is a provisional dedication to Louis XIV himself—one that never appeared in the definitive printed edition. In this unpublished dedication to the king, Plumier formulated the place that natural historians like himself sought to have in the state project of political propaganda: "[I] publish not your conquests, that nobody ignores, . . . [but] the quality of Father of the Nation that Your Majesty

¹⁰ This is the thesis underpinning Sachiko Kusakawa's account on the making of illustrated natural historical books in the Renaissance, where she focuses on Fuch's *De historia stirpium*, Vesalius's *De fabrica*, and Gessner's images for the unpublished *Historia plantarum*. Kusakawa, *Picturing the Book of Nature: Image, Text, and Argument in Sixteenth-Century Human Anatomy and Medical Botany* (Chicago: The University of Chicago Press, 2012). As she concludes (249), "the printed book, as a material product, did not come into being out of thin air to capture ideas. Its production was governed by technical, financial and other conditions that authors needed to negotiate and harness in order to have their views published."

¹¹ Charles Plumier, *Description des plantes de l'Amérique avec leurs figures. Par le R. P. Charles Plumier, Religieux Minime* (Paris: de l'Imprimerie royale, 1693), sig. [a4^r]: "Il me reste à avertir le public, que s'il tire quelque plaisir de ce travail, il en a l'obligation à feu Monsieur de Seignelay, Ministre & Secrétaire d'Etat, & à Monseigneur de Pontchartrain, qui luy a succédé. Le premier m'obtint de la libéralité du Roy, de fournir aux frais de mes voyages, & le second a eû la bonté de m'honorer aussi de sa protection auprès de Sa Majesté, pour la graveure, & pour l'impression de ce premier volume."

Fig. 5.1. Editions of Plumier's books

<i>Title</i>	<i>Year</i>	<i>Place and printer</i>	<i>Format</i>
<i>Description des plantes de l'Amérique</i>	1693	Paris: Imprimerie royale	Folio
<i>L'art de tourner, ou de faire en perfection toutes sortes d'ouvrages au tour . . . composé en français et en latin</i>	1701	Lyon: Jean Certe	Folio
	1706	Paris: Claude Jombert	Folio
	1749	Paris: Charles-Antoine Jombert	Folio
[Facsimile reprint of the 1749 edition]	1976	Nogent-le-Roi: Librairie des Arts et Métiers	--
<i>Khudozhestvo tokarnoe, ili delati v soversbenstvo vsiakiya raboty tocheniem</i> [Bilingual edition in Dutch and Russian, translation attributed to Peter I the Great]	1716	N.p.	--
<i>Die Kunst zu drehsehn, oder alle Arten von Arbeit auf der Drebbank vollkommen zu verfertigen</i> [Bilingual edition in French and German]	1776	Leipzig: Bernhard Christoph Breitkopf und Sohn	--
<i>The art of turning</i> [English translation of the 1749 edition]	1975	N.p.: Paul L. Ferraglio	--
<i>Filicetum americanum, seu filicum, polypodiorum, adiantorum . . . in America nascentium</i>	1703	Paris: Imprimerie royale	Folio
<i>Traité des fougères de l'Amérique</i> [Bilingual edition in French and Latin]	1705	Paris: Imprimerie royale	Folio
<i>Nova plantarum americanarum genera</i>	1703	Paris: Jean Boudot	Quarto
<i>Plantarum americanarum fasciculus primus [-decimus] continens plantas quas olim Carolus Plumierius . . . detexit eruitque in insulis Antillis ipse depinxit</i> [Edition by Johannes Burman]	1755- 1760	Amsterdam: widow and sons of Salomon Schouten	Folio

manifests in the benefits with which He honors those who are devoted to the study of plants, aware as He is of how much this can contribute to the conservation and pleasure of His subjects.”¹²

The dedication was probably not accepted by the crown, but the book was printed at its expense nonetheless. The support of the French government to traveling naturalists seemed therefore to be understood in terms of two complementary aspects: the funding of travels and the printing of the collected materials. “The book that I present to you,” wrote Plumier in his unprinted dedication to the king, “contains the fruits that I gathered during the two travels that I made to the West Indies on Your orders; since it is but the result of your Royal liberality, it is fair that it appears under your august protection.”¹³

¹² Ars. MS 2875 “Description des plantes de l'Amérique,” unpaginated: “C'est pourquoy je vous supplie . . . de me permettre d'y publier non pas vos conquestes . . . [mais] la qualité de père de la patrie que V.M. fait paroistre dans les bienfaits dont elle comble ceux qui s'appliquent à la recherche des plantes, persuadée qu'elle est qu'on contribue par ce moyen à la conservation et au plaisir de ses sujets.”

¹³ Ars. MS 2875, unpaginated: “L'ouvrage que je prends la liberté de présenter à V.M. contient les premiers des fruits que j'ay recueillis dans les deux voyages que j'ay fait par les ordres au Antilles;

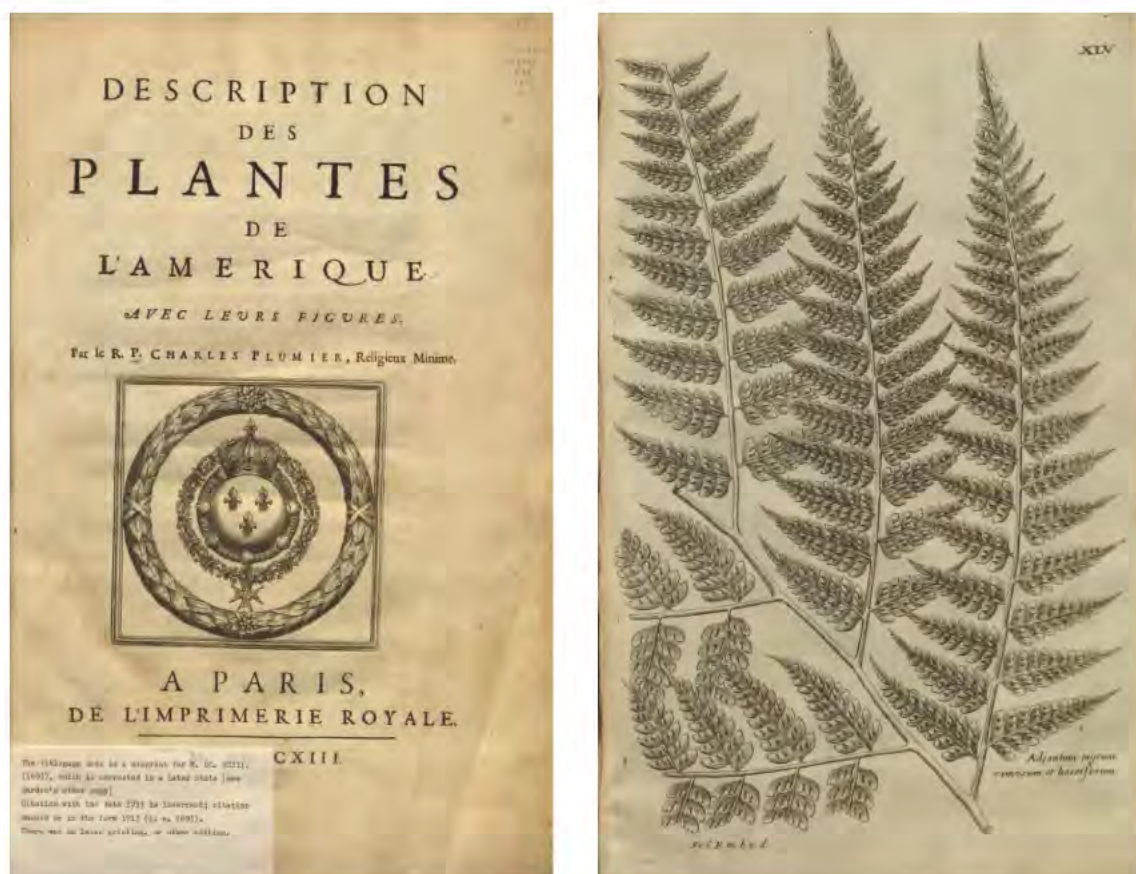


Fig. 5.2. Title page and plate XLV of the *Description des plantes de l'Amérique*. Printed at the Imprimerie royale as largely a luxury commodity, the *Description* was a large folio volume with more than one hundred full-page engravings such as the one presented here. (Peter H. Raven Library, Missouri Botanical Garden, St. Louis.)

Despite the discourse, things seemed to be different at the level of practices: it is worth remembering Lister's evocation of the frequent trips made by the friar to Versailles in the hope of getting more of his images printed at the king's charge. In other words, Plumier did not get published without effort: the winding ways in which some of his drawings got into press show the extent to which the practice of science in absolutist France relied on a system of patronage—a patronage that, regarding the culture of print, was sustained by both a heterogeneous network of individuals and an institution, the Imprimerie royale.

As was the case for his travels to the West Indies, an intricate web of sponsors was involved in the managing of the royal largesse for the publication of books at the state's

comme donc ce n'est que l'effect de votre liberalité Royale, il est bien juste qu'il ne paroisse au jour que sous vostre auguste protection."

expense. Almost a decade after his first book appeared in the Louvre, Plumier was still struggling to get his new work printed under the same conditions, but the circumstances seemed to be far less favorable than those in which the *Description* had been published. In June 1702, he wrote to his friend and protector, Intendant Michel Bégon, about these problems:

I am always waiting, from Sunday to Sunday, to positively know my destiny. I visited also today Monsieur the abbé [Jean-Paul] Bignon, and the only answer he offered me was that Monsieur [Jean] Anisson gave him a summary of what my little work contains and that he would talk to Monseigneur de Pontchartrain. This is the situation in which I still am. I will tell you what the work in question is about: it is a treatise of all the ferns, spleenworts, maidenheads, &c. that I discovered during my three journeys. I am asking the favor of printing it, since the plates are already done, and all my manuscripts in order. Then I will go wherever I am asked to go. My superiors made clear to me that it would not please them that I travel any more before this book appears.¹⁴

Once again, Louis II Phélypeaux de Pontchartrain occupied a central position in the network: by the time Plumier was writing, Phélypeaux was chancellor of France, one of the highest dignities of the kingdom to which he ascended in 1699, after leaving his previous position as Secretary of State of the Navy and of the King's House to his son Jérôme. The latter was officially in charge of the navy, the colonies, and the cultural and scientific royal institutions like the Observatory, the Jardin du roi, and the academies. The chancellor, moreover, was the Keeper of the Seals and the man responsible for the department of justice, which means that he commanded over the book trade and had control over printing censorship and permissions. Though the position of chancellor granted more prestige than real political power, the old Louis Phélypeaux was the head of the Pontchartrain clan and presided over an extended network of relatives and clients spread over different layers of the administration.¹⁵ His actual influence therefore went

¹⁴ Plumier to Bégon, Paris, June 11, 1702, in MMC MS 656, fol. 110^r: "J'attends toujours de dimanche en dimanche pour savoir positivement ma destinée. Auiourd'hui j'ay esté encore voir Mr l'abbé Bignon [et] pour toute response il m'a dit que Mr Anisson luy avoit donné un deduit de ce que contient mon ouvrage et qu'il en parleroit à msgneur de Pontchartrain. Voilà Monsieur en quel terme je suis encore. Je vous diray en quoy consiste l'ouvrage dont est question, c'est un traité de toutes les fougères, capillaires, langues de cerf, &c. que j'ay decouvert dans mes trois voyages. Je demande par grace qu'on le fasse imprimer puisque les planches sont toutes faites et tous mes manuscrits en ordre. Ensuite j'iray là où on voudra. Mes supérieurs m'on témoigné que je ne leur ferois pas plaisir de plus voyager que cet ouvrage ne fut au iour."

¹⁵ Sara E. Chapman, *Private Ambitions and Political Alliances: The Phélypeaux de Pontchartrain Family and Louis XIV's Government, 1650-1715* (Rochester, NY: The University of Rochester Press, 2004), and Charles

far beyond his official positions. Besides, he had personally supported Plumier during his three travels to the West Indies, when he was still minister of the navy.

It was under the Chancellor's wing that the abbé Jean-Paul Bignon, actually his nephew, also came to be an essential personality in the Parisian cultural scene. Born into a family of influential magistrates and administrators and with a strong theological and scientific education, Bignon became a member of the Academy of Sciences in 1691, of the French Academy in 1693, and of the Academy of Inscriptions and Medals in 1701—the same year that he was named counselor of state. When Louis XIV granted letter patents to the Academy of Sciences in 1699, it was Bignon who was charged with designing the formal rules that regulated the number, duties, and recruitment of its members. From then on, the abbé held its annual presidency on sixteen occasions during the first thirty-five years of the official life of the company. Through him, too, the chancellor wrested control of the declining *Journal des sçavans* in 1701, which he subjected to the crown's sway and left in actuality in the hands of a board of editors lead by the abbé himself.¹⁶ Bignon informally became “moderator of all the academies,” according to the famous formula of the duke of Saint-Simon, as well as master of the press by his appointment to the direction of the *Bureau de la librairie*—the chancellery's office responsible for the regulation of the book trade.¹⁷

As implied by Plumier's letter to Bégon, Bignon was an unavoidable cog in the wheel of the royal patronage of the sciences and the arts and played a very significant role in the printing of prestige editions at the Imprimerie royale, including those of the Minim. Bignon acted in favor of the naturalist as a broker between Chancellor Pontchartrain, who administered a good deal of the royal liberality, and the third personage mentioned in the letter, Jean Anisson (1642-1721), a Lyonnais printer and bookseller appointed at the direction of the Imprimerie royale in 1691.¹⁸ Anisson was at the head of the royal printing house during the period in which both the *Description* and the *Traité des fongères* appeared in its presses, and he may have supervised directly the

Frostin, *Les Pontchartrain, ministres de Louis XIV: Alliances et réseau d'influence sous l'Ancien Régime* (Rennes: Presses universitaires de Rennes, 2006).

¹⁶ Raymond Birn, “Le *Journal des savants* sous l'Ancien Régime,” *Journal des savants* 1, no. 1 (1965), 15-35.

¹⁷ Louis de Rouvroy, Duke of Saint-Simon, *Mémoires*, ed. Arthur de Boislisle, vol. 8 (Paris: Hachette, 1891), 385; Jack A. Clarke, “Abbé Jean-Paul Bignon ‘Moderator of the Academies’ and Royal Librarian,” *French Historical Studies* 8, no. 2 (1973), 213-35, and Henri-Jean Martin, “La direction des lettres,” in Martin and Chartier, *Histoire de l'édition française*, vol. 2, 65-83. On the *Bureau de la librairie* in particular, see also Jane McLeod, *Licensing Loyalty: Printers, Patrons, and the State in Early Modern France* (University Park, PA: The Pennsylvania University Press, 2001), 75-81.

¹⁸ For an informative biography, see Geneviève Willemetz, *Jean Anisson, 1642-1721. Un homme d'affaires et de culture au Grand Siècle* (Paris: Éditions des Cendres, 2004).

making of these books. The process bore some particular features in the workshops of the Louvre: while in private printing houses the letterpress printing, the manufacturing and impression of the intaglio plates, and the binding were most often carried out in different workshops, the Imprimerie royale centralized the entire process of book production on the same premises. Proximity to Anisson, therefore, meant a certain closeness to the entire production of the books. A 1767 inventory of Plumier's papers lists a number of exchanges between the botanist and Anisson, most of which are now lost. In October 1694, for instance, Anisson asked the botanist to acknowledge receipt of a bill of exchange of 130 *livres*, probably in relation to the *Description*, and congratulated him on the travel he was just about to undertake, his third one. The director also asked him for accounts of this journey and promised to extol their quality in front of the abbé Bignon. Two years later, in another missive sent to the West Indies, the printer showed interest in Plumier's research on the cochineal and reported news about the evolutions of the War of the League of Augsburg.¹⁹ The frequent correspondence between Plumier and Anisson suggests that the naturalist was fairly close to the director of the royal printing house, and thus probably also to the making of his own books in the workshops of the Louvre Palace.

As we have seen, naturalists as authors were assumed to be involved in the printing of their books to a certain extent, especially when illustrations were involved. But there was also a certain expectation—as suggested already—that the traveling naturalist would hand over his works for publication, in particular when funded by the state. Plumier's complaints to Bégon in 1702 about his "superiors" requiring him to concentrate on the printing treatise of ferns before undertaking any more travels are worth recalling here, even if it is not clear to which "superiors" he was referring, those of his monastic order or, more likely, his patrons in the government. For some among the latter, it was obvious that his travel materials were to be published. In April 1704, for instance, a dispatch from Versailles by the Secretary of State of the Navy, Jérôme Phélypeaux, was addressed to Anisson on the subject of Plumier:

¹⁹ BNF Est. Réserve YE-27-Pet Fol "Catalogue des portefeuilles du père Plumier remis en 1767 au garde des Estampes du Roi," fol. 2-3: "Lettre de M. Anisson en datte du 27 8^{bre} 1694, par laquelle il s'informe si le père Plumier a reçu une lettre de change de 130#, qu'il lui a adressé ; il le félicite sur l'heureux voyage que ce religieux va entreprendre et lui en demande des relations qu'il lui promêt de faire valoir auprès de M. l'abbé Bignon"; "Lettre de M. Anisson, en datte du 30 mars 1696, par laquelle il lui marque beaucoup d'intérêt pour la conservation du petit insecte, la cochenille, qu'il seroit à souhaiter que élevions dans nos possessions d'outremer, afin d'éviter les sommes que l'étranger en retire de nous. Il l'invite à continuer les autres observations d'histoire naturelle."

Father Plumier, known by you, came to ask me permission to go to the Chartreuse Mountains in order to continue working on his botanical passions, and I urged him to explain to me why he did not rather begin to put in print the works he has hitherto done. He told me that this was his wish, but he was in an arrangement with you thereof, and that you did not consider it opportune to follow your first words. I beg you to inform me about the motives you have to do so.²⁰

The minister's surprise at finding out that the botanist's book was in difficulty for getting printed is remarkable. Up to that year the *Traité des fougères* had always remained unpublished in its definitive form, although a provisional version had been printed a year earlier at the Imprimerie royale, probably with a very limited print run. This provisional version was entitled *Filicetum americanum, seu, filicum, polypodiorum, adiantorum, &c. in America nascentium icones* (American ferns, or images of ferns, polypodies, maidenhairs, etc. growing in America), and consisted of a collection of 222 plates with no text. Only 172 of these were eventually reissued in the definitive *Traité des fougères de l'Amérique* or *Tractatus de filicibus Americanis*, an edition printed at the Louvre workshops, too, in 1705—only a few months after the death of its author. In this the number of plates was reduced from 222 to 172, but almost two hundred pages of text were now included: a preface, a short essay on the medical virtues of several types of fern, a hundred pages of descriptions of the plates, and two indexes of botanical names. These texts were not only in French, but also in Latin “for the benefit of foreigners.”²¹ The book gave printed form to the investment of the crown into Plumier's journeys of natural exploration: “since in my travels,” wrote the naturalist, “I have never limited my purpose to the sole pleasure of my discoveries, & I have always wished to share them with the public, I publish this small treatise on Ferns, which finally sees the light of day thanks to the favor of our Great Monarch, who agreed to make the expense.”²²

²⁰ Jérôme Phélypeaux to Anisson, Versailles, April 16, 1704, in AN Marine B² 178, fol. 396^{r-v}: “Le père Plumier que vous connoissez m'estant venu demander la permission d'aller dans les montagnes de la grande Chartreuse pour y continuer d'y travailler sur ces joies botaniques je l'ay pressé de m'expliquer pourquoi il ne commençoit par plustost a donner au public les ouvrages qu'il a fait jusqu'à présent. Il m'a repondu qu'il l'auroit beaucoup désiré mais qu'estant enlié [?] en accommodement avec vous sur ce sujet vous n'avez pas jugé a propos de suivre les premières paroles que vous luy aviez donné je vous prie de me faire sçavoir ce que en est et le motif que vous en avez.”

²¹ Remember that Tournefort had his *Éléments* translated into Latin in 1700 for similar reasons. On translating into Latin from vernacular, see Brian Ogilvie, “Science and Medicine,” in *The Oxford Handbook of Neo-Latin*, ed. Sarah Knight and Stefan Tilly (New York: Oxford University Press, 2015), 263-77.

²² Plumier, *Traité des fougères de l'Amérique / Tractatus de Filicibus Americanis* (Paris: de l'Imprimerie royale, 1705), iv: “Comme ne je n'ay point dans mes voyages borné mes desseins à jouir seul du plaisir de mes découvertes, & que j'ay toujours souhaité d'en faire part au public; je l'entreprends par ce petit traité des

Phélypeaux's admonition of the director of the Imprimerie royale convincingly shows that the state program of scientific sponsorship, materialized in the funding of both trips of natural exploration and their representation in printed form, was far from straightforward or coherent. The agents involved in such editorial enterprises were manifold: high bureaucrats like Phélypeaux probably were not as conscious as an Anisson or a Bignon of the difficulties of getting a volume of the characteristics of the *Traité des fougères* printed. Besides, the good wishes of the state patrons were not always accompanied by the corresponding economic provisions. Furthermore, the episode suggests that print played a central role in the eyes of the highest state agents as a means to visualize the crown's support of traveling naturalists. This dimension of the scientific self-fashioning of the monarchy was embodied in the institution of the Imprimerie royale directed by Anisson. The Imprimerie royale embodied this particular dimension of the state support to the arts and the sciences that was expressed through fanciful editorial projects.

In this sense, it is worth pausing over the institution of the Louvre printing house so as to trace the possibilities and limits that royal patronage offered to naturalists to get their work printed. The Imprimerie royale was formally founded in 1640 by Cardinal Richelieu to replace the small typographic workshop established in the early years of the reign of Louis XIII, the origins of which can be traced back to the acquisition of Greek types by Francis I around the end of the 1610s.²³ Originally located on the ground floor of the gallery connecting the Louvre Palace with the Tuileries, the institution was the object of profound reforms in the 1660s within Colbert's program for a systematic development of the royal manufactures: the premises of the press were renovated and its spirit was reoriented with the aim of serving the glorification of the monarchy (fig. 5.3).

Printed images came to have a prominent role in such a newly defined political program of cultural sponsorship: in 1667, Colbert had an act passed at the Royal Council for the engraving of "the plans and the elevations of the royal buildings, the ornaments of painting and sculpture within them, as well as the figures of plants and animals of all kinds and other rare and singular things."²⁴ Three years after the controller-general sent a

Fougères, qui enfin voit le jour par la faveur de nôtre Grand Monarque qui en a bien voulu faire la dépense."

²³ Auguste Bernard, *Histoire de l'Imprimerie royale du Louvre* (Paris: à l'Imprimerie impériale, 1867), 65-119.

²⁴ Act of the Royal Council (*Arrêt du Conseil*) on December 22, 1667, quoted in André Jammes, "Louis XIV, sa Bibliothèque et le *Cabinet du Roi*," *The Library* 20, no. 1 (1965), 5: "[Le Roi a] resolu de faire graver les plans et elevations des maisons royales, les ornemens de peinture et sculpture estans en icelles, les



Fig. 5.3. (*above*) Engraving by Sebastien Leclerc of the works on the Louvre Palace, where the Royal Press was housed, during the 1670s. (Musée Carnavalet, Paris.) (*opposite*) Late-seventeenth-century anonymous ink-and-wash drawing of the Royal Press workshop. The scene presents several of the separate processes of book production that were carried out on the same premises: type founding, composition, and printing, among others. (Musée Carnavalet, Paris.)

report on this project to Charles Perrault, secretary of the Academy of Belles Lettres, and to Pierre Carcavy, head of the Bibliothèque du roi: his plan was to print engravings of the disparate items integrated in the king's collections, from “[plants and] animals whose Anatomy and dissection has been done” to paintings and “antique medals.” Colbert's emphasis was placed on the uniformity of such printed images, so that volumes of the same size could appear annually. In this way, “the King will keep in his library the work of each year, and after ten or twelve years, different volumes on every kind of science.”²⁵ Although it was not accomplished in the exact terms Colbert envisaged in the 1660s, this project was at the origins of the *Cabinet du Roi*, the “King's Cabinet,” a collection of

tableaux et figures, antiques du Cabinet de Sa Majeste ou qui se trouveront ailleurs comme aussy, les figures des plantes et animaux de toutes especes et autres choses rares et singulieres.”

²⁵ AN O¹ 1964 2, no. 2 “Mémoire que Monseigneur a dressé touchant la publication des ouvrages où il y a des planches gravées,” unpaginated: “Il faut dis-je les réduire toutes d'une grandeur telle qu'elles puissent composer des volumes d'une grandeur égalle affin qu'à la fin de chacune année nous puissions composer une volume de tout ce qui aura esté fait de toutes ces sortes de travaux avec les discours imprimez en françois et après dix ou douze années nous composerons des volumes desd. choses séparées en sorte que le Roy aura dans la bibliothèque le travail desd. années et ensuite au bout de dix ou douze ans il aura des volumes séparés de toute sorte de science.”



sumptuous folio volumes of engravings made by outstanding artists like Claude Mellan (1598-1688) or Sébastien Le Clerc (1637-1714) and which reproduced the buildings, paintings, sculptures, medals, tapestries, and public celebrations of the king. The *Cabinet* collection of books of engravings, usually large folio formats bound in scarlet Morocco leather with the royal coat of arms, became part of what Louis Marin labeled “absolutist imaginary,” the symbolic program of the monarchy and closely related to scriptural (and graphic) economies of collecting.²⁶ Conceived by Colbert as a closed and uniform collection, this encyclopedic project aspired, as an author put it, “to harmonise in a single *opus* the heterogeneous work of the reign”—one might even say of “king-making” or nation-building.²⁷ Yet the *Cabinet* turned out to be a project as coherent and uniform as the absolutist monarchy itself, and was actually given most of its uniformity around the mid-eighteenth century, when this series of prestige editions, painfully published during the 1670s and the 1680s, came to be inventoried and reorganized.²⁸

In the 1670s, Perrault and Carcavy replied to Colbert’s report with an evaluation of the work achieved so far in the domain of natural knowledge: in addition to about one hundred and fifty plates already printed in specific publications, nearly the same number of plates had been carved. Together with the engravings, the volumes would include *discours* or pieces of writing by scholars chosen according to the “talents required by such different topics.” Each author would give his own style to the texts, but “on the condition that they would be revised beforehand by the Academy [of Sciences], if dealing with physics and mathematics, and by the assembly of Belles Lettres, if on another topic.”²⁹ One half of the plates that, according to Perrault and Carcavy, were ready in 1670 consisted of the anatomical depictions of exotic animals by Abraham Bosse (1602/4-1676) and Leclerc for the *Mémoires pour servir à l’histoire naturelle des animaux*, the

²⁶ Louis Marin, *Le portrait du roi* (Paris: Éditions de Minuit, 1981). See also Thomas W. Gaehtgens, “The Arts in the Service of the King’s Glory,” in *A Kingdom of Images: French Prints in the Age of Louis XIV, 1660-1715*, ed. Peter Fuhling, Louis Marchesano, Rémi Mathis, and Vanessa Selbach (Los Angeles/Paris: The Getty Research Institute/Bibliothèque nationale de France, 2015), 1-8.

²⁷ Claire Goldstein, “Collecting Versailles: Scriptural economies of the *Cabinet du Roi*,” *Studies in the History of Gardens & Designed Landscapes: An International Quarterly* 23, no. 3 (2003), 258.

²⁸ Georges Duplessis, “Le Cabinet du Roi: Collection d’estampes commandées par Louis XIV,” extract of the *Bibliophile français* (Paris: Bachelin-Deflorence, 1869); Jammes, “Le Cabinet du Roi”; Marianne Grivel, “Le Cabinet du Roi,” *Revue de la Bibliothèque nationale* 18 (1985), 36-57; Goldstein, “Collecting Versailles”; Maxime Préaud, “Printmaking under Louis XIV,” in Fuhling, *Kingdom of Images*, 11.

²⁹ AN O¹ 1964 2, no. 2, unpaginated: “Il faudroit que chacun de ceux qui ferait des discours peust mestre son [illegible] à son ouvrage mais à condition qu’il seroit reveu auparavant par l’Académie si ce sont choses qui sont de mathematiques ou de physique, et si c’est d’autre matière, par l’assemblée des belles lettres.” See also Martin, *Livre, pouvoir et société*, vol. 2, 672-3, and Simone Balayé, *La Bibliothèque nationale des origines à 1800* (Geneva: Droz, 1988), 109-11.

project led in the newly established Academy of Sciences by Charles Perrault's brother, Claude. Six years later, another report by Charles Perrault and Carcavy informed Colbert of the works "ready to be delivered to the public": the second part of the history of animals, an equivalent for the history of plants directed by Denis Dodart, a work on the motion of bodies by Edme Mariotte, and a treatise on the anatomy of the eye.

The editorial enterprises commonly gathered under the label of the *Cabinet du Roi* thus embody the process by which, from the end of the 1660s, the Imprimerie royale and the recently constituted royal societies became closely associated with the propaganda aims of the monarchy. The catalog of the books printed at the Louvre presses illustrates such an evolution for the Paris Academy of Sciences: according to the inventory drawn up by the historian and typographer Auguste Bernard in 1867, no book on natural history, natural philosophy, mathematics or any other kind of natural knowledge was published at the Imprimerie royale until the first volume of Claude Perrault's *Histoire des animaux* in 1671. Before that year, only 107 books in total had been printed (an average of less than three and a half per year) and they were almost exclusively of religious, classical, and historical content. (The first work issued was a folio edition of Thomas à Kempis's *De Imitatione Christi*.) Few of these hundred books included engravings, apart from some vignettes, tailpieces, frontispieces, and (occasionally) portraits of the authors. (The exception were commemorative editorial enterprises such as *Les triomphes de Louis le Juste, XIII du nom, roy de France et de Navarre*, which appeared in 1649 with more than sixty folio copperplates, thirty-five half-page engravings and over forty double-folio maps.) In other words, the institution was, even before the 1660s, aimed at a luxury production related to the celebration of the monarchy. The publications' formats give another insight in this respect: out of the hundred works printed before Colbert's reforms, around seventy-five were editions in folio size or larger.³⁰

Claude Perrault's *Histoire des animaux*, whose first volume appeared in 1671, inaugurates a new episode in the history of the Imprimerie royale regarding not so much its aims, but rather the place that scientific literature played in it. A project of the Academy from its early years, it was initially conceived by Colbert himself as a collection of engravings on animals and plants. The relationship with the enterprise of the *Cabinet du Roi* becomes evident in the importance given by the Controller-General to the intaglio plates, which were probably produced in a small copperplate workshop installed on the

³⁰ Bernard, *Imprimerie royale*, 122-40.

very premises of the Bibliothèque du roi in rue Vivienne—the same, by that time, used by the members of the Academy, which had already produced hundreds of engravings for the collection of the *Cabinet*.³¹ From the year of the *Histoire des animaux*'s publication until 1720, another 158 works appeared in the presses of the Louvre: a few more than three per year on average. More than fifty of these may be placed in the fields of natural history, mathematics, astronomy, and physics—the seven issues of the *Histoire de l'Académie royale des sciences* for that period left aside. Although only roughly one third of the total works printed at the Imprimerie royale in those fifty years included engravings according to Bernard, twenty-eight of these illustrated editions were books on natural history and natural philosophy. The number of illustrations varied substantially from one book to another: the abbé Jean Picard's 1671 *Mésure de la terre* had only five plates, whereas 451 figures were included in Tournefort's *Éléments de botanique* in 1694. The prestige character of the publications on natural history and natural philosophy published at the Imprimerie royale was also reflected in the short print runs of which they were the object: a fixed number of two hundred copies were printed for the first and second part of Perrault's *Histoire des animaux* in 1670 and 1676—the same as its botanical counterpart, the *Mémoires pour servir à l'histoire des plantes*, authored by Dodart.

It is difficult to draw definitive conclusions from these numbers, particularly because we still need to rely on the nineteenth-century study by Auguste Bernard, which is not always accurate—it includes, for instance, two nonexistent editions of Plumier's *Description* (dated 1697 and 1702), as well as the *Nova genera*, which never appeared with the Imprimerie royale.³² For want of an exhaustive survey on the activity of the Louvre's printing house for the period of Louis XIV's reign, it is necessary to turn to Bernard's numbers to sketch a general picture of the production in the Louvre's workshops—one to which Plumier's works needs to be compared. Two inferences can already be deduced with a certain confidence. First, Bernard's inventory confirms the view of the Imprimerie royale as being mainly devoted to the publication of monumental and prestige books: that is, editorial enterprises that would not have been profitable for private printers. (Around eighty works of the total production for the years 1671-1720, more than half,

³¹ Anita Guerrini, "The King's Animals and the King's Books: The Illustrations for the Paris Academy's *Histoire des animaux*," *Annals of Science* 67, no. 3 (2010), 385-6, and Balayé, *La Bibliothèque nationale*, 160. In the abbé Bignon's "Mémoires concernant les ouvrages de l'Académie [des sciences]," the plates of a reduced edition of the *Histoire des animaux* are said to have been printed in the "bibliothèque," too: BNF Mss. Français 22225 "Papiers de l'abbé Bignon, Mémoires et correspondances," fol. 36^{r-v}.

³² Bernard, *Imprimerie royale*, 153-7.

were folios or large folios.) Second, regarding scientific books in particular, the press actually served official institutions: virtually all the works on topics related to natural knowledge printed during the same period were authored by members of the Academy of Sciences. There is only one single exception: Charles Plumier.

A summary survey of the works published at the Imprimerie royale specifically dealing with natural history (fig. 5.4) enables us to put Plumier's botanical books into a broader perspective. This scrutiny reveals the repetition of a few authors, the first of whom is Tournefort who, between 1694 and 1717, authored five books printed at the Louvre: the three octavo volumes of the *Éléments de botanique* in 1694; the duodecimo *Histoire des plantes qui naissent aux environs de Paris* in 1698; the Latin extended edition of the *Éléments* in three quarto books published with the title *Institutiones rei herbariae* (Botanical institutions) in 1700, along with a *Corollarium* (Collorary) three years later, and, finally, his posthumous *Relation d'un voyage du Levant* (Account of a voyage into the Levant) in 1717, in two quarto volumes. Two names are repeated twice: that of Claude Perrault for the two volumes of his *Histoire des animaux*, published in 1671 and 1676, respectively, and that of Dodart for the two editions of the *Histoire des plantes* (the first 1676 folio edition was reduced, three years later, to a duodecimo text without figures). Apart from the admittedly extraordinary case of Tournefort, only Plumier's name appears more than twice: his 1693 *Description* is followed by the two folio editions of the treatise on ferns, the *Filicetum* of 1703, and the definitive *Traité des fougères* of 1705. Plumier's publication rate at the Imprimerie royale seems remarkable when considered within the general figures of the Louvre's printing house regarding natural history—all the more so given the format of the books and the number of plates. First, Plumier's volumes are among the few to be printed in folio format, along with the projects on the natural history of animals and plants of the Academy of Sciences. Second, the number of plates included in each of them largely exceeds the fifteen and thirty engravings of the two respective volumes of the *Histoire des animaux*, or the thirty-eight of the *Histoire des plantes*. Tournefort's main works constitute once more a striking exception: more than 450 plates were included in both the *Éléments* and the *Institutiones*—although the latter actually reemployed those of the former and added forty new ones. Tournefort's works, however, are composed of several volumes (three in the case of the *Éléments* and the *Institutiones*, two in that of the *Voyage to the Levant*) and, more importantly, they are quarto or octavo editions. In contrast, all the three works by Plumier are folio editions of one single volume each, and still they included 108, 222, and 172 copperplates of the same size, respectively.

Fig. 5.4: Books on natural history published at the Paris Royal Press from its foundation in 1640 to 1720.

Year	Author or editor	Title	Size	Engravings
1671	Claude Perrault	<i>Mémoires pour servir à l'histoire naturelle des animaux</i>	Fol.	15
1675	Samuel Cottereau du Clos	<i>Observations sur les eaux minérales de plusieurs provinces de France, faites en l'Académie royale des sciences, dans les années 1670 et 1671</i>	12°	None.
1676	Claude Perrault	[Suite des] <i>Mémoires pour servir à l'histoire naturelle des animaux</i>	Large fol.	30
	Denis Dodart	<i>Mémoires pour servir à l'histoire des plantes</i> 2 nd ed.: 1679	Large fol.	38
1679	Denis Dodart	<i>Mémoires pour servir à l'histoire des plantes</i> [2 nd ed.]	12°	None.
1692		<i>Observations physiques et mathématiques pour servir à l'histoire naturelle et à la perfection de l'astronomie et de la géographie, envoyées des Indes et de la Chine à l'Académie des sciences, à Paris, par les Jésuites; avec les réflexions de messieurs de l'Académie et les notes du P. Th. Gouye, jésuite</i>	4°	2 maps.
1693	Charles Plumier	<i>Description des plantes de l'Amérique, avec leurs figures</i>	Fol.	108
1694	Bernard Le Bouyer de Fontenelle	<i>Éloge de M. de Tournefort, par M. de Fontenelle, lettres sur la botanique, par M. P. Collet; réponse de M. Chomel (Tournefort) à deux de ces lettres</i>	4°	None.
	Joseph Pitton de Tournefort	<i>Éléments de botanique, ou méthode pour connoître les plantes</i> , 3 vols. Latin edition: <i>Institutiones rei herbariae</i> , 1700.	8°	451
1698	Joseph Pitton de Tournefort	<i>Histoire des plantes qui naissent aux environs de Paris, avec leur usage dans la médecine</i>	12°	None.
1700	Joseph Pitton de Tournefort	<i>Institutiones rei herbariae; editio altera gallica longe auctior, quingentis circiter tabulis aeneis adornata</i> , 3 vols.	4°	489

1703	Charles Plumier	<i>Filicetum americanu, seu filicum polypodiorum, adiantorum . . . in America nascentium, icones</i>	Fol.	222
	Joseph Pitton de Tournefort	<i>Corollarium institutionum rei herbariae</i>	4°	33
1705	Charles Plumier	<i>Traité des fougères de l'Amérique, en latin et en français</i>	Fol.	172
1717	Joseph Pitton de Tournefort	<i>Relation d'un voyage du Levant fait par ordre du roy en 1700, contenant l'histoire ancienne et moderne de plusieurs isles de l'Archipel, de Constantinople, des costes de la mer Noire, de l'Arménie, de la Géorgie, des frontières de Perse et de l'Asie mineure; avec des figures en taille-douce et des remarques, 2 vols.</i>	4°	148
1719	Antoine de Jussieu	<i>Appendices ad Josephi Pitton de Tournefort institutiones rei herbariae</i>	4°	?

Source: Auguste Bernard, *Histoire de l'Imprimerie royale du Louvre* (Paris: Imprimerie impériale, 1867).

The books by Plumier or Tournefort have not usually been considered as an integral part of the *Cabinet du Roi* project. In fact, they were not. Yet the project, in any case far from being an explicit and coherent editorial program, paved the way for naturalists like them to profit from the royal liberality and have their works printed. Plumier's *Description* and *Traité des fougères* fit in the formal characteristics and aims of this royal enterprise: they were both large folios, lavishly illustrated, and richly bound in the very same manner as the rest of the volumes of the collection. Such illustrated accounts of the flora and fauna of the French West Indies were also prone to serve very well the symbolic purposes of the monarchy and its ambitions to represent its control—real or sought—across the Atlantic. Among the means by which the crown made its power visible, a prominent place was occupied by editorial enterprises of scientific knowledge with a strong dimension of aesthetics and pleasure. Books like those by the Minim friar can be seen as commodities that were, paradoxically, outside the commercial market by having been printed at the Imprimerie royale rather than by a private undertaker. In both the *Description* and the *Traité des fougères*, the only reference to the publication process was a page separating the part of the text from the part of the engravings: it limited itself to laconically indicating that the works had been printed at the Imprimerie royale under the supervision of Jean Anisson. Neither of them included any kind of printing permission, and both surely fell under the act passed in 1667 to forbid printmakers from reproducing works in the king's cabinet unless expressly authorized.³³

Nevertheless, negotiations had to be made regarding both the contents and the format of the books, as we shall see below. And these did not always work as hoped. As witnessed by Lister, Plumier had to struggle to get his images in the king's presses, and the difficulties in this respect would last a long time: more than a decade elapsed from the publication of his *Description* until the book on ferns finally appeared under similar conditions. Yet only three of the five printed books authored by Plumier were printed under the aegis of the state: the *Nova genera* and the *Art de tourner* both made their way into print through the book market. It is thus worth tracing these two publications before coming back to the friar's pains in getting his book on ferns into print.

³³ Act of the Royal Council (*Arrêt du Conseil*) on December 21, 1667, reproduced in Claude-Marin Saugrin, *Code de la librairie et imprimerie de Paris* (Paris: aux dépens de la Communauté, 1744), 460, and quoted in Katie Scott, "Authorship, the Académie, and the Market in Early Modern France," *Word & Image* 21, no. 1 (1998), 27-41.

Negotiating audiences: the *Art de tourner* and the *Nova genera*

Modern scholars may see it as an example of the ironies of academic life. Plumier spent about seven years in the lush forests of the Caribbean islands and thousands of pages painstakingly recording the plants and creatures inhabiting them. Yet the book of his that eventually enjoyed the largest editorial success was not on botany, but on turnery. Turnery was the craft of shaping wood and metal by means of a lathe, a machine that makes a piece of wood rotate and works against a cutting tool. For Plumier, as for many by that time, ornamental turning became a “*honnête* occupation to spend some hours of pleasure.”³⁴ The friar is said to have practiced the art of turnery since his youth (his father, he affirms, “took delight in this activity”) and improved his skills in the use of the lathe during his years in Toulouse with his mentor Father Emmanuel Maignan—from whom he also probably acquired some knowledge of drawing and the making of optical instruments. It seems that Plumier continued to practice the art of turnery afterwards: the choir stalls of the convent of Trinità dei Monti in Rome, today extant and in use, are attributed to his hand, and once in Paris, he was in contact with artisans like Jacques Maubois (d. ca. 1715), “King’s Turner at the Louvre.”³⁵ Although turning had not been his main occupation, the *Art de tourner* had an editorial life that his books on botany could never enjoy. To begin with, it was reedited a striking number of times: the original French edition of 1701 was reprinted soon afterwards and a new one appeared in 1749—its last edition in French was reprinted as late as 1976. The work also was translated to several languages: a version in German was published in 1776 and a translation was reputed to have been commanded by Peter the Great, a passionate turner himself, for a purported 1716 bilingual edition in Russian and Dutch. The work enjoyed a favorable reception until well into the nineteenth century: it was mentioned on occasion as a classic, and Plumier was praised by some as the equivalent in turnery of “what Ambroise Paré is for surgeons.”³⁶

³⁴ Plumier, *L'art de tourner ou de faire en perfection toutes sortes d'ouvrages au tour* (Lyon: chez Jean Certe, 1701), vi-xix: “Et bienque je n'aye pas pu y vaquer avec assiduité n'ayant jamais regardé le tour que comme une honnête occupation pour passer quelques heures de plaisir, j'ay néanmoins cette satisfaction que je ne donne ici rien au public, que je n'aye éprouvé souvent.”

³⁵ P. J. S. Whitmore, *The Order of Minims in Seventeenth-Century France* (The Hague: Martinus Nijhoff, 1967), 187, and Plumier, *Art de tourner*, v.

³⁶ In 1701, the *Art de tourner* was printed in Lyon by Jean Certe and sold in Paris by Jean I Jombert. The latter's son, Claude, had the book reprinted in Paris in 1706. Claude's son, Charles-Antoine, issued a new edition in Paris in 1749, a facsimile reprint which was printed in 1967 in Nogent-le-Roi by the Libraire des Arts et Métiers. The German translation, *Die Kunst zu dreheln, oder alle Arten von Arbeit auf der Drebbank vollkommen zu verfertigen*, was printed by Bernhard Christoph Breitkopf and son in Leipzig in 1776, and the supposed Russian-Dutch edition commanded by Peter the Great, *Khudozbestvo tokarnoe, ili delati v*

The success of the book was not altogether surprising: turning was a hobby fit even for a king. Holy Roman Emperor Maximilian I, Peter the Great, and Louis XV were reputed to have been skillful amateur turners. Ornamental turnery reached its apogee as an aristocratic hobby in eighteenth-century France. While nobles and gentlemen made use of the lathe, learned men studied its mathematical implications at the Paris Academy of Sciences. The *Art de tourner* was one of the few manuals on turnery, practically the only (before Bergeron's 1792 *Manuel du tourneur*) that was made available to a large public, by means of both illustrations and descriptions, a practical knowledge usually passed within the space of the workshop.³⁷

The first edition of the *Art de tourner* was printed in Lyon in 1701 by Jean Certe, a bookseller mostly specialized in geographical and medical works who had been sued on several occasions for counterfeiting and imprisoned twice for pirating offenses (fig. 5.5). The involvement of Plumier in the publication of this book is unclear: he accorded the privilege of printing to a certain abbé Perichon, to which the author attributed both “the expenses of the printing & of the engraving of [the] about eighty Copperplates which constitute the main part of this Book.” According to the frontispiece, it was this abbé who took care of the edition. The book was simultaneously sold in Paris by Jean I Jombert, whose son seemingly reprinted it five years later. Moreover, forty-eight years after that, Jombert's grandson, Charles-Antoine, a prominent publisher in Paris and bookseller for the “Artillery and Genius,” issued a new and augmented edition in 1749, when he undertook the reedition of several technical books on mathematics, the art of dyeing, and glass-making.³⁸ In the hands of Charles-Antoine Jombert, the book was entirely recast. The same copper plates were reemployed, although rearranged and slightly modified in their numeration. The frontispiece, the same as in the original edition, was altered so as to erase every reference to the abbé Perichon. The contents and structure were reorganized and the text was “corrected & augmented” from ten to twelve chapters: an addendum by Plumier to the first edition, with the suggestive title of

sovershenstvo vsiakia raboty tocheniem, seems to be dated 1716, but I could not find any extant copy of this. For Plumier's comparison in turning to Ambroise Paré in medicine, see Paulin Desormeaux, *L'art du tourneur*, 2 vols. (Paris: Audot, 1824), 1.

³⁷ Klaus Maurice, *Der drechselnde Souverän: Materialien zu einer fürstlichen Maschinekunst* (Zürich: Ineichen, 1985). Prior to Plumier's *Art de Tourner* was Joseph Moxon's *Mechanick Exercises: Or, the Doctrine of Handy-Works*, a volume illustrated with eight engravings and devoted to manual activities such as smithery, joinery, carpentry, and bricklaying; sold in chapters, the part on turnery appeared in 1678. See Graham Jagger, “Joseph Moxon, FRS, and the Royal Society,” *Notes and Records of the Royal Society of London* 49, no. 2 (1995), 193-202.

³⁸ Catherine Bousquet-Bressolier, “Charles-Antoine Jombert (1712-1784): un libraire entre sciences et arts,” *Bulletin du bibliophile* 2 (1997), 299-333.

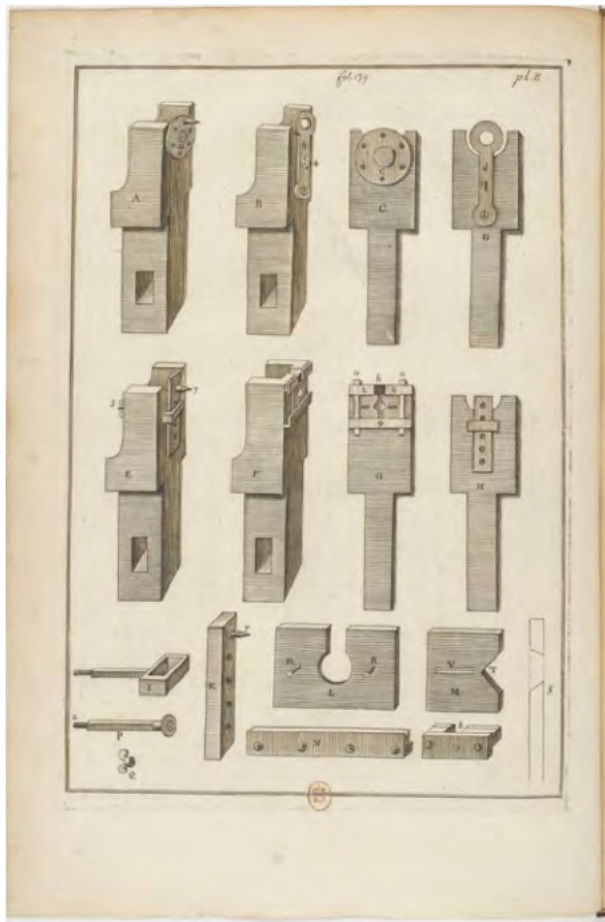
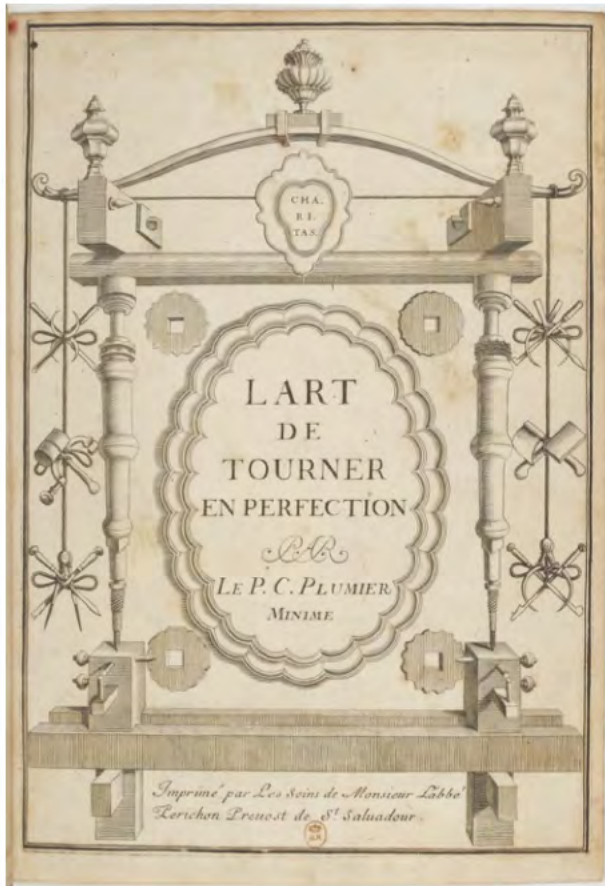


Fig. 5.5. Frontispiece, title page, and one of the plates of the first edition of the *Art de tourner* (1701) published by Jean Certé in Lyon and sold by Jean I Jombert in Paris. In the 1740s, Jombert's grandson gave a new edition of the book. The treatise on turnery enjoyed an editorial success that Plumier's books on plants were far from attaining. (Bibliothèque nationale de France, Paris.)

“Secrets,” was now included as part of the body, and several articles drawn from the memoirs of the Academy of Sciences were added as well. Jombert’s reedition shows the well-extended interest of which turnery was the object in the mid-eighteenth century, not only among aristocratic and *bonnête* amateurs, but also in the scientific milieu: the articles now included were authored by members of the Academy, namely Gabriel-Philippe de La Hire, son of the mathematician and astronomer Philippe de La Hire, and Charles-Marie de La Condamine (1701-1774), the prominent geographer and mathematician mostly known for his travel to the province of Quito to make measurements on the meridian and test Newton’s hypothesis on the curvature of the earth. The two papers by La Condamine had been read in front of the academicians two years before his departure to South America and connected to the research he was to carry out there, for he was using Plumier’s manual to study the circular movements traced by the turning machine.

From a material point of view, all these French editions of the *Art de tourner* were folio volumes with between seventy (for the Lyon original edition of 1701) and eighty full-page plates (for the 1749 Parisian reedition). Furthermore, these three editions counted about 250 pages, images aside: the preface alone of the 1749 edition occupied twenty pages. In spite of such formal characteristics, the editorial life of the book suggests that it became far more profitable for booksellers than any of Plumier’s botanical works probably ever were, even if its formal characteristics (a folio volume, half of which consisted of full-page copperplate pictures) do not differ substantially from those of the *Description* and the *Traité des fougères*. In this sense, the prices at which his works were sold at the time may cast some light on the diverse audiences they reached: booksellers’ catalogs from the mid- to the late eighteenth century enable us to draw a partial picture of the readers of the Minim’s works. In 1740, for instance, the first edition of the turnery manual was sold for 20 livres, and a decade later it reached the price of 66 livres.³⁹ Even for a first edition, these are costly figures for a technical book, especially when compared to the botany books of the Minim. In 1744, the library of Antoine-Tristan Danty d’Isnard (1663-1743), an associated botanist at the Paris Academy of Sciences linked to the Jardin du roi (he succeed Tournefort after his death as *démonstrateur* for a short period of time) was put on the market and the catalog included all the botanical books by Plumier: the *Description* was sold for 15:1 (that is, 15 livres and 1 sou), and the *Nova genera* for 4:15; the *Filicetum*, including “9 plates of plants more than in the

³⁹ *Catalogue des livres de feu M. Bellanger, Trésorier general du Sceau de France* (Paris: chez Gabriel and Claude Martin, 1740), 235, and *Catalogue des livres de feu M. le comte d’Autry* (Paris: chez Gabriel Martin, 1750), 38.

other copies,” and the *Traité des fougères* were valued at 18 livres each. As a way of comparison, the same selling catalog listed Tournefort’s *Éléments* for 33:1 and Dodart’s *Histoire des plantes* for 31 livres.⁴⁰ The *Description* had a similar price in 1753 (16 livres), whereas the *Nova genera* reached 18 livres on the same sale.⁴¹ The prices of Plumier’s books on botany began to grow only some decades afterwards, as their bibliophilic value rose: in 1763, the *Description* was priced at 35:5, and the *Traité des fougères* at 29:19. In 1786, the *Description* reached 44:19 and a colored edition 72:15. The book on ferns was valued at 80 livres in the same catalog, and the *Filicetum* nothing less than 100 livres.⁴²

That the *Art de tourner* proved highly profitable from quite early in its printing history is also suggested by the German translation that appeared in 1776 from the hand of Bernhard Christoph Breitkopf, a Leipzig printer whose business came to be one of the leading publishers in the Holy Roman Empire, particularly for music.⁴³ In all likelihood, a pirated version of Jombert’s 1749 book, the Breitkopf edition, offered a translation into German of the French text, reemployed the seventy-nine full-page engravings, and added four more. Although their order is exactly the same as in Jombert’s, the figures were not printed from the same copperplates, but most likely copied from the printed edition, for some details of the images are forgotten or misrepresented (fig. 5.6).⁴⁴

The manual on the art of turning was not, however, the only book by Plumier printed outside the realm of royal patronage. His book on new American botanical genera, the *Nova plantarum Americanarum genera* (New genera of American plants) was printed in 1703, the year in which the engravings on ferns appeared under the provisional form of the *Filicetum*. Like his work on ferns, Plumier’s description and drawings on the

⁴⁰ *Catalogue de feu M. Danty d’Isnard, Medecin, Ancien Professeur Royal des Plantes au Jardin du Roy; & de l’Académie royale des sciences* (Paris: chez Gabriel Martin, 1744), 70.

⁴¹ *Catalogue des livres de feu M. Giraud de Moucy* (Paris: chez Barrois, 1753), 135.

⁴² *Catalogue des livres de feu M. Imbert, ecuyer et premier apothicaire du corps du roi* (Paris: chez Davidts, 1763), 30, and *Catalogue des livres rares de Mr Le Camus de Limare* (Paris: chez Guillaume de Bure, fils aîné, 1786), 71.

⁴³ George B. Stauffer, “The Breitkopf Family and Its Role in the Eighteenth-Century Music Publishing,” in *J. S. Bach, the Breitkopfs, and Eighteenth-Century Music Trade*, ed. George B. Stauffer (Lincoln, NE: University of Nebraska Press, 1996), 1-8. The title of the 1776 Leipzig edition is *Die Kunst zu dreheln, oder alle Arten von Arbeit auf der Drehbank vollkommen zu verfertigen, ehemals in französischer und lateinischer sprache vom brn P. Carl Plümier, aus dem Orden der Minimien, abgefaßt, nun neben der französischen Urschrift mit einer deutschen Uebersetzung, einigen Anmerkungen, Zusätzen und Kupfern vermehrt herausgegeben von einem Liebhaber der Drehkunst. Mit vier und achtzig Kupfertafeln.*

⁴⁴ Adrian Johns elaborated a taxonomy of piracy or infringements in order to chart, as by inversion, the contours of early modern scholarly authorship; these included translation, “an industry in their own right” because “regimes of literary propriety [or economic ownership, as opposed to “property” or intellectual ownership] stopped short at national boundaries.” Johns, “The Ambivalence of Authorship in Early Modern Natural Philosophy,” in *Scientific Authorship: Credit and Intellectual Property in Science*, ed. Mario Biagioli and Peter Galison (New York: Routledge, 2003), 67-90, esp. 76. See also Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: The University of Chicago Press, 1998), 227-8 and 507.



Fig. 5.6. Frontispiece and title page of the *Die Kunst zu dreheln*, the 1776 German translation of Plumier's *Art de tourner*. The Breitkopfs, a firm that had become famous for publishing J. S. Bach's scores, pirated Jombert's 1749 edition: they translated the text into German and roughly plagiarized the copperplates. (Cambridge University Library.)

new botanical genera he discovered in the West Indies did not easily make their way into print. In his correspondence with Bégon a year before the publication, Plumier was once again bitterly grumbling about the uncertain future of his editorial projects in general, and that of the *Nova genera* in particular. His concerns were this time about the reluctance of his friend and intellectual reference, Joseph Pitton de Tournefort, to include the friar's discoveries into his own publications. Plumier frequently expressed his hopes to get the help of the professor at the Jardin du roi for the publication of several of his works. (This was the case of a book on the *Umbelliferae*: he claimed to have more than a hundred plates already drawn, despite his awareness that they were all the more unlikely to get printed, given that there was already a work published on that family of plants by "Monsieur l'Anglois," the English botanist Robert Morison.)⁴⁵

⁴⁵ Plumier to Bégon, Paris, June 11, 1702, in MMC MS 656, fol. 110^r. The book by Morison to which Plumier may have been referring was more than thirty years old by then: *Plantarum umbelliferarum distributio nova, per tabulas cognationis et affinitatis ex libro Naturae observata & detecta* (Oxford: Sheldonian Theater, 1672).

But Plumier sought Tournefort's support the most for his new genera research: he had been compiling descriptions and drawings of the new botanical genera he discovered in the West Indies during his three journeys, and he classified them according to his friend's system. In August 1702 the friar was expecting these genera to be included in the catalogs that Tournefort was supposed to publish upon his return from the Levant, since "it would be a consolation to see my works at least quoted, and I would be happy even though." Yet at the end of that year he tersely informed Bégon that the publication of Tournefort's *Corollarium* (a supplement on the new typologies of plants he had found during his Levant peregrinations) was imminent, and no mention was made of Plumier's own genera in it. Some months after the friar acknowledged that he had indeed asked the professor to include the American genera in his catalogs on the Eastern flora, but that he had refused and delayed the question for another catalog, allegedly to be printed in two or three years' time.⁴⁶ Yet, "fugaces labuntur annis," the fleeting years glide on, wrote the Minim in that same letter quoting Horace: the manuscript of the *Nova genera*, he told Bégon, was finished and in the hands of the censors, and its publication agreed on with a Paris printer, Jean Boudot (1651-1706), to whom Plumier accorded the rights of publication. Although established in the capital, Boudot was at the time the director of the printing house of Trévoux, next to Lyon and one of the major book businesses in Europe: in its presses appeared the *Mémoires de Trévoux*, the well-known Jesuit scientific journal. More importantly, Boudot had become by 1701 *imprimeur ordinaire du Roi* (ordinary printer to the king), a royal office dependent on the secretary of the King's House, and the official printer and bookseller of the Paris Academy of Sciences.⁴⁷

⁴⁶ Plumier to Bégon, Paris, August 10, 1702, in MMC mS 867, fol. 151r: "[Tournefort] va pourtant donner pour préliminaire un Catalogue de toutes les plantes nouvelles qu'il a découvert et il va Établir mesme plusieurs nouveaux genres et à cette occasion je l'ay prié de vouloir bien ajouter plusieurs nouveaux que j'ay aussi établis sur plusieurs de mes plantes de l'Amérique, et j'espère que vous les verrez dans le mesme ouvrage," and Plumier to Bégon, Paris, March 6, 1703, in MMC MS 867, fol. 147r: "J'ay voulu premièrement finir un petit ouvrage qui à ce que je me flatte vous fera plaisir. C'est un *Nova Plantarum americanarum genera*. Vous savez que Mr de Tournefort a fait nouvellement le Catalogue de toutes les plantes qu'il a trouvées dans son voyage du Levant, et qu'il y a joint aussi plusieurs nouveaux genres. Je l'avois prié de joindre à cet ouvrage les nouveaux genres que j'ay fait de mes plantes de l'Amérique, mais il n'a pas jugé à propos. Il me dit d'attendre un autre ouvrage qu'il prétend donner au jour dans deux ou trois ans." The supplement in question is Tournefort's *Corollarium institutionum rei barbariae, in quo plantae 1356 munificencia Ludovici Magni in orientalibus regionibus observatae recensentur, & ad genera sua revocantur* (Paris: de l'Imprimerie royale, 1693).

⁴⁷ Charlene Beziat, "L'imprimeur du roi à Lyon au XVIII^e siècle" (master diss., Université Lyon 2 and École nationale supérieure des sciences de l'information et des bibliothèques, 2011), 15-37; Frédéric Barbier, Sabine Juratic, and Annick Mellerio, *Dictionnaire des imprimeurs, libraires et gens du livre à Paris, 1701-1789* (Geneva: Droz, 2007), 281-84.

It is unclear whether Tournefort, a prominent member of the Academy since 1691, had any role in the publication of Plumier's *Nova genera* by Boudot. The figure and work of the professor at the Jardin du roi profoundly shaped, in any case, the contents and materiality of the book. This differed substantially from the rest of Plumier's publications in its formal characteristics: in contrast to the folio volumes of the *Description*, the *Art de tourner*, and the *Traité des fougères*, the *Nova genera* was a brief quarto book with about eighty pages of text and only forty plates. Integrally in Latin, the work consisted of the written and graphic description of 106 genera of plants, as well as a catalog of American plants, according to "the genera established in the *Institutiones rei herbariae*, and described and drawn by Father Charles Plumier Minim, Royal Botanist in the American Islands."⁴⁸ The *Nova genera* were thus conceived by Plumier as a part of Tournefort's intellectual project for the classification of the vegetable world, and the materiality of the book significantly accommodated to that of the *Éléments* and the *Institutiones* not only in its format (a quarto volume), but also in the graphic mode of representation of the genera Plumier employed in this particular publication—a mode that substantially differed from the one used in his other works. Since the *Description* in 1693, the friar preferably represented plants in a way very similar to Dodart's *Histoire des plantes*. Like in the plates that the acclaimed engravers Nicolas Robert and Abraham Bosse made for Dodart's volume, most of the plates in the *Description* presented the plants in their entire size, from the leaves to the roots (fig. 5.2). Dodart devoted an entire section of the introduction to his book to explain the principles he had followed for the visual depiction of plants. He had made, for instance, "the Plates as large as possible for a comfortable Volume, so that there are several Pictures that represent the Plants . . . in their natural size." When the specimen was about twice the size of the volume's folio pages, it was cut in two halves, and both were represented on the same plate. If bigger, the plant was reduced, but some of its parts were still presented in their natural size so that they could serve as "a reference (*qui servist comme de pied*) to estimate the real size of the Plant."⁴⁹

⁴⁸ "Catalogus plantarum Americanarum, quarum genera in Institutionibus rei herbariae jam nota sunt, quasque P. Carolus Plumier Minimus, Botanicus Regius, descripsit & delineavit in Insulis Americanis," printed in the *Nova genera* with a new pagination.

⁴⁹ Denis Dodart, *Mémoires pour servir à l'histoire des plantes* (Paris: de l'Imprimerie royale, 1676), 6: "Nous avons fait les Planches les plus grandes qu'il a esté possible dans un Volume commode; en sorte qu'il y a plusieurs Figures qui representent des Plantes d'une grandeur mediocre, aussi grandes que nature. Quant il s'est rencontré qu'une Plante n'avoit que deux fois la hauteur de la Planche ou peu plus, & qu'on la peut couper en deux sans la rendre meconnoissble, on en represente ordinairement les deux moitez dans la mesme Planche. . . . Mais parce qu'il y a beaucoup de Plantes qui sont de beaucoup plus grandes que le Volume . . . nous avons trouvé à propos d'ajouter à la Figure de la Plante quelqu'une de ses parties de la

Similar principles of representation were followed by Plumier in his first book—allowed, as in Dodart’s case, by the size of the volume. For the *Minim*, it was “very difficult to know well a plant by means of small figures,” as he claimed to have learned by first-hand experience: the choice made in the *Description* to draw the plants “in their natural size, if not entirely, at least in part” was therefore fully justified.⁵⁰ Indeed, a great numbers of the plates of his first book showed the specimens in their entirety, usually with the roots and, less frequently, in their natural landscape. Despite their professed convictions regarding visual representation, the large, full-page figures in both Dodart’s and Plumier’s books were far from a mere intellectual choice. The size of their volumes was extremely rare in the general book trade in Paris during the period and it was equally exceptional in the market of botanical literature. It has been calculated that the proportion of folio volumes regarding the vegetal world was only one to ten, whereas that of quarto, octavo, and duodecimo was about nine to ten.⁵¹

By contrast, the *Nova Genera* followed a different mode of botanical visualization: each plate sported one to six genera of plants, but only the flowers, fruits, and seeds were represented, most of the time anatomized into its constituent parts. Of the 106 botanical genera depicted in the treatise, only one (the *Palma*) was fully depicted—albeit here, too, the accent was placed on the dissected seed and fruit of the plant. The same principles of representation were at work for the rest: seeds and pods were pictured both complete and dissected, flowers were presented on different sides so as to show the inside and the outside of the receptacle (sometimes divided into calyx, membranes, stamen, and so forth), and no leaves or stems were shown (with the exception, again, of the *Palma*). In this last point, too, the *Nova genera* differs from Plumier’s previous publications: not only in the *Traité des fougères*, but also in the *Descriptions*, the friar’s predilection was mostly for ferns and related genera characterized by lacking both flowers and fruits. Hence a great number of the plates in these two volumes showed mainly fronds: the large, divided leaves of ferns and similar non-flowering plants.

grandeur naturelle, qui servist comme de pied par lequel on pust juger de la veritable grandeur de toute la Plante.”

⁵⁰ Plumier, *Description*, sig. [a3^v]: “[C]omme je sçavois par ma propre experience, qu’il est tres-difficile de bien connoistre une plante par des figures en petit, j’a voulu les dessiner dans leur grandeurs naturelle; si non en tout, au moins en partie.” A similar argument was used by Bernard de Montfaucon in his *L’antiquité expliquée et représentée en figures*, vol. 1, 2nd ed. (Paris: Florentin Delaulne *et. al.*, 1722), xi: “j’ai compris combine il étoit important de les faire de belle grandeur, afin qu’on en puisse mieux remarquer toutes les parties, & qu’elles frappent davantage l’imagination.”

⁵¹ Martin, *Livre, pouvoir et société*, vol. 2, 597-8; Alice Lemaire, “Le livre des plantes au dix-septième siècle” (Archivist-paleographer diss., École normale de chartres, 1995), 195. I thank Alice Lemaire for kindly sharing with me the unpublished manuscript of her thesis.

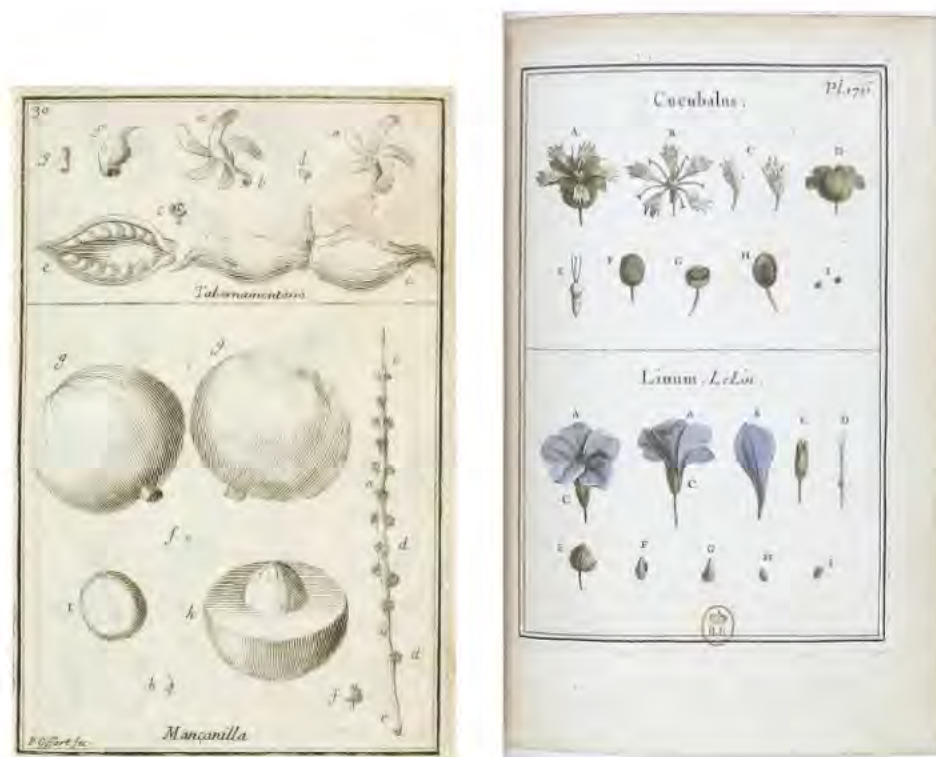


Fig. 5.7. (left) Plate from the *Nova plantarum Americanarum genera*. Compare the mode of visual representation used by Plumier here with the one used by Tournefort (right) in the plates of his *Éléments de botanique* (1694). Tournefort's botanical method, whose rules he set down in the *Éléments*, was based on the flowers and fruits of the plants. (Smithsonian Libraries, Washington DC, and Bibliothèque nationale de France, Paris.)

The representational style adopted by Plumier in the *Nova genera* was actually not his own, but mirrored the one adopted by Tournefort in 1694 and 1700 for the *Éléments* and the *Institutiones*, respectively. As in these two volumes, the *Nova genera* embraced a representational style conforming to Tournefort's scheme for the classification of the vegetable world. According to the professor at the Jardin du roi, the knowledge of plants could be improved by means of establishing principles to reduce the nearly infinite number of botanical species to a handful of genera, as we have seen in the previous chapter. To do so, the "essential character" of each genre (the most basic qualities allowing to clearly distinguish one genre from another) had to be distinctly identified. For him, "nothing is more important in Botany than to disengage entirely the [essential] character from all that could mask or obscure it." In this line, he limited the scope of his *Éléments* to "describe, & engrave, only the parts that determine the character of each

genus,” leaving therefore aside “any other part however significant it was” (fig. 5.7).⁵² To his point of view, those crucial parts were essentially the fruits and flowers: the examination of each species of plant should therefore “begin by the structure of the flower to discover the character, & herborize thoroughly.” Any other method, Tournefort brazenly claimed, was faulty: the naturalist would “always proceed blindly if pretending to determine the character of a genre of plant by means of the leaves, as it is usually done,” since “we find out everyday species of the same genre that have disparate leaves.” Accordingly, only flowers, fruits, and seeds were engraved: otherwise, he pointed out, it would have been impossible to give the picture of so many genera in two quarto volumes of engravings.⁵³

The *Nova genera* by Plumier faithfully adopted this principle not only from an intellectual point of view, but also in the visual representation of the genera. While the *Description* and the *Traité des fougères* were folio volumes with lavish plates in line with Dodart’s *Histoire des plantes* and other costly books manufactured by the Imprimerie royale, the quarto format of the *Nova genera* aimed at the same readership as Tournefort’s taxonomic work. This formal imitation is adopted, first at all, in the interaction between the textual and the graphic parts of the book and the visual dimension of text itself. In the *Description* and the *Traité des fougères*, the structure of the books turned around the plates: the text consisted of descriptions of each engraving or of the plants included in them, as well as the locations in which the author found them on the American islands. The *Nova genera*, in contrast, adopted the technical interplay between text and image used by Tournefort, more suitable for a catalog of genera and not, like in the other two cases, of species of plants—take as an example the Madrid copy of the *Nova genera*, discussed in chapter 3, in which the plates were printed in larger leaves so as to allow the reader to keep both text and images under the eyes at the same time (fig. 3.19). The structure of the book turned around the list of written descriptions of each genre: after the name, a

⁵² Tournefort, *Éléments de botanique ou méthode pour connoître les plantes*, 3 vols. (Paris: de l’Imprimerie royale, 1694), vol. 1, sig. e2^r: “Le dessein qu’on s’est proposé dans ce Livre est de faciliter la connoissance des plantes en établissant des principes pour réduire chaque espece sous son veritable genre. On a pour ce sujet tâché de décrire, & de faire graver les parties qui font précisément le caractère de chaque genre; & l’on a affecté, pour ainsi dire, de n’y faire mention d’aucune autre partie quelque considerable qu’elle soit. Il ne s’agit ici que du caractère essentiel qui distingue un genre de plante de toute autre genre, & rien n’est de si grande importance dans la Botanique que de dégager entierement ce caractere [essentiel] de tout ce qui pourroit le déguiser ou l’obscurcir.”

⁵³ Tournefort, *Éléments*, vol. 1, sig. [e2^v-e4^r]: “[C]ar c’est par la structure de la fleur qu’il faut commencer l’examen de chaque espece de plante si l’on veut en découvrir le caractère, & herboriser avec connoissance de cause. . . . Il n’est guere possible d’y parvenir autrement, & l’on marchera toujourns à l’aveugle si l’on veut juger du caractere d’un genre de plante par l’inspection de ses feuilles comme l’on fait ordinairement . . . puisque tous les jours on découvre des especes du même genre qui ont les feuilles de diferentes façons.”

short account was given that focused in the essential parts of the flowers, fruits, and seeds of the vegetable typology in question, and each of these parts were indicated with letters that functioned as keys by which the reader was directed to concrete details of the plates. Unlike those in the *Description* and the *Traité des fougères*, the descriptions did not follow the order of the engravings: like in Tournefort's volumes, notes were included in the margins indicating the plates to which the text was referring. Like in the *Éléments* and the *Institutiones*, each of the descriptions in the *Nova genera* was also followed by a list of the species of each genre that Plumier had established in his peregrinations through the West Indies.

The *Nova genera* was, not only in content but also in its material characteristics, conceived as a sort of addendum on the American flora to Tournefort's *Éléments* or to his *Institutiones*, which were limited to the European and Eastern Mediterranean vegetable world. The format, layout, typography, modes of visual representation, and references between images and text affected not only the sociologically unequal readership of the books, but also the gestures themselves by which such books were appropriated—if at all. Lavish books like the *Description* and the *Traité des fougères* were characterized by a certain extravagance in their general formal characteristics and in the plates in particular. To a large extent, they aimed at an “aesthetic” reception—one revolving around the beauty not only of the visual elements, but also of the exotic and curious side of the natural knowledge exposed. In other words, they imposed gestures of “reading” (both textual and visual) that enabled them to function as objects of both knowledge and elite consumerism.⁵⁴ Whereas these two books could function as expensive commodities, the *Nova genera* imposed more technical gestures of reading. The web of cross-references connected not only the descriptions with their respective plates, but also specific parts of the former with concrete details of the latter, thus demanding a constant to-ing and fro-ing between the two parts of the book facilitated by the manageable format of the volume. Moreover, while the *Description* and the *Traité des fougères* were composed of two main parts (textual descriptions and plates, plus a brief addendum on the virtues of plants in the case of the latter), the book on new genera had a slightly more complex structure: the descriptions were mostly explanations of the parts of the flowers, seeds, and fruits depicted, and each of them were complemented with specific lists of the

⁵⁴ A classic study on the plural audiences of natural knowledge is Simon Schaffer's analysis of eighteenth-century natural philosophy as “a practice of public display,” in Schaffer, “Natural Philosophy and Public Spectacle in the Eighteenth Century,” *History of science* 21 (1983), 1-43.

different species established by Plumier for each genre. To the whole was added a complementary catalog of plants already classified by Tournefort and found by the friar on the American islands.

The gestures of reading of the quarto-sized volume in Latin of the *Nova genera* were, therefore, quicker, more specialized, and less linear than those demanded by the two folio volumes in French of the *Description* and the *Traité des fougères*. In other words, the taxonomical works of Tournefort paved the way, to a certain extent, for the *Nova genera* to get into print, just as the royal project of the *Cabinet du Roi* did for the *Description*. The multiple agents involved in the production of those books were far from unaware of the consequences that their materiality had on the ways in which they were appropriated: the formal imitation of previous works in particular illustrates the detailed, intentional, and reflexive attention that authors paid to the *mise en page* as a means for shaping communication and channeling the reception of knowledge. Both the contents and the materiality of the books followed previous publications and attempted to ensure by this means a market or, at least, the conditions of possibility for them to get printed.⁵⁵

The tortuous printing history of the *Traité des fougères*

Getting illustrated books on natural history printed in late-seventeenth-century Paris was not an easy business, and it became even less so by the 1700s. The study of the *Description* and the *Nova genera* above shows that strategies for negotiating audiences—and thus making those books more likely to find their way into print—were deployed at the material level of the books and at that of the images in particular. These strategies became particularly explicit in the last book that Plumier authored during his lifetime, the *Traité des fougères*, because its publication turned out to be, as hinted above, the most troublesome for the friar. The book on ferns was conceived by its author as a specialized continuation of the *Description*. The result was a rather uncommon sort of book: from a material point of view, it was also a folio volume compiling 172 full-page intaglio plates; from an intellectual point of view, it restricted its object to the very specific (although surprisingly multitudinous) group of West Indian non-flowering plants. “It is a treatise,” the friar wrote to Bégon in 1702, “of all the ferns, spleenworts, maidenheads, &c. that I

⁵⁵ On the *mise en page* and the “visual spaces” of the book, see Roger Laufer, “L’espace visuel du livre ancien,” in Martin and Chartier, *Histoire de l’édition française*, vol. 1 ([Paris]: Promodis, 1982), 479-97, and Laufer, “Les espaces du livre,” in Martin and Chartier, *Histoire de l’édition française*, vol. 2, 128-39.

have discovered during my three voyages.”⁵⁶ Both characteristics made the book difficult for getting printed: Plumier meant it to be published by the Imprimerie royale under the same conditions as the *Description*—namely, as a *recueil d’images* likely to be received as both a contribution to botany and a beautiful object to delight amateurs and connoisseurs.

Yet the times were not as favorable by 1700 as they had been ten years earlier for printing such a book, let alone one as specialized as the *Traité des fougères*. It was the book on ferns that Plumier most probably had in mind in his early laments to Lister in 1698.⁵⁷ His letter to Bégon in August 1702 was mostly about the delays by which this project was hampered: “They promised me so much to print that [work] on ferns, but *Dies mali sunt* for this kind of books; yet *non est abbreviata manus Dei*, and I hope He will favor me with his Divine Providency.”⁵⁸ The tone of the exchange suggests that the book was in the hands of Anisson; it was plausibly on the subject of the *Traité des fougères* in particular that Secretary Jérôme Phélypeaux rebuked Anisson for the delays in printing Plumier’s material. As the friar was writing to Bégon already in June 1702, “I am asking the favor of printing it, since the plates are already made, and all my manuscripts in order. Then I will go wherever I am asked to.”⁵⁹ Even with the copperplates and the draft text ready, the friar still had to wait several years to see his coveted book printed as he originally conceived it. A short print run of the plates alone was issued by the Imprimerie royale in 1703 with 222 intaglio engravings and no other text than the title page.⁶⁰ It was not until 1705, some months after Plumier’s death in southern Spain, that the definitive edition of the *Traité des fougères* appeared. It had fifty plates less than in 1703, but this time included almost two hundred pages of text both in Latin and French: the descriptions of each species (encompassing notes on their ecology, reproduction, growing, as well as on those dimensions that could not be captured on the plates, such as smells and textures) and a

⁵⁶ MMC MS 656, fol. 110r: “[C]’est un traité de toutes les fougères, capillaires, langues de cerf, &c. que j’ay decouvert dans mes trois voyages.”

⁵⁷ Lister, *Journey to Paris*, 74-5.

⁵⁸ MMC MS 867, fol. 151r: “On m’avoit tant promis de faire imprimer celuy des fougères mais *Dies mali sunt*, pour ces sortes d’ouvrages, pourtant *non est abbreviata manus Dei*, et j’espère qu’il me favorisera un jour de sa Divine Providence.”

⁵⁹ MMC MS 656, fol. 151r: “Je demande par grace qu’on le fasse imprimer puisque les planches sont toutes faites et tous mes manuscrits en ordre. Ensuite j’iray là où on voudra.”

⁶⁰ *Filicetum americanum, seu filicum, polypodiorum, adiantorum, &c. in America nascentium, icones* (Paris: e Typographia regia, 1703). I have only found and consulted a handful of copies of this edition: MNHN Fol Res 200 (2), BIF Fol DM 196 A, and BL General Reference Collection 452.h.1.

long preface that the friar had been compulsively writing and rewriting over the years, as his papers demonstrate.⁶¹

In the nearly a decade in which the *Traité des fougères* was inching its way into publication, several crucial modifications were introduced in both the text and the plates so as to attempt to ensure its appeal to a broad audience, and thus its publication by the official press of a monarchy suffocated by deficit and in an almost uninterrupted state of war. This remodeling can help us explore further the contours of what the publication of natural history works (and illustrated books in particular) might have looked like in the Paris of the 1680s through the 1710s. One of them concerned the text and the nature of the volume in general at a time in which the literary genres dealing with plants were not entirely separate. Plumier understood this in terms of both “utility” and “pleasantness”:

I made it as useful as possible by adding all the virtues of each genus; for instance, I deal in general with the virtue of ferns, with the virtue of spleenworts, &c. that we know in Europe and I relate them to the ferns and spleenworts &c. of America so as to enable the people of that country to take advantage of them, and so we know better all that, I include a plate of the most common fern in Europe, a plate of the most known spleenwort, and the same for the others. I hope all those curious people will find this work pleasant.⁶²

Plumier’s attempt to render his treatise “as useful as possible” by referring to the medical properties of ferns materialized in the fourteen pages included in the 1705 edition and covering the “virtues and usages of some species of fern, mosses, and spleenworts.” He thus sought to “join utility and delectation (*pour joindre l’utile avec le delectable*), for if these plants were “prodigies that God placed on earth to have us admire His greatness,” it was not only because of the “pleasure that our sight can receive” from them, but also due to the “great virtues that they treasure for the alleviation of life.”⁶³ However, his conclusions on the medical properties of ferns were not the result of his own experiences, but a bookish compilation from “all the Physicians Botanists.” And

⁶¹ MNHN MS 32 “Notes et rédaction préparatoire du *Filicetum* du P. Plumier.”

⁶² MMC MS 656 “Collection manuscrite A. Boyer,” fol. 110^r: “Je l’ay rendu le plus utile que j’a pu ; en y aioutant toutes les vertus de chaque genre, par exemple je traite en général de la vertu des fougères, de la vertu des capillaires, &c. qui nous sont connus en Europe et je les raporte aux fougères et aux capillaires &c. de l’Amérique affin que les habitans de ce pais en puissent profiter, et affin qu’on connoisse mieux la chose je mes une planche de la fougère d’Europe la plus commune, une planche du capillaire le plus connu ausi des autres. J’espère que tous ces curieux auront plaisir de voir cet ouvrage.”

⁶³ Plumier, *Traité des fougères*, xiii: “ne sommes nous pas obligez de regarder toutes ces plantes comme autant de prodiges que Dieu a mis sur la terre pour nous faire admirer sa grandeur; sur tout si après le plaisir que nostre veuë en peut recevoir, nous considerons les grandes vertus qu’elles renferment pour le soulagement de la vie.”

this despite the fact that the friar proved to be an active experimenter during his journeys in the West Indies where, among other things, he poisoned several unfortunate vipers to determine the toxic nature of a Caribbean plant.⁶⁴ Medicinal properties, however, were not among his main preoccupations as a botanist due to the increasing separation of natural history from *materia medica* since the Renaissance.⁶⁵ In his *Éléments de botanique*, for instance, Tournefort refused altogether to discuss the virtues of plants by arguing that these did not depend on “the structure of their observable parts” (*parties sensibles*), to which the descriptive endeavor of natural history ought to pay exclusive attention, but on their “immaterial parts” (*parties insensibles*). Actually, he remarked, “experience shows us every day that the species of the same genus have very opposed virtues.”⁶⁶

Plumier was of a similar opinion in this specific point: “I do not pretend it to be an infallible & general law, that all the Plants of a same genus have as well the same virtues & qualities.” This was crucial, because his opuscle on the “virtues & uses” of ferns actually had nothing to do with American ferns: those pages dealt exclusively with the properties that some authors had attributed to European species similar to those described by Plumier. The friar, however, was crystal clear on this: “what I say [regarding the virtues of American ferns] is not based on my examining them by means of chemical analysis in their principles, or my experimenting through the exercise of Medicine: in general, I only attribute to them the same virtues & the same properties our best Botanists Authors attribute to our European Ferns, Polypodies, Maidenheads &c. I thought I could do so with assurance, since I have known, on several occasions during my three journeys, that several American plants of the same genus as those of Europe have indeed the same virtues & the same qualities.” Yet he needed “to avoid, as it were, the reproach of making an incomplete Work [*un Ouvrage à demi*] because of not having offered but the simple descriptions & figures without commenting anything on their virtue.”

⁶⁴ BCMNH MS 33 “Notes diverses,” fol. 176-77: “Observations sur les viperes de la Martinique.” On Plumier’s natural historical experimentation, see José Beltrán, “Regard, dessin, histoire naturelle: Charles Plumier et l’iconographie naturaliste au XVII^e siècle,” (master diss., EHESS, 2012), 27-32. On the culture of experimentation in natural history, see Peter Dear, “The Meanings of Experience,” in *The Cambridge History of Science*, vol. 3, *Early Modern Science*, ed. Katharine Park and Lorraine Daston (New York: Cambridge University Press, 2006), 106-31, esp. 115-9 on “Experience and Natural History.”

⁶⁵ Brian Ogilvie, *The Science of Describing: Natural History in the Renaissance* (Chicago: The University of Chicago Press, 2006), 182, 197, and 226.

⁶⁶ Tournefort, *Éléments*, vol. 1, sig. e4^{r-v}: “On n’a pas cru que ce fust ici l’endroit de parler des vertus des plantes; puisqu’il n’y a aucun rapport du caractere d’un genre, & des vertus des especes de ce même genre. Le caractere dépend de la structure des parties sensibles des plantes, & la vertu est attachée à la configuration de leurs parties insensibles. L’expérience fait voir tous les jours que les especes du même genre ont des vertus fort opposées.”

The choice of not dealing with the problematic medical properties of plants in works of natural history such as Plumier's and Tournefort's affected the prospective readers of their books. The audiences of these were dramatically reduced at the time, even more than other kinds of botanical publications. The book of plants was not a clear category by then: as Alice Lemaire has suggested, an array of genres on the vegetable world coexisted by the end of the seventeenth century: gardening books, medical catalogs of simples, traveling accounts describing distant floras, collections of engravings, or the more technical works on vegetable taxonomy, anatomy, and physiology.⁶⁷ The differences between those genres were certainly vague and they usually intermingled in the very same works, but their presence in the market was by and large very marginal. During the second half of the seventeenth century, the books related to the study of nature occupied a negligible place within the body of literature that we might call scientific, whereas the main mass corresponded to medical books.⁶⁸ Things become even tougher for books such as Plumier's when one looks at their materiality: Lemaire has correlated the multiplication of medical books during the seventeenth century, particularly intense during the period 1680 to 1700, to a reduction of the formats and number of pages. At the time, one of the most diffused typologies of medical book was the pharmacopeia, in which simples—that is, “medicinal herbs & plants”—and their curative virtues were listed. Pharmacopeias usually enjoyed a large success; not necessarily written by apothecaries or physicians, some became very popular outside learned groups: the *Remèdes charitables de Mme Fouquet* (The Charitable Remedies of Madame Fouquet), by Marie de Maupéou, enjoyed no less than fifteen editions between 1676 and 1696.⁶⁹

Plumier's and Tournefort's treatment of the virtues of plants hinges on the increasing separation of two conceptions of the vegetable world in Western Europe by then: one understood the flora as a repository of medicinal remedies; the other, as an object worthy of study in itself. This was a contested distinction, and numerous were the popular authors who blamed botanists for spending too much time counting plants and not enough delving into their healing properties. (Remember how Furetière, the author of a famous dictionary, put clearly that the one “who contents himself with knowing the

⁶⁷ Lemaire, “Le livre de plantes,” 3-103.

⁶⁸ Martin, *Livre, pouvoir et société*, vol. 2, 864-5.

⁶⁹ Lemaire, “Le livre de plantes,” 25.

name of plants is just half a *Botanist*,” for he or she cannot be exclusively “devoted to [their] knowledge,” but also to that of their uses “for the healing of illness.”⁷⁰

Plumier overtly acknowledges that the reason to include a discussion on this subject in his *Traité des fougères* was an editorial strategy: “I hope this Work is more useful [because of this], & that it will enjoy a better reception among the Public, when they will see utility mixed with delightfulness.” Indeed, the inclusion of a section on the virtues of ferns might be read—as the author suggests—as a way of negotiating with the ambiguity of genres and styles that coexisted in the market of plant books, as an attempt to enlarge the audiences of a work whose reception was extremely limited because of its topic and format. As a monumental book, its circulation was greatly restrained to prestige milieus. But the question might also be put the other way around: an illustrated book of plants had few possibilities to be printed in Paris outside the networks of royal patronage, and these networks deeply influenced the content and form of the volumes. The circuits through which the friar’s drawings got into print—those passing through the Imprimerie royale, Pontchartrain, Jean Anisson, and the abbé Bignon—turned them into luxury editions. It is not that the *Traité des fougères* needed to appeal to a broader public because its expensive format restrained the already marginal circulation that any botanical work could have expected. It is not, as Plumier tells us in the preface of his *Description*, that botanical catalogs like his needed large figures so as to make their identification possible—something especially important in the case of relatively unfamiliar specimens from the other side of the Atlantic. Rather, the book of ferns was an object of royal prestige through and through.

This was the fundamental contradiction inherent in any of the books on natural history and natural philosophy published at the Imprimerie royale between the 1680s and the 1710s: their circulation was a priori not that of commercial exchange, and only over time did they inch their way into the market. In 1692 Leibniz stressed the problems of such editorial enterprises in a letter to the abbé Paul Pellison, historiographer of the king:

Seemingly the resolution that MM. of the Academy have recently taken of opening their treasures and giving something every month is to be attributed to M. abbé Bignon. The public will be grateful also for the advancement of some of the great publications in which

⁷⁰ Antoine Furetière, *Dictionnaire universel, contenant generalement tous les mots François, tant vieux que modernes, & les termes de toutes les sciences et des arts*, 2nd ed. (The Hague: chez Arnoud & Reinier Leers, 1701), vol. 1, 256-7: “Botanist. s. m. Celui qui s’applique à la connoissance des plantes, & qui s’en sert pour la guerison des maladies: car une personne qui se contente de sçavoir le nom des plants, n’est *Botaniste* qu’à demi.”

the Academy is involved. They have been printing several pieces for a long time already but, I don't know why, one finds them rarely in the bookshops and, apart from the volumes on animals and the measurement of the earth, I have seen almost nothing. Otherwise, if the booksellers had brought them, I would have bought them longtime ago. Generally, however, so many beautiful things printed in the Louvre are only for France, and it is a marvel when we see them elsewhere.⁷¹

Similar remarks were voiced by Alexander Pitfeild (1658-1728), Fellow of the London Royal Society and the anonymous translator of Perrault's *Histoire des animaux* into English in 1701. Pitfeild made the problem of these crown-sponsored publications very clear from the second sentence of his foreword: Perrault's 1671 and 1676 volumes on the history of animals

were by them some time since so Magnificently, as well as Curiously set forth in two Volumes, that (as they seemed not to be designed for common Sale, so) they became Presents only from the King, or Academy, to Persons of the greatest Quality, and were hereby rendered unattainable by the ordinary Methods for other Books. And altho' by some few, who (through this means) had the opportunity of perusing them, they were found full fraught with very Pertinent, as well as Curious Observations; yet so great was the difficulty in procuring the favours of such a perusal (not only here in *England*, but even at *Paris* itself) that the Ingenious Labors of that Illustrious Society were hereby made less Useful and Ineffectual to their great Design; most of the Learned being totally deprived of the singular Advantages that might be obtained therefrom.⁷²

The paradox was an important one. On the one hand, the books printed at the Louvre, learned or not, were meant to function as luxury commodities within a symbolic

⁷¹ Gottfried Wilhelm Leibniz to Paul Pellison, June 27, 1692, in *Oeuvres de Leibniz, publiées pour la première fois d'après les manuscrits originaux avec notes et introduction*, ed. Louis-Alexandre Foucher de Careil, vol. 1 (Paris: Librairie de Firmin Didot Frères, Fils et. Cie., 1859): "Apparemment la résolution que MM. de l'Académie ont prise depuis peu d'ouvrir leurs trésors et de donner quelque chose tous les mois aura esté un effet des soins de M. l'abbé Bignon. Le public luy en sera redevable aussi bien que de l'avancement des grands ouvrages dont l'Académie s'est chargée. Ils ont fait imprimer plusieurs pièces depuis longtemps, mais je ne sçay pourquoy, on n'en voit presque rien chez les libraires, et, hors mis les mémoires touchant les animaux et la mesure de la terre, je n'en ay presque rien vû. Cependant, si les libraires les portoient, je les aurois achetés il y a longtemps. On peut dire généralement que tant de belles choses qui s'impriment au Louvre ne sont presque que pour la France, et c'est une merveille quand on en voit ailleurs."

⁷² [Alexander Pitfeild] "The Publisher to the Reader," *Memoir's for a Natural History of Animals, containing the Anatomical Description of several Creatures dissected by The Royal Academy of Sciences at Paris. . . . Done into English by a Fellow of the R. S.* (London: printed for John Clarke, 1701), unpaginated. On the English version of the *Histoire des animaux*, see Sachiko Kusukawa, "Picturing Knowledge in the Early Royal Society: The Examples of Richard Waller and Henry Hunt," *Notes and Records of the Royal Society* 65 (2011), 273-94, esp. 275-80.

economy of gift exchange. They were, after all, the *propriety* of the king. (It is important here to highlight the distinction, essential to the early modern world of the book, between “property,” or authorial rights over an artistic or literary creation, and “propriety,” or the economic right over an alienable commodity.)⁷³ There was a certain naiveté in Plumier’s claimed attempt to enlarge the audience for his *Traité des fougères* by means such as the inclusion of a text on the virtues of plants, for the first environment in which Plumier’s engravings (and knowledge by and large) got legitimized was not that of naturalists, not that of “curious people,” but that of royal patronage. Hence the extravagance of volumes like the *Description* and the *Traité des fougères* in contrast to others like the *Nova genera*: their format, *mise en page*, textual contents, and plates were the result of their being part of the monarchy’s manifold project to make itself visible. This contrasted sharply with some contemporary trends: in Britain, for instance, the size of some books was reduced, and their format and layout simplified, not only as a way to enlarge their diffusion (or, at the very least, make their publication more likely to be undertaken by printers and booksellers), but also in order to convey modesty, a virtue increasingly valued in the scholarly persona.⁷⁴

On the other hand, natural historical iconography could hardly be printed in Paris by 1700 if it was not in the Imprimerie royale, at least in the quantity and quality of the copperplates included in the *Description* and the *Traité des fougères*. In actual fact, scholars upon whom the king’s liberality had been bestowed were expected to publish their findings in the Louvre workshop. This was also the contradiction of royal patronage over scholarship in Louis XIV’s France: it was supposed (at least to the eyes of the government) to function in the service of the monarch’s glory. This is also what lay behind the honest expectation of patrons that a state-sponsored botanist like Plumier worked at the publication of his books rather than pursuing more field research: it was mainly in the form of luxury books that the investment of the crown in learned pursuits was put into value.

Such a paradox underpinned the publication of any book at the Imprimerie royale, but it certainly reached its peak with the *Traité des fougères* because of both its topic and the timing of its intended publication. Its subject matter was far too specialized for a

⁷³ The distinction was made by Mark Rose in *Authors and Owners: The Invention of Copyright* (Cambridge, MA: Harvard University Press, 1993), cited by Roger Chartier, “Foucault’s Chiasmus: Authorship between Science and Literature in the Seventeenth and Eighteenth Centuries,” in Biagioli and Galison, *Scientific Authorship*, 21.

⁷⁴ Johns, “The Ambivalence of Authorship,” 81.

presentation volume, despite Plumier's ardent exaltations of ferns' beauty ("Everything in them flatters the eyes in such a way that I can assure you that of all the plants I have discovered in the Islands of America there is almost none that has pleased me as much as Ferns & other genera of this same class.")⁷⁵ But at the turn of the century, times were bad for seeking royal support: the difficulties the friar encountered for nearly a decade to get this volume into print reflect the growing uncertainties of the role that natural history editorial enterprises played in the symbolic apparatus of the monarchy, if not the contradictions of such propaganda in a time of deep economic crisis.

Crafting nature as commodity

The contradictions that plagued the royal patronage over scholars at the time of Louis XIV, as well as the Imprimerie royale's part in it, became blatant during the years in which Plumier was struggling to publish *Traité des fougères*. When it became clear that the book on ferns would not make its way into print as smoothly as the *Description*, Plumier decided to wield the burin and to accelerate the publication and mitigate its potential expenses: he himself carved about half of the two hundred intaglio figures that he originally aimed to include in the volume. By 1702, the plates were ready, as well as the text, as the friar informed Bégon. In the 1705 edition, about thirty engravings were reemployed from the *Description des plantes de l'Amérique* and 141 were new; of those, no less than 112 were engraved by Plumier himself. The skillful friar attempted to counterbalance the arid scene of the book world in Paris around 1700 by making good use of his abilities as a turner to economize in what was probably the most expensive part of the production of illustrated books. And yet, by 1702, he felt far from seeing his book through the press. Plumier was in despair. Rather than undertaking any further voyage, he was supposed—perhaps even required—to work on the publication of his images, but this seemed altogether impossible at the time.⁷⁶ The carving of about a hundred large copperplates might have been a pretty good deal of work, perhaps the reason he decided to make this clear in the plates themselves and carved his name in all those plates he had crafted: *Fr. C. Plumier Minimus B.R.D. et Sc.*, "Father Charles Plumier, Minim and Royal Botanist, Drew It and Carved It" (fig. 5.8).

⁷⁵ Plumier, *Traité des fougères*, iv: "Tout y flatte la vûe de telle maniere que je puis assurer que de toutes les plantes que j'ay découvertes dans les Isles de l'Amérique il n'y en a guere qui m'ait fait tant de plaisir que les seules Fougères & les autres genres de cette même classe."

⁷⁶ Plumier to Bégon, Paris, June 11, 1702, in MMC MS 656, fol. 110^r.



Fig. 5.8. Plumier's signature in one of the plates of the *Traité des fougères* as both the draftsman and the carver. "Fr.[ater] C.[arolus] Plumier Minimus B.[otanicus] R.[egius] D.[elineavit] et Sc.[ulpit]."
(Bibliothèque nationale de France, Paris.)

In all probability, this was the first time he had manufactured any plate for one of his books, but not the first time he affixed his signature to the figures. Remember that a good number of his manuscripts bore his name ("Fr. C. Plumier minimus"); his signature was even more common in his printed books: in the *Description*, for instance, the naturalist signed no less than a hundred plates as the draftsman ("Fr.C.P.m.B.i.d." or "Fr. Carolus Plumier Minimus Botanicus Regius delin.[eavit]"). Just like the Latin or French polynomial identifying the plant represented, the name of Plumier (and occasionally that of a carver other than him) became an integral part of the graphic space: they not only offer some insight into the plates' (sometimes convoluted) process of production, but also injected new meanings into the representation. By following the various signatures carved in Plumier's copperplates, we cannot only trace some of the agents involved in their production, but also clarify the function of the botanist's name inscribed on his images (fig. 5.9).

The engravers of Plumier's plates

In that specific book, the *Description*, the friar's name pervaded the large majority of the plates, identifying him as the draftsman. Little reference was made to printmakers: only four of the figures were signed by Jean-Louis Roulet (1645-1699), a copper engraver trained in Paris with renowned mentors like François Poilli.⁷⁷ It was within the norm, however, that engravers put their name on only few, if any at all, of the plates they made for a volume. Apart from two of these plates, which found their way into the *Traité des fougères*, the name of Roulet does not appear in any of Plumier's other books.

⁷⁷ Pierre-Jean Mariette, *Abecédario de P. J. Mariette et autres notes inédites de et auteur sur les arts et les artistes*, 2nd ed., vol. 5 (Paris: J. B. Dumoulin, 1858-1859), 41-42; *Dictionnaire de la Provence et du Comté-Venaissin . . . par une société de gens de lettres*, vol. 4 (Marseille: de l'imprimerie de Jean Mossy, Pere & Fils, 1787), 172.

Fig. 5.9. Plates and signatures in Plumier's books

<i>Title</i>	<i>Number of plates</i>	<i>Signature in the plates</i>
<i>Description des plantes de l'Amérique</i> (1693)	108	<ul style="list-style-type: none"> • Frater Carolus Plumier minimus et botanicus regius delineavit: 102. • F. C. P. m. b. r. d. et Ioannes Ludovicus Rollet [Jean-Louis Roulet] sculpsit: 4. • No signature: 2.^a
<i>L'art de tourner</i> (1701)	70 [numerated 1 to 69 + *]	<ul style="list-style-type: none"> • Frater Carolus Plumier minimus: 4. • F. C. P. m. delineavit: 8. • F. C. P. m. del. 1699 [et] J. Buys sc.: 1. • F. C. P. m. del. [et] Bouchet sculpsit: 2. • F. C. P. m. invenit et del.: 1. • F. C. P. m. masiliensis del. Lugduni 1700: 1. • F. C. P. m. inv. et del. [et] M. Demasso fec.: 2. • Bouchet sculp.: 2. • [Symbol] fec.: 2. • Rousseau inv. Lugd.: 1. • No signature: 46.^b
<i>L'art de tourner</i> (1749)	80 [numerated 1 to 14, and 14 n°2 to 79]	<ul style="list-style-type: none"> • Frater Carolus Plumier minimus: 3. • F. C. P. m. delineavit: 9. • F. C. P. m. masiliensis del. Lugduni 1700: 1. • F. C. P. m. invenit et del. [et] M. Demasso fecit: 1. • F. [François] Bailleul sculp.: 1. • No signature: 65.^c
<i>Traité des fougères de l'Amérique</i> (1705 bilingual edition)	172 [numerated 1 to 170 + A, B]	<ul style="list-style-type: none"> • Frater Carolus Plumier minimus et botanicus regius delineavit: 50. • F. C. P. m. b. r. del. et sculpsit: 112. • F. C. P. m. b. r. del. [et] I. Lud. Rollet sculpsit: 2. • No signature: 8.^d
<i>Nova plantarum americanarum genera</i> (1703)	40	<ul style="list-style-type: none"> • Pierre Giffart fecit: 22. • No signature: 18.^e
<i>Plantarum americanarum fasciculus primus [-decimus]</i> (1755-1760)	263 [fasciculus 1: 1-25+25*; f. 2: 26-50; f. 3: 51-75; f. 4: 76-100; f. 5: 101-125; f. 6: 126-150; f. 7: 151-175; f. 8: 176-201; f. 9: 202-226; f. 10: 227-262]	No signature in any of the plates.

a. Drawing by Plumier and carving by Rollet: plates v, xxxix, lx, and xcix. Not signed: plates xiv and li.

b. F. C. Plumier minimus: plates 7, 29-30 and 33; F. C. P. m. delineavit: plates 13-4, 18-9, 25, 37, 62 and 64; F. C. P. m. del. 1699 [et] J. Buys. sc.: 6; F. C. P. m. del.: [et] Bouchet sculp.: plates 11 and 16; Fr. C. P. m. invenit. & delin.: plate 48; Fr. C. P. m. masiliensis del. Lugduni 1700: plate 65; F. C. P. m. inv. et delin. [et] M. Demasso fe.: plates 22 and 69; Bouchet sc.: plates 17 and 38; [symbol] fe.: plate 23 and 32; Rousseau inv. Lugd.: plate 52. Moreover, the signature of Sebastien Leclerc is in the title page and in the vignette of the dedication page ("Leclerc sculpsit" and "Leclerc fecit" respectively).

c. Frater Carolus Plumier Minimus: plates 7, 8 and 32; F. C. P. m. delineavit: plates 11, 14-5, 17, 19-20, 27, 61 and 63; F. C. P. Masiliensis del. Lugduni 1700: plate 64; F. C. P. m. invenit et deli. [et] M. Demasso fecit: plate 22; F. Bailleul sculp.: plate 77.

d. Drawing by Plumier (and unknown carver): plates 1, 8, 11-13, 21, 27-29, 31, 35, 40, 43, 48, 51, 53, 55, 60, 62-63, 69-70, 73, 76-77, 83, 91, 97, 100-1, 104-5, 108, 110-11, 113, 117, 119, 122, 130, 132, 143, 146, 148, 151-52, 157-58, 165 and 167. Drawing by Plumier and carving by Rollet: 9 and 124. No signature: 2, 15, 166, 168-70, A and B.

e. No signature: plates 4-10, 16, 19, 24, 29, 32, 34, 36-40.

Up to seven other artisans, however, are mentioned among the whole of his printed images. Six of these took part in the project of the *Art de tourner* alone, of whom two, a certain Rousseau (whose first name went unsaid) and Nicolas Grollier de Servières (1596-1689), had nothing to do with the crafting of the plates, but with the objects depicted. (Rousseau was referred to by Plumier as “a very skillful clockmaker from the city of Lyon” and the *inventor* of the pieces of a turn for the making of clocks portrayed in one of the figures; Servières was quoted in three images of vases made by him and coming from his collection, “Ex manu et musaeo illus. Dni. de Servières.”)⁷⁸ The other four names mentioned on the plates of the book on turnery were those of the engravers. All of them were from Lyon or spent some time working there, and three of them signed a few plates of the first edition: Michel-François Demasso (1654-ca. 1725), a Lyonnais printmaker and engraver who worked on other natural history books and travel accounts; a certain Bouchet, probably Jean-Baptiste Bouchet (n.d.), a painter and burin engraver also related to Lyon and specialized in the making of maps; Jacques Buys (b. 1644), working in the same city around the last third of the seventeenth century, and finally an unknown artisan who signed two plates with a symbol.⁷⁹ The connection of these cutters with the Lyon community of book producers acknowledges for the first publication of the *Art de tourner* in that city in Jean Certe’s workshop: two plates were signed by Demasso, three others by Bouchet, and two by the anonymous craftsman who signed with a symbol.⁸⁰

When half a century later the publisher Charles-Antoine Jombert almost entirely recast the book, he used the original copperplates (inherited probably from his grandfather, who sold the first edition in Paris), but introduced several modifications in them. While in Certe’s original 1701 edition the engravings were patiently inserted in between the pages of text, Jombert’s 1749 version gathered them together at the end of

⁷⁸ For Rousseau, see Plumier, *Art de tourner*, 143; the plate in question is pl. 52 of the 1701 edition. For Servières, see pl. 62-4 of the 1701 edition (no. 61-3 of the 1749 edition).

⁷⁹ The Leipzig antiquarian Johann Friedrich Christ included it in his dictionary of artist’s signatures and monograms originally published in German in 1747. He identified it as a mark of one or several engravers, but could not determine their identities: *Dictionnaire des monogrammes chiffrés, lettres initiales, logogryphes, rébus, &c. sous lesquels les plus célèbres peintres, graveurs & dessinateurs ont dessiné leurs noms* (Paris: chez Sébastian Jorry, 1750, 54).

⁸⁰ *Dictionnaire des graveurs-éditeurs et marchands d’estampes à Lyon aux XVII^e et XVIII^e siècles: Catalogue de pièces retrouvées* (Lyon: Presses Universitaires de Lyon, 2002), 59-60; Roger-Armand Weigert [and Maxime Préaud], *Inventaire du fonds français: Graveurs du XVII^e siècle*, 17 vols. (Paris: Bibliothèque nationale, 1939-). Michel-François Demasso carved some of the plates in Philippe Sylvestre Dufour’s *Traitez nouveaux & curieux du café, du thé et du chocolat* (Lyon: chez Jean Girin and B. Rivière, 1685), Jacob Spon’s *Miscellanea eruditae antiquitatis* (Paris: sumptibus Fratrum Huguetan & Soc., 1685), and Robert Knox’s *Relation ou voyage de l’isle de Ceylan* (Amsterdam: chez Paul Marret, 1693).

the volume. (This was the most common way in which engravings and etchings were included into books, for they had to be printed in a different press than the text and were virtually always produced in a different workshop and at a different moment.) Jombert employed exactly the very same plates that had been used fifty years before, but the numeration of the pictures was modified in most of the cases and nearly all the signatures of the cutters erased. (All those from the 1701 edition were erased with the exception of a plate by Delamasso, one of the few of which the numeration was not modified.) Out of the seventy plates of the first edition, sixty-nine were reemployed in that of 1749. Ten others were also included, among which one was signed by a new cutter: a certain Bailleul, most likely François Bailleul (b. ca. 1690), royal engraver and geographer, also a Lyonnais, who contributed to Jean-Baptiste Duhalde's 1735 *Description géographique, historique, chronologique, politique et physique de l'empire de la Chine* and other works published also at Charles-Antoine Jombert's workshop. Few other names appear in smaller pictures of the book, like that of the renowned Sébastien Leclerc in the vignette embellishing Plumier's dedication to Bégon and illustrating the intendant's coat of arms in the 1701 edition.⁸¹

All that being said, a very reduced number of plates were actually signed by an engraver in the *Art de tourner*, either in the 1701 or the 1749 editions. The fact is not necessarily revealing, since, as said, the common situation in the hand-press period was one in which engravers signed only some of the plates they actually manufactured. This was also true for the *Nova genera*, even if half of the plates were signed by a carver (although he probably carved all of them). The engraver was Pierre Giffart (1638-1723), a seller and printer of engravings (*éditeur et marchand d'estampes*) established in rue Saint-Jacques in Paris and the scion of an old dynasty of book traders and makers. Giffart was a well-known name in the printmaking milieu: Royal engraver and member of the Royal Academy of Painting and Sculpture since 1691, of which he would later become the official engraver, he had a solid reputation as both merchant of engravings and cutter on copper. His signature, often confused with that of his son Pierre-François, can be found in substantial editorial enterprises of the period, such as the *Estat present de la Chine en figures* by the Jesuit Joachim Bouvet (printed in 1697 in Giffart's own workshop), the

⁸¹ François Bailleul also contributed to some of the engravings of Guillaume Le Blond's *Elemens de fortification à l'usage des jeunes officiers*, printed in Jombert's house in 1742. The plates of the first edition of the *Art de tourner* are pl. 16, 17, 22, 23, 38, 32, and 69; the plate with the signature of Delamasso in the two editions is, for both, pl. 22; the plate from the 1701 edition not included in the 1749 is the 82; the ten new plates of the 1749 edition are pl. 40, 58, and 71 to 79.

seven volumes of Pierre Helyot's *Histoire des ordres monastiques* (1714-19), and Jean Mabillon's *De re diplomatica libri VI* (1681)—of which he crafted the exquisite frontispiece illustrating an allegory of Critical Science as the advocate of Justice and Truth and the vignette of the dedication to Jean-Baptiste Colbert. Giffart was also involved in the publication and the making of the engravings of Louis Feuillée's *Journal des observations physiques, mathématiques, et botaniques* (1714), and appears as the cutter of more than a dozen of the maps and landscapes of South and Central American locations.

Roulet, Demasso, Bouchet, Buys, Bailleul, Giffart—all of the cutters whose name appears at some point or another on the plates of the *Art de Tourner* or the *Nova genera* are related to the editorial milieu in which Plumier's books were printed rather than to the author himself. The fact is unsurprising, for it was usually the undertaker, whether printer or bookseller, who commissioned the engraving of the plates rather than the author. Furthermore, Plumier accorded the privilege of publication of his *Art de Tourner* to a certain abbé Perichon, who took care of the edition according to its frontispiece. The privileges passed to Charles-Antoine Jombert most likely through his grandfather Jean, who enjoyed the right to selling the book in Paris. The same frontispiece was modified in the 1749 edition so as to erase any reference to the abbé, and no mention was made on the publication privileges of the book. In the case of the *Nova genera*, Plumier also assigned his publication privileges to another person, this time to the publisher himself, Jean Boudot, who most probably commissioned Giffart with the engravings of the plates.

This was the prevailing situation during the entire hand-press period. However, notable exceptions (particularly in the English-speaking world) have been adduced as evidence of the tensions that surrounded the production of images in natural history and natural philosophy books in terms of scientific credit. Take a couple of examples. Robert Hook, curator of experiments at the Royal Society, famously supervised the production of the engravings of his *Micrographia* (1665), and is held to have drawn (and controlled the engraving of) the illustrations of one of Robert Boyle's books. The divine Newton, too, commissioned the engraved single plate of the second edition of his *Principia mathematica* in London (perhaps just because in Cambridge, where the book was printed, there was no rolling press back then).⁸² The case of Johannes Hevelius, around the same period, is

⁸² Robert Hooke, *Micrographia: or some physiological descriptions of minute bodies made by magnifying glasses* (London: Printed by Jo. Martyn and Ja. Allestry, 1665), [sig. G2r-v]; Robert Boyle, *The correspondence of Robert Boyle*, ed. Michael Hunter, Antonio Clericuzio, and Lawrence M. Principe (London: Pickering & Chatto,

even more famous: the Polish astronomer attempted to imbue authority into his engravings of the stars and the moon by closely controlling their production and, more importantly, by making his readership become “virtual witnesses” of this control. In that way, he created a visual language for astronomy by translating to his printed images his own credit as observer: the reliability of this language was based in the “freshness” of the engravings as materializations of his own observations. In other words, “he represented what he saw on paper as faithfully as possible, without intermediaries, distortion or embellishment, and then to make sure that what he had drawn was passed on to the reader as faithfully as possible through the engraving and printing process.”⁸³

Should we understand Plumier’s *sculpsit* in most of the plates of the *Traité des fougères* in this sense? Adrian Johns argued that, “as with texts, the credibility of pictorial reproductions could be best secured by manifesting clear control over every aspect of the reproductive process.”⁸⁴ The premise is that learned authors at the time, with few exceptions, regarded engravers—when not printers themselves—as potential or even assured corrupters of the exact meanings they pretended to convey. Yet Plumier’s reasons to get involved in the crafting of his fern copperplates were far more pedestrian: that is, to navigate the highly mutable conditions of possibility for illustrated natural history books to make their way into print in late seventeenth- and early eighteenth-century Paris.

This brings us to two further questions. The first concerns intaglio printmaking, its techniques and difficulty for a draftsman, as well as the social place of prints in late seventeenth-century Paris.⁸⁵ The second goes back to the problem of signature: what was the meaning, if any at all, of Plumier’s signature as the draftsman and, occasionally, the carver? If not an attempt to publicly state control over the production of his printed images so as to reinforce their credibility, and keeping in mind that his name was equally

2001), vol. 2, 412; D. F. McKenzie, *The Cambridge University Press, 1696-1712: A Bibliographical Study* (Cambridge: Cambridge University Press, 1996), vol. 1, 336; Roger Gaskell, “Printing House and Engraving Shop: A Mysterious Collaboration,” *The Book Collector*, 53 (2004), 16–17; Michael Aaron Dennis, “Graphic Understanding: Instruments and Interpretation in Robert Hooke’s *Micrographia*,” *Science in Context* 3, no. 2 (1989), 309–64. The book by Robert Boyle whose images’ production Hooke was purportedly involved with is *New experiments and observations touching cold* (London: printed for John Crook, 1665). Newton’s copies of the first two volumes of Feuillée’s *Journal*, printed in 1714, are nowadays still conserved in the Wren Library of Trinity College, University of Cambridge.

⁸³ Mary G. Winkler and Albert Van Helden, “Johannes Hevelius and the Visual Language of Astronomy,” in *Renaissance and Revolution: Humanists, Scholars, Craftsmen and Natural Philosophers in Early Modern Europe* (Cambridge: Cambridge University Press, 1993), 97–116.

⁸⁴ Johns, *Nature of the Book*, 434–43.

⁸⁵ For an account on techniques of images making in natural historical books in the Renaissance, see Kusukawa, *Picturing the Book of Nature*, 29–47.

affixed to a good number of his manuscript drawings, how can we understand the name within the images?

Learning to etch: A technical interlude

Printmaking in eighteenth-century France was practiced by two sorts of people: trained professionals who earned their living with a burin or a needle in their hands, and amateurs who practiced the art on an occasional manner.⁸⁶ Somehow like turnery, printmaking became a nonprofessional and pleasurable occupation at the time.

Unsurprisingly, printmaking manuals mushroomed at the time. Probably one of the most famous at the time was also among the first descriptions of the process, from the carving of the plates to their printing. The author was Abraham Bosse (ca. 1602-1676), a Huguenot printmaker, book illustrator, and publisher based in Paris. A prolific and accomplished artist, Bosse was involved in the making of a number of engravings in the books of the *Cabinet du Roi* and had worked at some point with Nicolas Robert, the painter at the origins of the *vélins du Roi*. Bosse was also the author of well-known etchings like some of those in Dodart's *Mémoires pour servir à l'histoire des plantes* (1676) or Perrault's anatomical descriptions of animals, as well as the famous frontispiece of Thomas Hobbes's *Leviathan* (1651). The nearly twenty pages of his "La Manière d'Imprimer les Planches en Taille Douce. Ensemble du Moyen d'en Construire la Presse" (On the Method of Printing Copperplates, with the Way of Building the Press) constituted the first manual on the construction and manipulation of the rolling-press used in the printing of intaglio images. The booklet was one of the two appendixes to Bosse's treatise on etching, the *Traité des manières de graver en taille douce sur l'airin* (Treatise on Printmaking on Bronze), a work published in 1645. It had a stupendous success: it was translated into English, Italian, Dutch, German, and Portuguese, and two further augmented editions were printed in France during the following century alone—one of them by Charles-Antoine Jombert, the Parisian undertaker responsible for the 1749 edition of Plumier's *Art de tourner*, who, interestingly, turned it into a manual for both etching and engraving with burin.⁸⁷ In his *Traité* Bosse proclaimed the dignity of

⁸⁶ Perrin Stein *et al.*, *Artists and Amateurs: Etching in Eighteenth-Century France* (New York: The Metropolitan Museum of Art, 2013).

⁸⁷ Abraham Bosse, *Traité des manières de graver en taille-douce sur l'airin* (Paris: chez ledit Bosse, 1645); Bosse, *De la manière de graver à l'eau forte et au burin* (Paris: Charles-Antoine Jombert, 1745); William M. Ivins Jr., *Prints and Visual Communication* (Cambridge, MA: The MIT Press, 1969 [1953]); Gaskell, "Printing House"; Carl Goldstein, *Print Culture in Early Modern France: Abraham Bosse and the Purposes of Print* (Cambridge: Cambridge University Press, 2012), 19-25, esp. chap. 1. See also Marianne Le Blanc, *D'acide et*



Fig. 5.10. “This figure shows you How Copperplates Are Printed.” The printing of copperplates differed substantially from that of woodcuts and movable types. In the latter, the figures appear in relief and the ink is applied to the raised surface. In the former, however, the figures are carved into the metal plate: the resulting grooves receive the ink, the remains of which are wiped off the surface. Unlike woodcuts and movable types, therefore, the printing of copperplates required much higher pressure in order to pull the ink out of the grooves. A special press was used, known as the rolling press. (Bibliothèque nationale de France, Paris.)

printmaking, its mechanical nature notwithstanding: with the foundation of the Royal Academy of Painting and Sculpture by Mazarin in 1648, Bosse joined as one of its first members. His *Traicté* became the reference manual on printmaking during the nearly two subsequent centuries, especially for artists who were experimenting with intaglio at an amateur level. This was the audience targeted by Bosse: meaningfully dedicated to “the lovers of this art,” the book gave practical instructions “so that all those who would like

d'encre: Abraham Bosse (1604?-1676) et son siècle en perspective (Paris: CNRS Editions, 2004); Sheila McTighe, “Abraham Bosse and the Language of Artisans: Genre and Perspective in the Académie Royale de Peinture et de Sculpture, 1648-1670,” *Oxford Art Journal* 21, no. 1 (1998), 1–26.

to initiate themselves into [them], either as an occupation or a divertissement, could find by themselves a sort of introduction to the Art.”⁸⁸

Some years before the *Traicté*, Bosse had printed two single-sheet plates on the process of printmaking. The first, dated 1642, showed the process of printing from copperplate (fig. 5.10). It depicts an engravings shop, whose center is dominated by a rolling press operated by a pressman, who pushes with two hands and one foot the X-shaped wheel of the artifact. At the back of the room, behind the press, a workman with blackened hands covers the surface of a plate with ink; on the right of the scene, next to the window, another finishes wiping it with the palm of his hand. The rolling press, exclusively used for the printing of intaglio plates, was radically different from the letterpress used for the setting of movable types or woodcuts. In the typographic press, little pressure was required: the ink was applied on the uppermost parts of the types or woodcut; the white spaces of the picture were those carved in the block, and the figures appeared in relief. For the printing of copperplates, in contrast, a much greater pressure was required: the figures were carved into the flat surface of a metal plate—most usually copper—that was then entirely inked; after wiping the surface, the ink remained only into the grooves. Once in the rolling press, the plate was in full contact with the paper: the star wheel activated two parallel rollers that concentrated the force on a line, through which the plate was forced, so that the ink was pulled out of the grooves onto the paper. The pressure exerted by the rollers was far greater than the one the flat plates of the typographic press could apply, leaving on the paper the characteristic “plate-mark” surrounding etchings and engravings.⁸⁹

The second scene published by Bosse the following year presented a printmaker’s workshop-boutique (fig. 5.11). It depicted the two main methods for the *gravure en taille douce* or intaglio engraving: burin engraving or *gravure au burin* and etching or *gravure à l’eau forte*. On the picture’s right-hand side, an engraver holds a plate in his left hand and completes a figure of a Madonna by means of a burin, a steel, V-shaped chisel used directly on the metal. The burin required skillful movements by the engraver, who had to “press quite hard the Contours of his figures” and turn the plate on his other hand to

⁸⁸ Bosse, *Traicté*, unpaginated: “Aux amateurs de cet art . . . fin que ceux qui voudront commencer à se donner cette sorte d’occupation ou de divertissement, y puissent trouver d’eux-mesmes s’il y a moyen, quelque sorte d’introduction à l’Art.”

⁸⁹ Bosse, *Traicté*, 69–75: “De la manière d’encre la Planche pour apres la faire passer sur la table de la Presse entres le rouleaux pour l’imprimer”; Phillip Gaskell, *A New Introduction to Bibliography* (Oxford: Clarendon Press, 1974), 157; Antony Griffiths, *Prints and Printmaking: An Introduction to the History and Techniques* (London: British Museum Press, 1996), 13–99.

practice among intaglio cutters. Although most of the time combined, burin engraving and etching had slightly dissimilar results and required entirely different skills. The physical act of carving with the burin, particularly for producing a curved line, was highly demanding: the gestures of the engraver were limited by the resistance of the metal while scraping the surface off, and the lines thus made were therefore sharper and straighter. With etching, in contrast, the hand of the cutter could perform nimbler, defter strokes closer to drawing on paper and resulting in blunt-pointed lines.⁹⁰ Although by no means a straightforward technique, etching was far easier and quicker than burin engraving, to the point that the latter was rarely practiced by non-professional printmakers. Despite the restrictions imposed by the medium, etching was similar to drawing on paper with ink: it allowed more free and spontaneous gestures of the hand, while the more difficult preparation of the plate with acid was usually done by the printers. Etching was therefore the preferred technique by amateur engravers, most of the time painters and draftsmen—like Plumier. For Bosse, etching was perfected to the point that it could stand as a *contrefaçon* of burin engraving, but at the reach of *bonnêtes hommes*, something that may have been suggested in his scene of the printmaker's workshop: while the engraver wears the *bonnet* of the guild, the etcher is dressed in *costume de ville*.⁹¹

Etching ferns

The plates made by Plumier were etchings. Precisely because the gestures required by etching were closer to drawing on paper than burin engraving, the technique spread among draftsmen and painters.⁹² This was the opportunity for printmakers to elevate their art out of the subsidiary position it occupied in relation to the arts of *disegno*. Bosse, for instance, insisted that “it was necessary for an Engraver to know how to draw correctly, for he would not be able to imitate any Painting or Drawing without this.”⁹³ Moreover, etchings were usually more affordable than engravings. The technique proved

⁹⁰ Griffiths, *Prints and Printmaking*, esp. 31-77, and Bamber Gascoigne, *How to Identify Prints: A Complete Guide to Manual and Mechanical Processes from Woodcut to Ink Jet* (London: Thames and Hudson, 1986).

⁹¹ Le Blanc, *Acide et d'encre*, 96. I thank Roger Gaskell, from whom I learned most of the technical knowledge that underpins these pages, and who pointed out to me the social reading of Bosse's etching of the printmaking workshop-boutique. He also remarked that while the gentleman at the back of the scene contemplates the images hanging higher, whose darkness suggests that they were etchings, the two friars focus on the lighter plates below because of their religious theme, but probably also because they were made with burin—a more difficult technique, thus held to be more virtuous.

⁹² Rena M. Hoisington, “Learning to Etch,” in Stein *et al.*, *Artists and Amateurs*, 15-39.

⁹³ Bosse, *De la manière de graver* (1749), 97-8. Bosse's *Sentiments sur la distinction des diverses manières de la peinture, dessin et gravure* (Paris, 1649) was, like his *Traicté*, addressed to amateur printmakers, but particularly to painters and draftsmen.

incredibly useful for natural historians and natural philosophers in need of images for their books and with reasonable drawing skills. Unsurprisingly, etching was the technique that the botanists at the Paris Academy of Sciences chose for their *Histoire des plantes*: in the introduction to the book, Dodart explained the academicians' preference for the *gravure à l'eau-forte* because "it allows more liberty, it is quicker & easier, & it has barely less clearness than the [burin] *taille-douce*, provided that it is well done."⁹⁴ Remember that, about the same time, Colbert addressed to the Academy a *mémoire* on the projects for the history of animals and plants: in their answer, Charles Perrault and Pierre Carcavy proposed to the controller-general to install a rolling press (*une presse de taille douce*) in the Bibliothèque du roi, where the academicians held their meetings, so as to avoid that the plates leaked out before the volumes were printed.⁹⁵

Plumier's venturing into etching (but also his printed iconographic production by and large) needs to be understood within the development of a marketplace for engravings that was, in the latter decades of the seventeenth century, sustained and specialized. From the 1650s onwards, and for most of the eighteenth century, Paris dominated European printmaking: intaglio workshops concentrated in rue Saint-Jacques, together with letterpress printers and booksellers, from the late sixteenth century; and from the middle of the 1650s, the Royal Academy of Painting and Sculpture began to accept engravers among its members. As Marianne Grivel has masterfully shown, printmaking became in the French capital a specialized industry: there were not only intaglio engravers, but also intaglio printers (*maîtres imprimeires en taille-douce*), and intaglio publishers and sellers (*éditeurs et marchands d'estampes*). It also became an acknowledged and regulated profession during the seventeenth century, traditionally independent from the logics of the guilds involved in the production of books, but increasingly the object of royal attempts to control and annex it to the community of booksellers and printers.⁹⁶

It was also during the second half of the seventeenth century that intaglio engraving, though theoretically secondary in relation to painting or sculpture, consolidated among the fine arts. Painters, often called "painters-engravers" (*peintres-graveurs*), promoted the technique not only as a means of diffusing their paintings, but also as an aesthetic form

⁹⁴ Dodart, *Histoire des plantes*, 2nd ed. (Paris: de l'Imprimerie royale, 1679), 37: "nous préferons la Gravûre à l'eau-forte à toutes les autres, parce qu'elle a plus de liberté, qu'elle est plus prompte & plus aisée, & qu'elle n'a gueres moins de netteté que la Taille-douce, pouveu qu'elle soit bien traitée."

⁹⁵ AN O1 1964, cote 2, no. 2.

⁹⁶ Marianne Grivel, *Le commerce de l'estampe à Paris au XVII^e siècle* (Geneva: Droz, 1986), esp. chap. 2; Kristel Smentek, *Mariette and the Science of Connoisseur in Eighteenth-Century Europe* (Farnham: Ashgate, 2014), chap. 1. See also Peter Fuhring, "Publishers, Sellers, and the Market," in Fuhring, *Kingdom of Images*, 30-5.

in itself, as Rembradt did in the Netherlands some decades before. Although *peintres-graveurs* sought to sell their works in the professional print market, they profited from an upsurge of interest in printmaking and print collecting that took place at the end of the century in France: a market and a community of connoisseurs emerged, and collectors increasingly invested in gathering printed images in the form of single-sheets, *recueils* or “ready-made” collections or compendia, and illustrated books. A more specialized category was that of the suites and series: sets of prints around a single theme which invited comparative study.⁹⁷ In the domain of natural knowledge, the commerce of engraving was closely linked to the passion for the collection of books of images (*recueil d’images*) among naturalists and connoisseurs. The circulation of printed images of overseas flora and fauna took place mostly under the form of the codex rather than single sheets, not only because of the reduced and elitist readership of these, but also because the visual dimension of overseas natural knowledge served at the same time the epistemic needs of the field and the aesthetic aspirations of a community of consumers of natural history.

Once more, the figure of Intendant Michel Bégon may be a good example to consider the crucial role that intaglio engraving played in the culture of curiosity collecting, and of how books on natural knowledge interacted to a large extent with the aesthetic values of this. In 1770, that is, sixty years after his death, the French crown bought Bégon’s collection of intaglio prints significantly labeled *cabinet d’estampes* (cabinet of prints). It was composed of nothing less than 227 bound volumes of engravings or *recueils*, and included several hundred portraits of “illustrious men,” “figures and engravings” from painters like Raphael and Dürer, military maps, and images of floras and faunas by Nicolas Robert or Claude Aubriet, as well as of landscapes, medals and coins, and architectural monuments. Most of the items in Bégon’s “cabinet of imprints” were not, however, *recueils* of single-sheet intaglio prints bound together for the collector, but sumptuously illustrated publications like the second edition of Vitruvius’s *Ten Books of Architecture* translated into French by Claude Perrault and David Logan’s *Oxonia illustrata* and *Cantabrigia illustrata*. Among these books, standing as both objects of collecting and learned contributions, were with no surprise Tournefort’s *Éléments de botanique* and the three first books by Plumier.⁹⁸

⁹⁷ Elizabeth M. Rudy, “On the Market: Selling Etchings in Eighteenth-Century France,” in Perrin *et al.*, *Artists and Amateurs*, 41-67. See esp. 49-55 for the *recueil* and the suites and series of prints.

⁹⁸ BNF Est. YE-25-4 “Catalogue du Cabinet de Michel Bégon, collection acquise par le roi en 1770.”

Despite the pains he certainly had to take for the publication of his books, Plumier saw into print a remarkable number of images. Leaving aside the rare *Filicetum americanum* (the volume on ferns printed in 1703 without text, most of whose engravings were published again in the 1705 *Traité des fougères*), the corpus of images printed during his life amounts to almost four hundred copperplates. A reduced number of these engravings, however, were reused from one book to the other: out of the 108 plates of the *Description*, 31 were reemployed in the *Fougères*. The reemployment of some of the plates of the *Description* for the *Fougères* attests to the latter's nature: it was intended to be a more specialized continuation of the *Description*, in which the author focused in a handful of very similar genera—*Filix*, *Lonchitis*, *Polypodium*, *Adiantum*, *Lingua cervina*, *Hemionitis*, and *Osmunda*. In Plumier's words, the *Fougères* was the completion of his project to compile the descriptions of “all the plants of this kind included in the sixteenth class of the Botanical Institutions [of Tournefort], & that I have discovered in my three journeys to the Islands of America.” The reader, Plumier thought, “will not be surprised by the fact that I have added [to the *Fougères*] those that I had already presented in my descriptions of the plants of America in the Imprimerie royale in the year 1693.”⁹⁹ The audience of the *Fougères*, consequently, was much more restrained than the one of the *Description*: the former came after a period of maturation and allowed Plumier to engage more explicitly than in his first book with his taxonomical ambitions by focusing on what seemingly was a blank spot of the method proposed by Tournefort for the classification of the vegetable world—ferns have neither fruit nor flower, the two key elements of Tournefort's classificatory system.

The circa thirty plates reemployed in the *Traité des fougères* from the *Description* bore seemingly no substantial changes: a *Phyllitis scandens* changed its name to *Lingua cervina scandens*, for instance, and two images of a beetle—face up and down—came to adorn the figure of yet another *Lingua cervina*. All of the reused engravings, however, were embellished and gained in realism by the addition of chiaroscuro and other minor details—such as the beetle (fig. 5.12).¹⁰⁰ These slight variations were mainly aesthetic, but

⁹⁹ Plumier, *Traité des fougères*, vii: “m'étant formé le dessein de rapporter dans cet ouvrage toutes les plantes de cette nature comprises dans la seizième classe des Intitutions Botaniques, & que j'ay découvertes dans mes trois voyages aux Isles de l'Amérique, on ne sera pas surpris si j'y ay joint celles que j'ay déjà données dans mes descriptions des plantes de l'Amérique de l'Imprimerie Royale en l'année 1693, avec celles que j'ay découvertes dans mon dernier voyage.”

¹⁰⁰ The correspondence is as follows (the Roman numerals referring to the plates of the *Description*, and the Arabic ones to those of the *Fougères*): I/1, II/2, III/11, IV/8, V/9, X/111, XIII/13, XVI/21, XIX/70, XX/28, XXI/35, XXII/29, XXIII/27, XXIV/43, XXV/48, XXVII/60, XXVIII/63, XXIX/62, XXX/51, XXXI/146,

Fig. 5.12. (left) Plate of the *Lingua cervina foliis acutis* used in the *Description des plantes de l'Amérique* in 1693. (right) The same plate, with modifications, as in the *Traité des fougères* (1705); the figure gained in realism by means of chiaroscuro. Note that the scratch on the higher part of the central leaf is in both images, proving that the plate from which they were made was the same. (Bibliothèque nationale de France, Paris.)



crucially important nonetheless. The images of the *Traité des fougères*, all of them, were far more elaborate than those in the *Description*, even those (and this is the consequential aspect of the story) reemployed from one book to the other. They stood for a shift in the visual strategies adopted, as well as the fluctuation of intentionality and targeted audiences that took place between 1693 and 1705. In the preface of the *Description*, Plumier had given the reasons for the plain, unadorned style of the images: the reader, said the author, “will perhaps be surprised that I do not present but the simple line [of the plants], almost without any shade, but I decided to engrave them so that one could more easily add the color, as we see in the works of [Leonhart] Fuchs, which are engraved as well in simple line [*a simple trait*], & most part of which have illuminated [by some readers].”¹⁰¹

xxxii/148, xxxiii/151, xxxiv/152, xxxvi/77, xxxvii/83, xxxix/124, xl/132, xli/143, xlii/119, xlvi/97, l/101.

¹⁰¹ Plumier, *Description*, sig. [a3^v]: “On sera peut-estre surpris que je n’en donne que le simple trait Presque sans ombre, mais j’y esté bien aisé de les graver de maniere, qu’on pust ajoûter le colonis plus facilement, comme nous voyons dans toutes les ouvrages de Fuchsius, qui sont gravez de mesme à simple trait, & dont la pluspart sont enluminez.” Such a mode of representation also went along the lines of some trends in the making of natural historical images—Pliny, for instance, proclaimed in his *Natural History* that



Some collectors may have had the plates of the *Description* illuminated. At least Michel Bégon did: his stunning colored copy, still extant, has been discussed in chapter 2 (fig. 2.5). Amateurs and collectors of both printed images and natural curiosities were, after all, a crucial audience for such a book. Its images embodied a *visual polysemy*: they were made to be read for their content as much as for their form. From the beginning, Plumier tried to inscribe the same visual polysemy into the images of the *Traité des fougères*. Yet the social circumstances surrounding its publication were dramatically different from those in which the *Description* got printed. The more exuberant style, both in the new plates and in those reemployed from 1693, illustrates the tension between the aspirations and possibilities of state scientific sponsorship: they go along the lines of the discussion on the virtues of ferns included in the volume to make them more appealing to “curious people,” and embody the attempt to navigate the volatile possibilities for illustrated natural history books to get into print in Louis XIV’s France.

“a picture is misleading when the colors are so many, particularly as the aim is to copy Nature.” Pliny, *Natural History* 25.4, ed. and trans. W. H. S. Jones, vol. 7 (London: Heinemann, 1966), 141.

*Performing the name*¹⁰²

Another thing that etching allowed artists to do more easily than burin engraving was to inscribe text within the plate—as easy as writing backwards can be. This provided a convenient means for print-makers to play with text in relation to the images. As for natural historical prints, we have seen in the previous chapter how central names had become, even in visual representations. Words and images reinforced each other. A Latinate handful of words, hanging in the blanks of the page, identified the plant or animal depicted and placed it, by a game of associations and exclusions, into an imaginary grid grouping the multitudinous items of nature that were known. The images, in turn, materialized the unspoken claims of the naming: to begin with, that the thing itself existed and had been seen by the author; that he (or she) had satisfactorily named it, and had thus adequately linked it to some species and differentiated it from some others; finally, that the inventor (of the name) was also a discoverer (of the thing).

In Plumier's images, manuscript and printed alike, another sort of name surfaces in the blanks: his own. For the case of prints of flora and fauna, it is not clear how often they were signed by the authors, but it seems that this was a rather exceptional practice. The plates of Willughby's fishes, for instance, were signed by neither carver nor draftsman, but by those who had supplied the money ("Sumpt. D. S. Pepys. Praes. S. R." "Sumpt. D. Edward Haÿnes. e. S. R." "Sumptibus D. Eliae Ashmole e. S. R."). Some of those of Perrault's *Histoire des animaux* were marked by the engraver ("Le Clerc sculp."). In Tournefort's *Éléments* and *Institutions*, both the draftsman and carver went unnamed, and the same goes for his *Voyage au Levant*, although we know that Claude Aubriet drew the figures on which they are based. Signing engravings and etchings seems to have been a more common practice in the world of the fine arts: although it was an irregular practice in painting before the late eighteenth century (at least as a form of investing the work with the reputation of the artist's name), the signature's roots lay in the corporative traditions of artisans (goldsmiths, for instance), who marked their works.¹⁰³ But, as Charlotte Guichard has shown, it is in the world of printmaking that signatures deployed

¹⁰² I use here the title of Charlotte Guichard's Tomàs Harris Lectures at University College London, on May 17 and 19, 2016. Guichard's work is indispensable for understanding the link between signature and authorship in eighteenth-century art. See her "La signature dans le tableau aux XVII^e et XVIII^e siècles: identité, réputation et marché de l'art," *Société & Représentation* 25 (2008), 49-77; "Fragonard et les jeux de la signature," *Revue de l'art* 177, no. 3 (2012), 47-55, and "La main et le geste. Signature et autographie au XVIII^e siècle," in *De l'authenticité. Une histoire des valeurs de l'art (XVII^e-XX^e siècle)*, ed. Charlotte Guichard (Paris: Publications de la Sorbonne, 2014), 63-77.

¹⁰³ Guichard, "La signature dans le tableau," 51-8; "La main et le geste," 70-1.

a particularly convoluted game of proper names: that of the draftsman and the carver, of the printer and the publisher, even of a dedicatee might find space in the plate. Signatures in print, Guichard argues, announced the material process of their production, while at the same time embodying an auctorial system.¹⁰⁴

The practice of signature in Plumier's images is worth recalling here once again (fig. 5.9). Virtually all of the plates of the *Description* included the name of the friar as the draftsman; in the *Traité des fougères*, fifty plates were marked by his *delineavit* and more than a hundred by his *delineavit et sculpsit*. Few, however, are the plates signed by Plumier in the two first editions of the *Art de tourner* (barely a dozen), and none bears his name in the *Nova genera*. Yet (and this is important) a good number of his handmade drawings bore his name as well (this is the case, for instance, of the manuscript book "Solum, salum, coelum Americanum," in which most of the pages were marked "F. C. Plumier minimus"). What do those signatures tell us? They announce at least three things, other than his own name: first, that he is a Minim friar; second, that he can call himself "royal botanist"; third, that he is the draftsman of the images. *Fr.C.P.m.b.r.d.*: "Brother Charles Plumier, Minim, Royal Botanist, drew it." In the case of the *Traité des fougères*, a fourth element is occasionally added: *et sculp.* or simply *et s.*, "and carved it."

The question that arises is that of the value of the name on the image in a time in which the canonization of the author was yet to come.¹⁰⁵ To start with, the link between Plumier's being a botanist and a draftsman is obviously important. He might have had to carve those hundred copperplates himself because the printing of his book would have been far less likely otherwise, but that did not eliminate questions of credit altogether. More meaningful than his *sculpsit* on a hundred of his fern copperplates was Plumier's *delineavit* in the large majority of his printed corpus of images. Presenting himself as a royally sanctioned botanist *and* the draftsman of the images had deep epistemic repercussions, as shown by one episode. When David Krieg, the German physician and member of the Royal Society, encountered Plumier in March 1702 at one of the meetings that Parisian naturalists held from time to time at the Bibliothèque du roi, they engaged in a discussion about Petiver's luxurious engravings of plants and animals published periodically under the name of *Gazophylacium naturae et artis* (or the "treasure house" of nature and arts). Plumier had seen the plates of the *Gazophylacium*: "His judgments of

¹⁰⁴ Guichard, "La signature dans le tableau."

¹⁰⁵ Roger Chartier, "The Author's Hand," in *The Author's Hand and the Printers Mind* (Cambridge: Polity, 2014), 73-86.

your tables,” Krieg wrote to Petiver, “was that they proved your diligency & knowledge in these things.” But then came the critique: “but it was pity [said Plumier], that they was [*viz*] not well engraved & anatomized, especial the plants: but I excused you, that you did not perhaps receive them in that state, as to anatomise them, neither that you could not design them your self: for, sayth he, to design a plant well, it was necessary to be a herbarist & to know the characters.”¹⁰⁶ Plumier was, no doubt, boasting of his own peculiarity, being a skilled artist—a quality shared by few fellow scholars at the time. But it was partially this specificity that was being scarred on the images by means of his signature, for it was on it that he was attempting to build his scholarly credit.

Furthermore, that name inscribes and displays the relationships established between three elements. First, the *image as invention and discovery*: Plumier’s identity and authority as a naturalist were at stake in his exceptional access to the unfamiliar West Indian flora and fauna, and boasted in the images through his signature as the draftsman. Second, the *image as object*: a print, a drawing, a material form liable to physical mutations, and thus, new meanings. Third, Plumier as author of both invention (as naturalist) and object (as image-maker). The relationships between these three elements were many and unstable. The naturalist’s *depixit* (occasionally his *sculpsit*, too), or simply his handwritten or carved name stood for his having crossed oceans to see the thing depicted; for his having actually seen it while being knowledgeable of what he had under the eyes (sanctioned as an expert by the learned community and by a political power); for his having depicted it, and for his being one of the few to have done all this. It did not matter if the figures were made in front of the real thing: what mattered was that the same person observed them and drew them. The problem was that such a claim of invention and discovery usually rested upon a delicate object: the image-object could be on paper or copper, but was always liable to shipwrecks, oblivion, or simply mutation. Sometimes, the image-object had to suffer physical change to keep on carrying its claim of invention and discovery: a copperplate could be manipulated, new grooves carved among old ones, so as to change not its content, but the social place of the resulting objects. Other times, the image-object was not one leaf of paper, but many: the American ferns as *recueil*, as bound volume, or the West Indies nature as a collection, heaped in piles. The image as invention and discovery usually rested upon the image-object, but not always: Lister’s published account of his visit to the convent, or Krieg’s manuscript one, or the guides informing

¹⁰⁶ David Krieg to James Petiver, Paris, March 30, 1702, in BL MS 4063 “Letters to Sir Hans Sloane. Vol. 28,” fol. 149.

curious people in Paris about the friar enveloped by papers depicting far-away worlds, made his claims of authorship travel without the papers even moving or being reproduced (with the exception of Lister's copies of some of the drawings to be included in his *Journey* book).

The name of Plumier on his prints and drawings capture this dynamic, unstable game between the two faces of images (or of any "recorded form," for that matter), between the thing, which might change, and the meanings one aspires to attach to it, which will irremediably shift with the former.

The Spanish connection

One of the copies of Plumier's *Traité des fougères* found its way to Spain. This might have been one of the 6,000 volumes brought by Philip V from France when, soon before the end of the War of Spanish Succession, he funded the Royal Public Library (*Real biblioteca pública*) mostly from the collections of both his own personal library and the one that the Spanish Habsburgs had hitherto kept at the High Tower of the Alcázar in Madrid.¹⁰⁷ Be that as it may, at some point, an adventurous copy of Plumier's book of ferns ended up in the library of the San Carlos Royal College of Surgery, an institution created in the 1780s. But this *Traité des fougères* is not like the others: the oddity of the copy lies in its physical composition, in which it differs from the usual composition of the book on several points.¹⁰⁸ The edges, for instance, are gilded, and the binding was made in blue leather in lieu of the red Morocco typical from the Imprimerie royale during the seventeenth and first part of the eighteenth centuries (although the covers bear Louis XIV's coat-of-arms, as tended to be the case).

Even more interesting is the fact that an intaglio image not originally belonging to the book has been oddly placed between the Latin and the French title pages of the copy. It is the famous 1671 etching by Sébastian Leclerc on the Sun King's fictional visit to the Paris Academy of Sciences. The plate was the usual frontispiece of the works on natural history, mathematics, and natural philosophy published by members of the Academy of Sciences at the Imprimerie royale—the examples include Perrault's *Histoire des animaux*,

¹⁰⁷ Elena María Santiago Páez, ed., *La Real Biblioteca Pública, 1711-1760. De Felipe V a Fernando VI, Madrid, 2 de junio-19 de septiembre 2004* (Madrid: Biblioteca Nacional, 2004), esp. the contributions by Margarita Torrión, "Felipe V, bibliófilo. El peso de Francia en la Real Librería Pública," 48-64, and Fernando Bouza, "La biblioteca de la Torre Alta del Alcázar de Madrid," 175-96.

¹⁰⁸ The copy is now kept at BHMV MED GF 98. It contains the stamp of the San Carlos Royal College of Surgery and comes from the Faculty of Medicine of the University Complutense in Madrid, which inherited the book collection of the College of Surgery.



Fig. 5.13. (left) Copy of Plumier's *Traité des fougères* in Madrid: note the blue covers in contrast to the usual red Morocco binding of the luxury copies printed at the Paris Royal Press. (right) Sébastien Leclerc's famous 1671 etching on Louis XIV's imaginary visit to the Paris Academy of Sciences. The plate was used as the frontispiece for books of natural history and philosophy pertaining to the *Cabinet du roi* collection, but not in Plumier's books. The leaf had to be folded to adapt to the smaller size of the *Traité des fougères*. (Biblioteca Histórica "Marqués de Valdecillas," Madrid.)

Dodart's *Histoire des plantes*, or the *Recueil de plusieurs traitéz de mathématiques de l'Académie royale des sciences* (1676). It was the plate reserved for the scientific books of the *Cabinet du roi*. The proof, if one is needed, that the plate did not belong to Plumier's book on ferns is the size: being larger than the pages of the *Traité des fougères*, the etching of our Madrid copy had to be trimmed on the top and bottom, and its right side folded to fit the volume (fig. 5.13). Although the place and exact time of its production is equally unknown, it is likely that the loose sheets of the *Traité des fougères*, originally printed at the Imprimerie royale, were then bound in another workshop for a specific owner, who had Leclerc's frontispiece intercalated between the first pages.¹⁰⁹

A couple of inferences can be drawn from the Madrid copy of Plumier's *Fougères*. First, the copy helps sustain the hypothesis that the collection of the *Cabinet du roi*, printed at the Imprimerie royale and including most of the scientific publications by the

¹⁰⁹ Here again, I owe a debt of gratitude to Fernando Bouza, both for discovering this curious copy at the Complutense's Biblioteca Histórica and for his interpretation of it as an attempt to assimilate the *Fougères* into one of the scientific volumes of the *Cabinet du roi*.

members of the Academy of Sciences during the first period of the institution's existence, contributed to creating the conditions of possibility for Plumier's engravings to see the light of day. The Minim friar might have perceived (or attempted to actually make) his own books as part of the editorial program originally conceived by Colbert; what now seems clear, in any case, is that his books were understood as such by some collectors of this sort of *recueil d'images*, like the owner of the Madrid copy. Furthermore, this has the effect of highlighting a central dimension of both the printed and manuscript images of Plumier: that of its reception, appropriation, and construal across time and space. It is to this convoluted story that we move in the next chapter.

Conclusion

This chapter has charted the—often tortuous—printing history of Plumier's books, and has revealed the difficulties inherent in bringing illustrated natural history publications into print in late seventeenth-century Paris. Unlike the curious treatise on the *honnête* art of turnery, profusely illustrated folio volumes had few chances come into being through the book market. Plumier, however, could see his volumes into print by finding his way through the world of royal propaganda, in which fanciful editorial projects played a role in praising the glory and munificence of the king. This is revealed by the very physical characteristics of the books: while the *Nova genera* attempted to take the way paved by Tournefort's *Institutiones*, the *Description* and the *Traité des fougères* profited—not without struggles—from the opportunities opened by the official projects of the *Cabinet du roi*, as well as by the extended gusto for the collecting of engravings and “paper *naturalia*” that existed in Paris at that time.

6. Plumier Revisited

Transits in Time, Transits on Paper

It was early winter 1704, and Father Charles Plumier found himself in El Puerto de Santa Maria, a merchant town and port in the Bay of Cádiz which had housed, since the 1680s, the fleets of the Spanish Indian trade, the *carrera de Indias*. Exactly four years earlier, the sickly Charles II of Spain died childless; he had named as his successor a Bourbon, Philip, the grandson of Louis XIV of France, whose accession to the throne of Madrid opened the Spanish colonies to French commerce. It also triggered yet another international alliance against the Sun King and a fifteen-year war that depleted an already drained country. Our friar might well have witnessed the havoc of the war: only two years before his arrival, El Puerto had been sacked by the Anglo-Dutch forces, including the imposing convent of the order of Minims. It was in that monastery that, in late November 1704, Plumier died, about to set forth on his fourth journey to the Americas.¹ All those years of hardship had taken their toll and turned into a wraith an already weak body. News of the friar's delicate health appeared in most of the few extant letters mentioning him over the years.² Martin Lister, who apart from a shell-lover was also a physician, saw in him a good example of the fatuity of monastic life: "I heartily pitied F. P. an industrious honest Man, after his return from the *Indies*, who was nothing but Skin and Bones; and yet by the Rules of his Order he could not Eat any thing that was wholesome and proper for his Cure; nothing but a little slimy nasty Fish and Herbs; And tho' he took, as he told me, *Hypocochoana* five times, it had no effect upon him. 'Tis true, I never heard him complain; But what will not blind prejudice do against all the Reason of Mankind."³

By what we know through the original sources, it is difficult to assess the reasons for Plumier's fourth journey, as well as his destination. A good number of early nineteenth-century historians and authors of biographical dictionaries, including Cuvier in his history

¹ Michel Bégon tells us so: "Ce n'est pas à Cadix que le père Plumier est mort, c'est à Sainte-Marie dans un couvent de son ordre," Bégon to Esprit Cabart de Villermont, Rochefort, April 4, 1705, in "Lettres de Michel Bégon," ed. Louis Delavaud and Charles Dangibeaud, vol. 3, *Archives historiques de la Saintonge et de l'Aunis* 49 (1935), 86.

² For instance, Bégon to Cabart de Villermont, Rochefort, June 12, 1695, in Bégon, "Lettres," vol. 1, 256.

³ Martin Lister, *A Journey to Paris in the Year 1698* (London: printed for Jacob Tonson, 1699), 134.

of the natural sciences, coincided in the opinion that the friar was being sent, in the wake of the new Franco-Spanish alliance and at the behest of Fagon, the king's first physician, to the Viceroyalty of Peru in order to investigate the quinquina or cinchona tree, from which a celebrated febrifugal recently added to the French pharmacopeia (the Peruvian or Jesuit's bark) was produced.⁴ With Plumier's death, France would have had to wait for scientific journeys in the 1730s, such as La Condamine's and Joseph de Jussieu's, to have detailed accounts on the quinquina tree.

The posthumous destiny of Plumier's manuscript corpus has received far less attention than his never-realized mission to Peru, yet a whole new history began for the friar's paper collection after his death. Nowadays, the large majority of Plumier's extant papers lie in the entrails of the Muséum national d'histoire naturelle, just over a mile from the convent of the Minims at the old Place Royale, on the other side of the Seine, where the botanist patiently stockpiled them during his lifetime and where they faded into obscurity for several decades after his death. For the most part, they can be found in the form of thirty-seven volumes (shelf-marked 1 to 37 in the catalog of the archives), some bound in red morocco, some others in red calf, but most of them with the arms of Napoleon I on the spine. In the days of the Empire, then, the majority of Plumier's papers, of different types and sizes, with drawings in very diverse states of realization, were carefully pasted onto the leaves of these regular volumes. Continuity, uniformity, and unity was then (and only then) accorded to a collection of loose sheets with as varied contents and forms as times of production.

By pasting and binding, the opus of a single author was created—more than a century after his death. The story of how Plumier's copious drawings and notes became an ordered and elegantly bound collection is one worth telling. This chapter, too, proceeds in line with several of the principles promoted by approaches to the history of the book and reading, especially those highlighting the moving and plural significations of texts ("texts" in the large sense, from written to graphic ones). For D. F. McKenzie,

⁴ E.g. [François Noël and Joseph Planché,] *Éphémérides politiques, littéraires et religieuses*, 3rd ed. (Paris: chez Le Normant et H. Nicolle, 1812), 174, and Georges Cuvier, *Histoire des sciences naturelles, depuis leur origine jusqu'à nous jours, chez tous les peuples connus, professé au Collège de France*, ed. Magdelaine de Saint-Agy, vol. 4 (Paris: Fortin, Mason, et Cie. Libraires, 1843), 75. Contemporary historians have widely accepted and echoed the idea that Plumier's 1704 journey was commissioned by Fagon for the investigation of the quinquina, e.g. by P. J. S. Whitmore, *The Order of Minims in Seventeenth Century France* (The Hague: Martinus Nijhoff, 1967), 197, and Roy Mottram, "Charles Plumier, the King's Botanist – his life and work. With a facsimile of the original cactus plates and text from *Botanicon Americanum* (1689-1697)," *Bradleya* 20 (2002), 81. However, I have not found clear historical evidence for a conclusive opinion on its purpose, proponents, or destination.

for instance, it was clear “that new readers . . . make new texts, and that their new meanings are a function of their new forms.”⁵ These pages aim at tracing the circulation of the corpus after the death of its author, and at doing so from a material vantage point. Over the eighteenth and well into the nineteenth centuries, these papers and drawings went through several locations in Paris (from the convent at Place Royale to the Bibliothèque du roi and the Academy of Sciences to finally the Muséum d’histoire naturelle) and were the object of copies, editions, and piracy by naturalist-authors and book-makers not only in France, but also in the Netherlands and England. These transits, whether in time or across different media, permit us to ponder the divergent, sometimes contradictory attitudes that an author’s manuscript corpus raised at different times.⁶

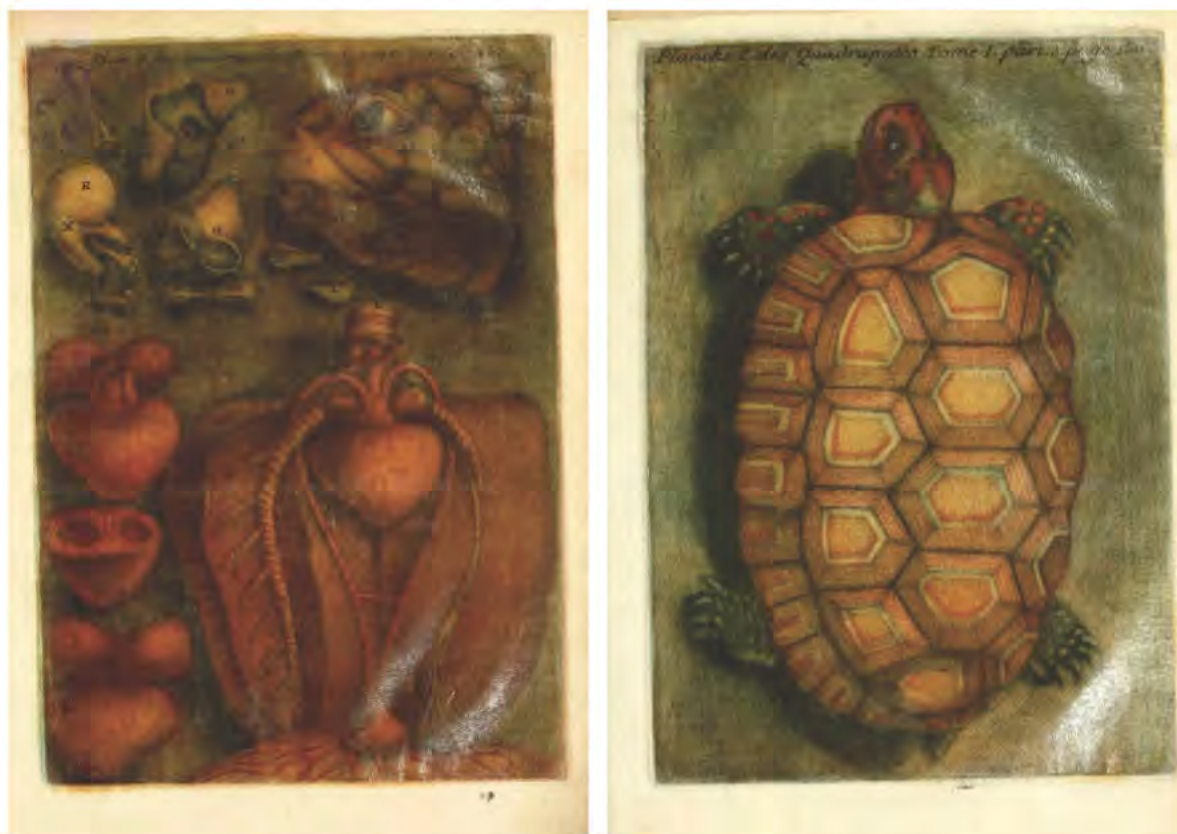
It is no surprise by now that manuscripts never ceased to be subject to a sometimes wide circulation during the entire early modern period: they were copied and plagiarized, consulted and published.⁷ The same happened with non-printed images such as Plumier’s drawings. Several naturalists seem to have consulted and copied the papers of the friar while these were still at the Parisian Minim convent, and some even used a few of the drawings for their own printed works. As already mentioned, Martin Lister made use of the drawings on the murex in his *Journey to Paris* (1699) during the life of the Minim. Some decades later, the Marseille anatomist, painter, printmaker, and entrepreneur Jacques-Fabien Gautier, or Gautier d’Agoty (1716-1785), also rehashed some of Plumier’s drawings and writings. In 1752, d’Agoty published the friar’s study on the auditory system of the sea turtle in the *Observations sur l’histoire naturelle, sur la physique et sur la peinture* (Observations on natural history, physics, and painting), a journal funded by himself and printed for most of the second half of the eighteenth century.⁸ Although the

⁵ D. F. McKenzie, *Bibliography and the Sociology of Texts* (Cambridge: Cambridge University Press, 2004 [1999]), 29.

⁶ For a comparison, two publications with similar titles have recently dealt with the fortunes of the manuscript corpus left by two personalities of the English Scientific Revolution: Michael Hunter, ed., *The Boyle Papers: Understanding the Manuscripts of Robert Boyle* (Aldershot: Ashgate, 2007) and Sarah Dry, *The Newton Papers: The Strange and True Odyssey of Isaac Newton’s Manuscripts* (Oxford: Oxford University Press, 2014).

⁷ Three outstanding studies on this phenomenon are Harold Love, *The Culture and Commerce of Texts: Scribal Publication in Seventeenth-Century England* (Amherst: University of Massachusetts Press, 1998 [1993]; H. R. Woudhuysen, *Sir Philip Sidney and the Circulation of Manuscripts, 1558-1640* (Oxford: Oxford University Press, 1996), and Fernando Bouza, *Corre manuscrito. Una historia cultural del Siglo de Oro* (Madrid: Marcial Pons, 2002). For a more thorough bibliography on this topic, see above, 293n.153.

⁸ “Observation XI. Concernant les sourds, & sur l’oreille de la tortue, par le R.P. Charles Plumier, de l’Ordre des PP. Minimes & Botaniste du Roi,” in *Observations sur l’histoire naturelle, sur la physique et sur la peinture. Avec des planches imprimées en couleur. Cet ouvrage renferme les secrets des arts, les nouvelles découvertes, & les disputes des philosophes & des artistes modernes* 1, no. 3 (1752), 131-8. On Gautier d’Agoty, see Sarah



weight of his scientific and artistic contribution was a matter of controversy during his own lifetime, the success of d'Agoty and that of his journal came mostly from the use of color printing and the skillful exploitation of this technique's market.

His use of Plumier's images of the turtle in the *Observations* also went along these lines. The reproduced text, he said, was a "posthumous letter" that the "Reverend Fathers Minims at Place Royale" sent him "with the drawing in color of the turtle's ear, made by the author himself."⁹ Sent by the Minims or not, the letter had already been printed fifty years earlier in the *Journal de Trévoux*. In the version of 1752, d'Agoty extended the original text by introducing his own commentaries on the topic. Plumier's "observation," then, was followed by another one by the editor on diverse anatomical aspects of the sea turtle: here he quoted extensively from different authors and used

Lowengard, *The Creation of Color in Eighteenth-Century Europe* (New York: Columbia University Press, 2007), 586-612. On the *Observations*, see Anne-Marie Chouillet, "Observations sur l'histoire naturelle, sur la physique et sur la peinture (1752-1757, 1771-1793)," in *Dictionnaire des journaux, 1600-1789*, ed. Jean Sgard, 2 vols. (Paris: Universitas, 1991), vol. 2, 995-8.

⁹ Gautier d'Agoty, "Observation sur l'oreille de la tortue," 131: "C'est ici une Lettre postume que je communique au Public. Elle m'a été remise par les RR.PP. Minimes de la Place Royale, avec le dessein en couleur de l'oreille de la tortue, fait par l'Auteur lui-même. Ce célèbre Provençal est connu par des ouvrages qui lui ont mérité l'estime de tous les Sçavans."

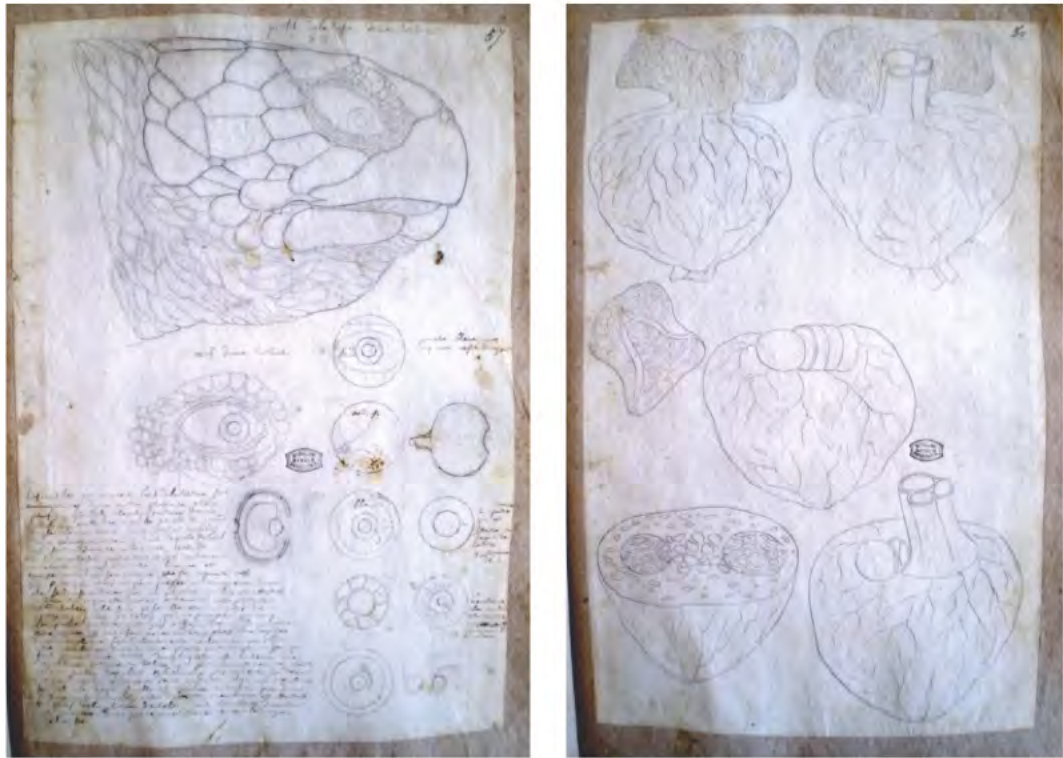
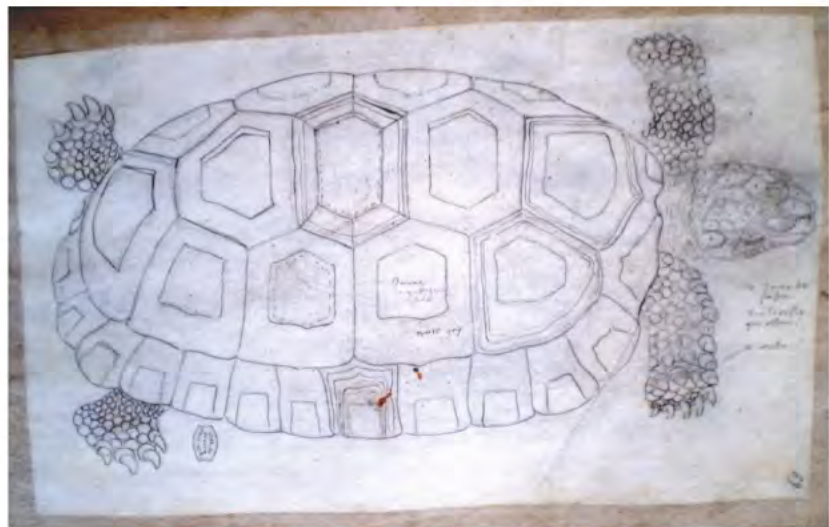


Fig. 6.1. (*opposite*) Plates drawn from Plumier's drawings on the sea turtle used by Gautier d'Agoty in the 1752 issue of his *Observations sur l'histoire naturelle, sur la physique, et sur la peinture*. (Research Library, The Getty Research Institute, Los Angeles.) (*above and left*) Original drawings. (Muséum national d'histoire naturelle, Paris.)



another text by the Minim friar—an unpublished one this time, but also seemingly sent to him by the naturalist's fellow friars—on the heart of the animal, drawn perhaps from his manuscripts. It seems clear that d'Agoty had access to the folders of manuscripts kept by that time at the library of Place Royale convent, perhaps (as he claims) by means of copies made and sent to him by the Minims. A much more likely possibility is that the artist and anatomist consulted the collection himself at the library of the convent. In the *Observations*, he reproduced two plates drawn from Plumier's manuscripts: one presented the turtle entirely from one of the (never published) drawings in the friar's anatomical study of the animal (in fact the tortoise, not the sea turtle); the other plate showed a

profile of the head of the animal and two series of drawings of the ear and the heart of the animal, respectively (fig. 6.1). The images of the head and the ear were printed in the *Journal de Trévoux* along with the text, but those on the heart (as well as the plate on the entire beast) never got into print, which suggests that d'Agoty copied the originals in the convent itself and printed them in color.

Such uses of Plumier's drawings continued throughout the eighteenth century and well into the nineteenth century. This chapter will chart the many lives that Plumier's images, mostly those from his manuscript corpus, had over nearly a century and a half. The first half of the chapter focuses on copies and editions that eighteenth-century authors in the Netherlands and England made of some of the unpublished images. The second half traces a more physical sort of transit: the fates of Plumier's original manuscript corpus, which, between the mid-eighteenth and the mid-nineteenth century, moved several times between Parisian institutions. My aim is to show that, with each new appropriation of the corpus, new meanings—and new social and intellectual places—were given to it.

Burman and the *Codex Boerhaavianus*

It has already been noted that the last publication authored by Plumier was published in Amsterdam half a century after his death.¹⁰ The scholar responsible for the edition was Johannes Burman (1706-1779), a Dutch physician who taught botany at the Athenaeum Illustre in Amsterdam and directed the city's Hortus Botanicus.¹¹ Burman is now best known for his acquaintance with Linnaeus, whom he met in 1735 when the young Swede came to the Dutch Republic to do his doctorate. A fervent admirer of him and his binomial system, Burman even had his son Nicolaas Laurens (who succeeded him as professor of botany) study with the “Prince of Botanists” in Uppsala. Right before turning to Plumier's corpus, Burman had already edited other similarly colossal, unpublished works in natural history. The most famous of these was perhaps the *Herbarium Amboinense*, an edition of a monumental manuscript compiled by a contemporary of Plumier, Georg Eberhard Rumpf, or Rumphius (1627-1702). A

¹⁰ Charles Plumier, *Plantarum Americanarum fasciculus primus [-decimus], continens Plantas, quas olim Carolus Plumierius, Botanicorum Princeps Detexit, Ernitque, atque in Insulis Antillis ipse depinxit*, ed. Johannes Burman (Amsterdam: printed by the author and sold at the Botanical Garden and by the widow and son of S. Schouten (from the sixth fasciule in 1757, by Petrum Schouten) and, in Leiden, by Gerard Potuliet and Theodor Haak, 1755-1760),

¹¹ Ellinoor Bergvelt, Peter Jan Knechtmans, and Marian Schilder, eds., *Kleurrijke Professoren. 375 jaar portretkunst in de collectie van de Universiteit van Amsterdam/Colorful Professors: 375 Years of Portraiture in the Collection of the University of Amsterdam* (Amsterdam: Amsterdam University Press, 2007), 38-9.

merchant of the Dutch East India Company turned naturalist, Rumphius came to be remembered for his research on the natural history of Ambon (which gained him the epithet of “Pliny of the Indies”) and a tragic life (which included a blindness that did not prevent him from continuing his natural historical work). Burman’s published version, entitled *Het Amboinsche kruid-boek* or Ambonese herbal, drew from Rumphius’s descriptions in Dutch and own colored drawings on the flora of the Pacific island, which Burman ‘recovered from the archives of the VOC: he translated Rumphius’s texts into Latin, had the drawings engraved, and eventually succeeded in having the ensemble printed in six volumes by a consortium of eight publishers between 1741 and 1755.¹²

That very same year of 1755, the first volume of the *Plantarum Americanarum*, Burman’s edition of Plumier’s descriptions and drawings on the West Indies’ flora, appeared. The handmade images at its basis were a set of manuscript duplicates of 508 of Plumier’s originals that had come to be known as the *Codex Boerhaavianus*: probably made in 1733 by Claude Aubriet (the artist who accompanied Tournefort to the Levant) from volumes at the Paris Academy of Sciences, these copies in light, onionskin-like paper were made for, and sent to, Herman Boerhaave (1668-1738), a professor of medicine at the University of Leiden, a celebrity across Europe in all botanical matters, and—more important for us—a member of the Paris Academy of Sciences since 1728.

The *Codex Boerhaavianus* is known for having been avidly perused by Linnaeus at some point during the three years he spent in the Dutch Republic when he was in his thirties. The codex was actually an important source in Linnaeus’s *Genera plantarum* (1737), published in Leiden and one of the early major works in which the Swedish botanist laid the grounds of his sexual system of classification. During his stay with Clifford in the Netherlands, Linnaeus had in mind a journey to France with the aim of consulting some archives, including Plumier’s: “As soon as I recover my health,” he wrote to Haller in 1738, “perhaps towards the end of April, I shall get to Paris, where I shall have an opportunity, never perhaps to be again, of inspecting the collections of

¹² Georg Eberhard Rumphius, *Herbarium Amboinense, plurimas complectens arbores, frutices, herbas, plantas terrestres & aquaticas*, ed. Johannes Burman, 6 vols. (Amsterdam: François Changuin, Jan Ctauffe, Hermanus Uytwerf; The Hague: Pieter Gosse, Jan Neaulme, Adriaan Moetjens, Antony van Dole; Utrecht: Steven Neaulme, 1741-1755). On Rumphius and Burman’s edition, see George Sarton, “Rumphius, Plinius Indicus (1628-1702),” *Isis* 27, no. 2 (1937), 242-57, and Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven, CT: Yale University Press, 2007), 329-32.

Tournefort, Plumier, Surian &c.”¹³ Although the opportunity never came, Linnaeus had the chance to consult the *Codex Boerhaavianus* before it passed to the hands of Burman: when Boerhaave died in 1738, the very year Linnaeus left the Netherlands, his library was auctioned; Burman, one of his students, purchased the collection, now conserved at the library of the University of Groningen.¹⁴

Burman actually narrates part of the story of Plumier’s manuscript archive in his preface to the *Plantarum Americanarum*. The result of “an indefatigable work,” the friar’s corpus “comprised around nine hundred figures and descriptions of American plants, but also included the history of birds, fishes, shells, and insects drawn from what he observed and drew in America.” In the mid-eighteenth century, the corpus was divided, Burman tells us, between the Paris Academy of Sciences and the library of the Minim convent at Place Royale.¹⁵ Although the result of many sacrifices and efforts, the collection was abandoned “to worms and moth . . . for [it has been] longtime forgotten by Authors and Botanists who so many enjoyments and advantages could take from it.”¹⁶ The Dutchman writes that he bought the volumes in a public auction of books and that he happily paid “several hundreds of florins” for them, since a substantial number of the plants represented were not well known at the time.¹⁷

¹³ Carl Linnaeus to Albrecht von Haller, Hartekamp, March, 1738, quoted in *A Selection of the Correspondence of Linnaeus, and Other Naturalists, from the Original Manuscripts*, ed. and trans. by Sir James Edward Smith, 2 vols. (London: Longman, Hurst, Rees, Orme, and Brown, 1821), vol. 2, 321.

¹⁴ Frans A. Stafleu and Richard S. Cowan, *Taxonomic Literature: A Selective Guide to Botanical Publications and Collections with Dates, Commentaries and Types*, 2nd ed., vol. 4 (Utrecht and Antwerp/The Hague and Boston: Boch, Scheltema & Holkema/dr. W. Junk b.v., 1983), 301-2; Stefan Dressler, “Plate 321. *Marcgravia umbellata*,” *Curtis’s Botanical Magazine* 14, no. 3 (1997), 130-1; R. M. Polhill and W. T. Stearn, “Linnaeus’s Notes on Plumier Drawings with Special Reference to *Mimosa Latisiliqua*,” *Taxon* 25, no. 2/3 (1976), 323-5. On the extant collection, see Gerda C. Huisman, *The University Library of Groningen: Four Hundred Years of History in Four Buildings, Forty Collections, and Infinite Pictures* (Groningen: Barkhuis & University Library Groningen, 2014), 53.

¹⁵ Burman’s preface to Plumier, *Plantarum Americanarum*, sig. [**v]: “Et quot non supersunt summi hujus Viri labores, indefessa operâ confecti, suâque manu scripta Volumina, quae non modo in Regiae Scientiarum Academiae, sed etiam in R.R.P.P. Minorum Caenobii Parisiensibus adservantur Bibliothecis: illa enim non modo nongentarum circiter Plantarum Americanarum icones & descriptiones continent, sed & Avium insuper, Piscium, Conchyliorum, Insectorumque ab illo in America observatorum & depictorum Historiam complectur.”

¹⁶ Burman’s preface to Plumier, *Plantarum Americanarum*, sig. [**v]: “[Q]uae omnia cum incredibiles sumtus & labores exhauserint, dolendum sane, immo vix ferendum est, egregia haec Opera tineis & blattis in escam relinqui, orbique Literato & Botanico diutius invideri, qui tot fructus & commoda ex iis capere potuisset.”

¹⁷ Burman’s preface to Plumier, *Plantarum Americanarum*, sig. [**v]: “Americanarum harum Plantarum, ut ab ipso auctore depictae sunt, Codices, in publica Librorum auctione sane haud vulgari, centenorum aliquot florenorum pretio, mihi evolverem, eademque saepius summa animi cum voluptate perlustrarem, cumque aliorum Auctorum descriptionibus sedulo compararem, Plantas has ubique non ita cognitatas, neque alibi temere obvias comperi.”

The *Plantarum Americanarum* was composed of 262 unsigned plates distributed in ten books (*fasciculus*) issued between 1755 and 1760.¹⁸ Each book (with the exception of the tenth) was dedicated to a naturalist or botany-lover: George Clifford III (1685-1760), a Dutch banker patron of botanists like Linnaeus (who worked for him as his personal physician and the curator of his botanical garden); Linnaeus himself; Andreas Elias Büchner (1701-1769), a German physician to the emperor Charles VI and president of the Leopoldina; Johann Philipp Breyne (1680-1764), a Fellow of the Royal Society and the Leopoldina; Casimir Christoph Schmelde (1718-1792), physician at the court in Ansbach; Christian Gottlieb Ludwig (1709-1773), professor of botany in Leipzig; Lorenz Heister (1683-1758), professor of anatomy at Helmstedt, and finally the Swiss physicians Albrecht von Haller and Johannes Gessner (1709-1790). The dedications by Burman provide a good example of the transfer of which Plumier's drawings were the object with the Amsterdam edition: a transfer in time and space by which they abandoned Louis XIV's Paris and entered, instead, the networks of botanical research in mid-eighteenth-century Central and Northern Europe.

The plates and descriptions in the *Plantarum Americanarum* are arranged alphabetically throughout the fascicules, from the *Abutilon* to the *Ximenia*. Burman sent proofs of the engravings and the descriptions to Linnaeus as they were made—only to be usually ignored by the Swedish savant.¹⁹ But Burman insisted: he had been adapting the genera and species described by Plumier to the new system of Linnaeus and envisioned the *Plantarum Americanarum* in a sort of coordination with the latter, who was by that time preparing the tenth edition of the *Systema naturae*, perhaps his most influential work (in it, for instance, he famously coined terms such as *Mammalia*).²⁰ Burman often queried Linnaeus on the arrangement of Plumier's drawings because some of the genera depicted by the friar could not be found in the *Species plantarum*. Burman sent the engraved images of these genera to Linnaeus and asked him whether to keep their original name, in accordance with Tournefort's method, or if they belonged to any genus included in the

¹⁸ Fasc. 1: 1-25 (1755); fasc. 2: 26-50 (1756); fasc. 3: 51-75 (1756); fasc. 4: 76-100 (1756); fasc. 5: 101-125 (1757); fasc. 6: 126-150 (1757); fasc. 7: 151-175 (1758); fasc. 8: 176-201 (1758); fasc. 9: 202-226 (1759); fasc. 10: 227-262 (1760).

¹⁹ Burman to Linnaeus, Amsterdam, February 8, and July 19, 1757, in *The Linnaean Correspondence*, linnaeus.c18.net, letters 2151 and 2214.

²⁰ Linnaeus, *Systema naturae, per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis*, 10th ed., 2 vols. (Stockholm: Impensis Direct. Laurentii Salvii, 1758).

new system.²¹ Two months later, Burman's edition was delayed and there were seemingly still no news from Linnaeus.²² He now openly requested that Linnaeus include the illustrations of Plumier's plants in the new edition of his book. He even insisted that Linnaeus quote the drawings as "Burm. Amer." rather than refer solely to Plumier, not only so as to avoid "confusion" among botanists given that he had modified Plumier's original denominations, but also to praise Burman's own "immense labor" in making the edition.²³

With the *Plantarum Americanarum*, Burman not only edited Plumier's unpublished drawings: he also replaced them into a full new social and intellectual context. The edition saw the light of day in a moment in which the circulation of botanical information into print was already clearly perceived as instrumental in the advancement towards a universal system of classification. In 1740, Albrecht von Haller, for instance, wrote to Linnaeus that

I wish we could have a European *Flora* written upon your principles. As to a universal System, it seems hardly to be hoped for, except from some man to whom every botanist would communicate his whole stock of observations, and all his dried specimens. Dillenius has great advantages of this kind. I wish he might accomplish something before he dies! The French, so rich in materials, do nothing. Why is this? Much has been said about the posthumous works of Plumier; but on enquiry I find nothing has yet been done with them.²⁴

By the time he acquired Plumier's drawings, however, Burman was occupied with the edition of Rumphius's *Herbarium Amboinense*, so the edition was delayed for several years—which provoked Linnaeus's protests ("Are [*sic*] Plumier's posthumous works

²¹ Burman to Linnaeus, Amsterdam, February 8, 1757, in *The Linnaean Correspondence*, linnaeus.c18.net, letter 2151.

²² Burman to Linnaeus, Amsterdam, July 19, 1757, in *The Linnaean Correspondence*, linnaeus.c18.net, letter 2214: "Ne credas quod in te iratus fuerim ob moram responsionis, sed dolui impressionem Operis tam diu fuisse retardatam."

²³ "[N]ovas Plumierii plantarum icones, sextique Fasciculi jam jam impressi numerum Tabularum, quas si novo tuo systemati inserere volueris, erit mihi gratissimum; sed scrupulum mihi movit citatio tua *plant: Plumier*: a me editarum, quum si sub ejus nomine meas denominationes novas in tuis Operibus laudes, frustra quaerent Botanici in Operibus a se ipso editis istas Tabularum citationes, an itaque non melius foret ad confusionem vitandam, mihiq[ue] debitam laudem adsignandam pro inmenso labore, si meas denominationes sub titulo *Burm. Amer.* citares. . . . fateor, sunt quidem plantae & icones Plumierii, sed denominationes & descriptiones mihi cometunt," in *The Linnaean Correspondence*, linnaeus.c18.net, letter 2214.

²⁴ Haller to Linnaeus, Göttingen, September 26, 1739, quoted in *Correspondence of Linnaeus*, 345. The edition of Plumier's drawings seems to have been planned since their acquisition by Burman in 1738: Haller, for instance, had questioned Linnaeus about that since September 1769: "What is new in the botanic world you know better than I, such as Plumier's posthumous figures," quoted in *Correspondence of Linnaeus*, 291.

come out?²⁵) When Burman finally returned to the drawings, he had already read the recently published *Species plantarum* by the “indefatigable” Linnaeus and realized that the Swedish scholar had employed, exactly or with modifications, genera established by Plumier regarding several Caribbean plants.²⁶ Indeed, Linnaeus had made extensive use of Plumier’s manuscripts in Leiden, but also of some of his printed books (particularly the *Nova genera*), albeit all of them with a declared reluctance. In the introduction to his *Genera plantarum*, the Swedish naturalist acknowledged with regret the erudite component of botany, a discipline relying to a certain extent on the collection and management of information circulated by other authors. He asserted “not to trust any author with the exception of the famous [Johann Jakob] Dillen [1684-1747] in his *Hortus Elthamensis* [1732], [Hendrik van] Rheedee [1636-1691] in his *Hortus Malabaricus* [1678-93], whom I have observed to be most accurate; and Plumier on American [plants], who, though I trust him less, was still necessary, where no other authors were available.”²⁷ Linnaeus’s lack of reference here to any of Plumier’s printed books also suggests his use of the friar’s manuscripts through copies. Although accepting a bookish dimension to botany, Linnaeus was careful to state clearly that he had relied on other authors only when original specimens were not at hand, and that no absolute confidence could be attributed to these sorts of sources in the study of botany. “I have,” he wrote, “made careful distinctions: I put an *asterisk* * where I was allowed to examine living plants; a *cross* † where I only could get dried plants; and no sign, where I have seen nothing, but had to trust authors and their good drawings.”²⁸

Reluctant or not, Linnaeus based about fifty species in his 1753 edition of the *Species plantarum* on Plumier’s drawings, partly or entirely. Reluctant or not, he, too, worked quill in hand, among heaps of paper. He annotated, for instance, an interleaved copy of the

²⁵ Linnaeus to Haller, Stockholm, September 15, 1740, in *Correspondence of Linnaeus*, 348.

²⁶ Burman’s preface to Plumier, *Plantarum Americanarum*, sig. [**v]: “Sed aliis tunc distractus curis, atque occupationibus impeditis quotidianis, in commodius tempus, quidquid hujus negotii esset, differendum censeui, praesertim quod tunc totus essem in exornando *Herbario Rumphiano*; quod Opere tandem ad umbilicum perducto, perlegere jam inceperam *Species Plantarum*, ab indefesso nuper *Carolo Linnaeo* editarum. In his autem animadverti, *Plumierianas* hasce Plantas ab Auctore perspicacissimo ad certa sua genera revocatas.”

²⁷ The works mentioned by Linnaeus are Hendrik Adriaan van Rheedee, *Hortus Malabaricus*, 12 vols. (Amsterdam: Sumptibus Joannis van Someben et Joannis van Dyes, Henrici et Viduam Theodori Boom, 1678-1693), and Johann Jakob Dillenius, *Hortus Elthamensis, seu plantarum rariorum quas in horto suo Elthami in Cantio coluit vir ornatissimus et praestantissimus Jacobus Sberard* (London: Sumptibus Auctoris, 1732). Carl Linnaeus, *Genera plantarum eorumque characteres naturales secundum numerum, figuram, situm, & proportionem omnium fructificationes partium* (Leiden: Apud Conradum Wishoff, 1737), 11. I use the translation by Staffan Müller-Wille and Karen Reeds, “A Translation of Carl Linnaeus’s Introduction to *Genera plantarum* (1737),” *Studies in History and Philosophy of Biological and Biomedical Sciences* 38 (2007), 570.

²⁸ Linnaeus, *Genera plantarum*, trans. S. Müller-Wille and K. Reeds, 570.

first edition of his own *Genera plantarum* (1737) while preparing the *Species plantarum*: in those handwritten notes, he referred directly to the *Codex Boerhaavianus* as “Plum. hist. mss.,” a reference also used by Burman and in other duplicates of the friar’s manuscript drawings.²⁹ Annotated copies of most of Plumier’s books can also be found in Linnaeus’s personal library, which was sold in the 1780s (after the death of Linnaeus’s son) to the English botanist James Edward Smith (1759-1828): the scion of a wealthy merchant family and friend of Joseph Banks, by then president of the Royal Society, Smith succeeded in purchasing Linnaeus’s entire collection—composed not only of his books, but also his manuscripts (including the correspondence) and specimens—in 1783 for 1,000 guineas, after it was offered to Banks and he declined the offer. Smith used Linnaeus’s materials to fund the Linnean Society as an institution independent from the Royal Society (too concerned with “all the branches of philosophy to enter into the minutiae of natural history”).³⁰ The Linnean collection includes Plumier’s *Description*, interspersed with comments from the hand of Linnaeus, most of them bringing the friar’s nomenclature up to date with his own binomial system. The plates of Linnaeus’s copy of the *Plantarum Americanarum* also bears almost systematic amendments to the original names of the plants. Linnaeus’s copy of the *Nova genera* was annotated in French and Latin, but by an unidentified reader—a Frenchman perhaps, for he associated each genus with specific “classis” following Tournefort’s system, minutely identified some of them with living specimens in Paris (the *Brunsfelia* at the Jardin du roi, he wrote in a margin, flowered in 1708), and made frequent references to French naturalists (like Augustin Lippi for the *Musa* or Surian in his *Hortus Siccus*, his herbarium, for the *Cornutia*).³¹

Although Burman successfully saw the *Codex Boerhaavianus* into print, it was mostly through the handmade copies themselves that Linnaeus made use of Plumier’s drawings on the flora of the West Indies. This highlights that manuscript information played a role just as important in the mid-eighteenth century as it had about fifty years before: despite Linnaeus’s exhortation against relying on authors, his triumphant system of classification

²⁹ Polhill and Stearn, “Linnaeus’s Notes on Plumier Drawings,” 325.

³⁰ James Edward Smith, “Introductory Discourse on the Rise and Progress of Natural History,” *Transactions of the Linnean Society* 1 (1791), 52; Stephen T. Asma, *Stuffed Animals and Pickled Heads: The Culture and Evolution of Natural History Museums* (Oxford: Oxford University Press, 2001), 118-20.

³¹ LSLA BL 1157 (*Description*), BL 1156A (*Plantarum Americanarum*), and BL 731 (*Nova genera*). Part of Smith’s acquisition in 1784, their proceeding from Linnaeus’s personal library is indicated in the flyleaf (“Ex. Bibl. Linn. 1784. J.E. Smith.”). The commentator of the copy of the *Nova genera* BL 731 is identified in the flyleaf, but I was not able to decipher the name. Among his notes, consider particularly those to the *Brunsfelia*, p. 12 (“Il a fleuri au Jardin du Roy en 1708”); to the *Musa*, p. 24 (“Mr Lippi assure que la fleur est d’une seule piece et en Lys”), or to the *Cornutia*, p. 32 (“Surian. Hort. Sicc”).

was largely grounded on paper archives and especially on visual representations, such as those by Plumier, whose material life was often more complicated than has usually been recognized.

Plumier in England

Plumier never set foot in England (a bit to his regret, as he once assured a fellow botanist), but his manuscripts and books circulated widely on the other side of the Channel. What matters to us here are the modes of this circulation: they were copied by hand and through print, they were translated and pirated, they were cut and pasted, they were corrected quill in hand and annotated in the margins. This is not to say that Plumier was a well-diffused author among English botanists: he was not. But the many lives of his drawings and copperplates in England support my argument that the managing of paper information was pervasive in the making of natural history; moreover, they provide an astonishing example of specific material practices surrounding not only the making, but also the reading of images at the turn of the eighteenth century.

To begin with, another set of duplicates in several volumes reached Oxford in the early eighteenth century; one of these volumes came into the hands of another, much better known naturalist and traveler in the Caribbean islands, Sir Hans Sloane.³² That's hardly a surprise: Sloane's monumental collection encompassed such a number of natural specimens and substances, antiquities, prints, drawings, books, and manuscripts that it is actually at the origins of the British Museum, the British Library, and the Natural History Museum in London.³³ Like Boerhaave's codex, the album of duplicates in Sloane's private library had a complicated history. The volume was previously owned by William Sherard, whose collection later became the library of the Botanic Garden in Oxford. As we have seen in previous chapters, Sherard had close links with the Paris circle of naturalists—he had attended Tournefort's lectures at the Jardin du roi during the late 1680s—and pursued, during most of his lifetime, an ambitious intellectual project originally proposed to him by Tournefort and envisioned also by Plumier in his youth: the composition of a new *pinax* to replace Gaspard Bauhin's one of 1623. With this aim

³² For want of an opportunity to consult the *Codex Boerhaavianus* at the University of Groningen, Burman's engravings are here compared with this other set of duplicates.

³³ The British Library launched between 2008 and 2011 the Sloane Printed Books Project, with an online catalog of Sloane's collection of printed books: <http://www.bl.uk/catalogues/sloane/>. Furthermore, the British Museum, the British Library, and the National History Museum, London, are also currently hosting a collaborative project on Sloane's multifarious collection of natural and artistic objects, printed books, and manuscripts.

in mind, Sherard amassed a respectable herbarium and a considerable collection of botanical manuscripts and books. Among these were the copies of Plumier's drawings, which most likely reached him through Vaillant, or perhaps Boerhaave, both lifelong friends of his.

Sherard eventually donated his collection to the Botanical Garden in Oxford, and with it the duplicates of Plumier's drawings, by then bearing the title of *Delineationes Plantarum Americanarum* (Sketches of American Plants).³⁴ Two of these albums are still kept at the Sherardian Library in the Bodleian; another one, however, somehow found its way to Sloane's private library and later became part of the British Library.³⁵ This last volume contains 137 simple line drawings made at different moments and probably by different hands (the ink and the size and type of the paper of the original drawings, pasted on the pages of the volume, differ from one another). Three different paginations, sometimes even four, coexist in each drawing (some older than others; some on the original pages and others on the leaves on which they were adhered). Just like Boerhaave's codex, these duplicates seem to have been made in Paris shortly after the death of the friar: the nomenclature used for identifying the plants is the one employed during Plumier's time and, with the exception of some allusions to Georg Marcgraf's contribution to the *Historia naturalis Brasiliae* and Tournefort's *Institutiones*, virtually all the drawings include references to Plumier. Some of these handwritten references are to his *Nova genera*, some others to the catalog of the plants printed at the end of the same volume and seemingly inventorying the totality of specimens he described in America; most of them, however, cite the volumes and pages of the manuscript ("Plumier Hist. Manusc.") mentioned also in Burman's edition and Linnaeus's interleaved copy of the

³⁴ Dillenius, the first holder of the chair of botany endowed by Sherard at Oxford, consulted these duplicates. Johann Jakob Dillenius to Linnaeus, Oxford, August 29, 1738, quoted *Correspondence of Linnaeus*, vol. 2, 110-1: "All Plumier's *Clusia* have, doubtless, rigid, thick, smooth leaves, without serratures. I have seen those of but two species, knowing the others from Plumier's drawings only, according to which they are all different, and by no means the same species. Plumier, as well as you yourself after him, asserts to the fruit to be pulpy." Perhaps Sherard had in mind an edition of Plumier's drawings: after all, Sherard was (like Burman) a prolific editor of some of his colleagues' works. He was involved in the posthumous publication of Sébastien Vaillant's *Botanicon parisiense* (a thorough account of the flora in the Parisian area illustrated by Claude Aubriet and bequeathed to Boerhaave) and edited Paul Hermann's *Paradisus Batavus*, a treatise published by the Elzevier house and profusely illustrated by the author, who was an accomplished draftsman himself.

³⁵ Bodl. MSS 189-90 and BL Sloane MS 4017. I have not consulted the volumes at the Sherardian collection, but used the *Catalogue of Manuscripts Belonging to Oxford University Department of Botany, Deposited in the Bodleian Library Oxford, 1957, and referenced Mss. Sherard 1-478* (Oxford: Bodleian Library, 1953), 11, in which they are described as of 332 and 349 leaves respectively.

Genera plantarum—certainly the original volumes kept at the Paris Academy of Science from which the Dutch and Oxford copies had been made.³⁶

Interestingly, the album of the *Delineationes plantarum Americanarum* is not the only manuscript item by Plumier in Sloane's personal library: a particularly remarkable one is a word-by-word manuscript translation of Plumier's first book into English. In the form of a small duodecimo volume of a little more than a hundred pages and bound in Sloane's coat of arms, the translation is undated and unsigned, written in a tiny, cramped handwriting and bearing the English title *Description of American plants with their figures*. It includes no printed or manuscript images, but a few annotations (some in Latin) referred in the text to works of other authors, such as Leonard Plukenet's *Almagestum botanicum* (1696).³⁷ The author of this translation is unknown (although it has been attributed to James Petiver),³⁸ as is whether or not it was made with the aim of publication.

Some attempts indeed were made at the very beginning of the eighteenth century for publishing an English edition of Plumier's works, and these took place around the figure of Hans Sloane. One of the most enthusiastic advocates of the French friar was a contemporary of his, the Dutch physician Pieter Hotton (1648-1709) of the University of Leiden, the successor of Paul Hermann at the chair of botany. Hotton became fellow of the Royal Society in 1703 and a champion of Ray's method in the Netherlands: he supervised the publication of Ray's *Methodus emendata* and was said to have applied the classification system to the arrangement of the plants and trees in the Leiden botanical garden. Hotton also was a correspondent of Sloane, to whom he wrote on several occasions about Plumier's works: in 1704, for instance, he requested Sloane's help for publishing the *Nova genera* (probably an English translation) with Samuel Smith and Benjamin Walford in London—printers of the Royal Society and of books such as Petiver's *Musei petiveriani*, Ray's *Synopsis methodica*, or Newton's *Optiks*.³⁹ Although Hotton's idea never came to fruition, he kept on writing to Sloane about the Minim's

³⁶ BL Sloane MS 4017 "Delineationes plantarum Americanarum."

³⁷ BL Sloane MS 2337 "C. Plumier A Description of American Plants"; Leonard Plukenet, *Almagestum botanicum, sive phytographiae Plukenetianae onomasticon methodo syntheticâ digestum* (London: Sumptibus autoris, 1696).

³⁸ Samuel Ayscough, *A Catalogue of the Manuscripts Preserved in the British Museum Hitherto Undescribed*, vol. 2 (London: John Rivington, 1782), 669.

³⁹ Pieter Hotton to Sloane, Leiden, August 22, 1704, in BL Sloane MS 4039, fol. 347-9.

work: he described to him the *Traité des fougères* soon after its publication and inquired about the death of the friar until as late as 1707.⁴⁰

Apparently, it was also Hotton who sent a copy of the *Nova genera* to another English naturalist in the circle of Sloane, one who was instrumental to the reception of Plumier's images in England: the apothecary James Petiver (c. 1665-1718).⁴¹ Petiver is an interesting figure in the global commerce of natural knowledge: from his shop in Aldersgate Street, he learned to capitalize on both the support of Sloane (to whom he bequeathed his collection of specimens) and on the English overseas commercial and military expansion. The apothecary actually became a pivotal broker within a long-distance network of natural historical information exchange—he even printed some “brief directions for the easie making and preserving collections of all natural curiosities,” giving instructions for the conservation and transport of animal, plant, and mineral specimens.⁴² On the other side of the Channel, his correspondents and suppliers included Tournefort, “Botanick Professor of the Royal Garden at Paris.” Plumier himself was not on the main list of suppliers displayed at the beginning of his *Musei Petiveriani* (1695), but acknowledged “that Curious Botanist” for having sent to him a few American species via Tournefort.⁴³ These American specimens, together with others also collected by the friar and sent via Vaillant, eventually entered Sloane's extensive herbarium (fig. 6.2).⁴⁴

⁴⁰ Hotton to Sloane, Leiden, November 10, 1705, and January 11, 1707, in BL Sloane MS 4040, fol. 86-7 and 291-2 respectively.

⁴¹ This is at least what he tells Sloane: Hotton to Sloane, Leiden, December 21, 1706, in BL Sloane MS 4040, 274-5.

⁴² Petiver, *Brief Directions for the Easie Making, and Preserving Collections of all Natural Curiosities* (London, [1709?]). On Hotton's sending the *Nova genera* to Petiver see Hotton to Sloane, Leiden, December 21, 1706, in BL Sloane MS 4040, 274-5. On Petiver see Raymond P. Stearns, “James Petiver, Promoter of Natural Science, c. 1663-1718,” *Proceedings of the American Antiquarian Society* 62 (1952), 243-365; Marjorie Swann, *Curiosities and Texts: The Culture of Collecting in Early Modern England* (Philadelphia, PA: University of Pennsylvania Press, 2001), 90-6; James Delbourgo, “Listing People,” *Isis* 103 (2012), 735-42, and Kathleen S. Murphy, “Collecting Slave Traders: James Petiver, Natural History, and the British Slave Trade,” *The William and Mary Quarterly* 70, no. 4 (2013), 637-70. On Petiver's role in the exchange and circulation of specimens, letters, and books, consider his instructions to George Harris in 1698: “Procure Correspondents for me however you come, and take directions how to write them, and procure something from them you stay,” in Petiver to George Harris, October 18, 1698, in BL Sloane MS 3333, fol. 235-6, quoted in Susan Scott Parrish, “Diasporic African Sources of Enlightenment Knowledge,” in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (New York: Routledge, 2008), 289.

⁴³ The *Darea Americana major pubescens* and the *Darea Americana Lichenoides*. Petiver, *Musei Petiveriani centuria prima, rariora naturae* (London: Ex Officina S. Smith & B. Walford, 1695), 47 and 73.

⁴⁴ The *Lycopodium cernuum* L., labeled “Americ. Vail.” and mentioned by Petiver in the *Philosophical Transactions* 23 (1702), 1451: “Monsieur Vaillant . . . hath also sent it to me collected by that Curious and Acurate Botanist Pere Plumier.” I am greatly indebted to Charlie Jarvis for taking and sending to me reproductions of these two specimens, now kept at the London Natural History Museum as H.S. 329 and H.S. 163. See also J. E. Dandy, *The Sloane Herbarium: An Annotated List to the Horti Sicci Composing It* (London: British Museum, 1958), 188, and <http://www.nhm.ac.uk/research-curation/scientific-resources/collections/botanical-collections/sloane-herbarium/>.



Fig. 6.2. Dried specimens of the *Trichomanes membranaceum* L. (left) and the *Lycopodium cernuum* L. (right) collected by Plumier in the West Indies and sent to Petiver via Tournefort and Vaillant, respectively. They eventually entered Sloane's herbarium. (Natural History Museum, London.)

Not only the specimens, but also the drawings by Plumier circulated among London naturalists like Sloane and Petiver despite the fact that, curiously, there seems not to have been direct contact between the friar and these foreign scholars, with the exception of those who visited him in his Parisian convent. For a certain time, for instance, one of Petiver's correspondents in Paris was David Krieg, who had stayed in London for some time with the apothecary, through whom he met Ray and Sloane and joined the Temple Coffee House Botany Club. The coffee house at the Temple was an informal assembly for natural history funded in the late seventeenth century and a central space of sociability for naturalists from England and abroad (like Andreas Gundelsheimer, the physician who accompanied Tournefort in his travel to the Levant).⁴⁵ Krieg had

⁴⁵ Andreas Gundelsheimer to Sloane, Paris, September 27, 1698, in BL Sloane MS 4037, fol. 130-1: "Faites mes tres humbles compliments a toute la compagnie de votre coffehous." On the Temple Coffee House Botany Club, see Margaret Riley, "The Club at the Temple Coffee House Revisited," *Archives of natural history* 33, no. 1 (2006), 90-100. On coffee houses as a place of scientific sociability, see Robert Iliffe, "Material Doubts: Hooke, Artisan Culture and the Exchange of Information in 1670s London," *The British Journal for the History of Science* 28, no. 3 (1995), 285-318, and Larry Stewart, "Other Centers of Calculation,

encounter the friar in his convent at Place Royale, where he was shown the collection of drawings on American flora and fauna, and at the gatherings of the Parisian circle of naturalists that took place at the Bibliothèque du roi in rue Vivienne. In one of those meetings, the German met French savants like the botanist Sébastien Vaillant or the chemist Etienne-François Geoffroy (elected that same year to the Royal Society), as well as the friar Plumier, who “promised to write to you & to send you some things,” Krieg informed Petiver. “He sayd; he would fain make a voyage into England to see you & Dr. Ray, but would not change his habit, in which could not venture to go there [to England].”⁴⁶ Plumier might not have been able to set foot in England with the habit of a Catholic regular order, but his images came to Petiver’s hands nonetheless, mainly thanks to Tournefort’s mediation.⁴⁷

The copy of the *Nova genera* owned by Petiver, now extant at the Cambridge University Library,⁴⁸ is worth describing for a number of reasons, particularly at the material level. Petiver made a sort of scrapbook out of the volume. Remember that the *Nova genera* was organized in two parts: in the first half were the written descriptions and lists of specimens for each genus, and in the second the engravings. Petiver had some of the figures in the book’s copperplates copied by etching, and he then carefully cut and pasted these copies next to the written descriptions in the first part of the volume, and sometimes even next to the plates they duplicated (fig. 6.3).⁴⁹ Like the Madrid copy of the same book, but through a different strategy, the Cambridge volume puts the images and text of the volume side by side.

In his copy of the *Nova genera*, Petiver also included handwritten annotations cross-referencing Plumier’s text and images to two other works. The first, with the

or, Where the Royal Society Didn’t Count: Commerce, Coffee-Houses and Natural Philosophy in Early Modern London,” *The British Journal for the History of Science* 32, no. 2 (1999), 133-53.

⁴⁶ BL MS Sloane 4063, fol. 149.

⁴⁷ See Tournefort to Sloane, Paris, April 10, 1698, in BL MS Sloane 4037, fol. 55 (“Le Père Plumier est arrivé des isles d’Amérique tout chargé de plantes extraordinaires”), or Tournefort to Sloane, Paris, January 24, 1703, in MS Sloane 4039, fol. 77 (“Le Père Plumier va faire imprimer le Catalogue de toutes celles [plants] qu’il a veues en Amérique, ce sera un beau recueil”).

⁴⁸ CUL CCB.47.76.

⁴⁹ On scrapbooks and science, see James A. Secord, “Scrapbook Science: Composite Caricatures in Late Georgian England,” in *Figuring It Out: Science, Gender, and Visual Culture*, ed. Ann B. Shteir and Bernard Lightman (Hanover, NH: Dartmouth College Press, 2006), 164-91, and Clare Pettitt, “Taxonomy and Travel in Nineteenth-Century Women’s Scrapbooks,” in *Travel Writing, Visual Culture, and Form, 1760-1900*, ed. Mary Henes and Brian H. Murray (Basingstoke: Palgrave Macmillan, 2015), 21-41. There are also other, minor manuscript inscriptions by Petiver in the Cambridge copy of the *Nova genera*, such as an “A” placed next to the name of some species, a sign that he used in other works to indicate that those plants were also in Europe (“Litera in margine prosita indicat plantas illas quibus praesigitur, aut Angliae Indigiens esse, aut in Agris passim cultas,” *Hortus sicus pharmaceuticus* [London: 1715], 1).

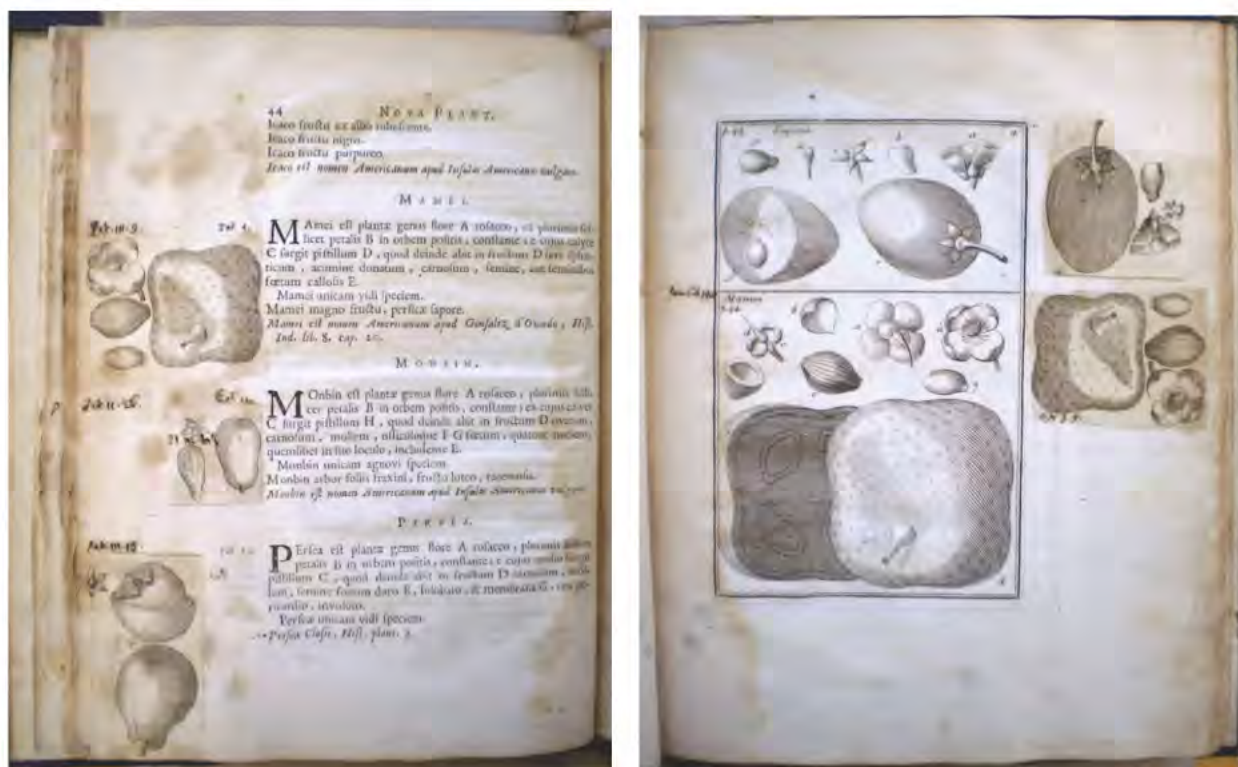


Fig. 6.3. Pages from the copy of the *Nova genera* owned and modified by Petiver. Note the annotations and the intaglio copies of some of the images in Plumier’s engravings, cut and pasted by Petiver next to the volume’s text and plates. (Cambridge University Library)

abbreviation “Jam. Cat.” and a page number, referred to the catalog of plants on the island of Jamaica published in 1696 by Sloane.⁵⁰ The second set of annotations pointed to Petiver’s own work: he systematically referred each genus (in the descriptions, as well as in the index and the plates) to one of his own paper museum, the *Gazophilacii naturae & artis*. Just like his previous *Musei Petiveriani* (1695-1703), the *Gazophilacii* consisted of lists of species of a wide variety of plants, insects, birds, and shells. While the *Musei* was organized in “centuriae,” or groups of a hundred species, the *Gazophilacii* were arranged in decades (“decas,” or “decadis” in the plural). Each decade, in the form of a fascicule, had ten intaglio plates, each with several figures depicting the species enumerated in the list preceding them. Petiver published up to ten decades, between 1702 and 1709 (that is, until the 100th plate), but had others ready for publication. These, however, did not come into being until long after the death of the author, in a 1767 volume including both the

⁵⁰ Sloane, *Catalogus plantarum quae in Insula Jamaica sponte proveniunt, vel vulgò coluntur, cum earundem synonymiis & locis natalibus; adjectis aliis quibusdam quae in Insulis Madaeae, Barbados, Nieves, & Sancti Christophori nascuntur* (London: Impensis D. Brown, 1696).



Fig. 6.4. Plate in one of Petiver's unpublished *Gazophilacium* reproducing most of the figures in the engravings of the *Nova genera*. (Smithsonian Libraries, Washington, DC.)

printed and unpublished decades.⁵¹ The handwritten references by Petiver in his copy of the *Nova genera* refer to four of these posthumous plates: a first number indicated a plate from 1 to 4 (corresponding to the plates 119 to 122, all entitled “American Plants, &c.”) and the second a specific figure within the plate.⁵² These are precisely the figures Petiver copied from, and then cut and pasted in, his copy of the *Nova genera* (fig. 6.4).

The copy of Plumier's *Nova genera* owned and altered by Petiver in a scrapbook-like manner confirms the central role that paper records (printed and manuscript, images and texts alike) had not only in the overseas circulation of natural historical information, but also in the daily making of knowledge on the natural world. The figure and work of Petiver has been studied for his broker role in long-distance networks of specimen and object collecting: his “Brief directions” are a good example of this. But his copy of the *Nova genera* at the Cambridge University Library, as well as his use of the images already printed, such as Plumier's, makes him an interesting case for understanding the salience

⁵¹ *Jacobi Pettiveri Opera, Historiam Naturalem Spectantia: Containing Several Thousand Figures of Birds, Beasts, Fish, Reptiles, Insects, Shells, Corals, and Fossils*, vol. 1 (London: Printed for John Millan, 1767).

⁵² Petiver, *Opera*, and pl. 119-122.

of paper records in the making, transfer, and management of natural historical information during the late seventeenth century and well into the eighteenth century.

In the first place, the copy of the *Nova genera* proves the pervasiveness of books and printed materials (not only specimens) in communities of exchange, such as that at the center of which were Petiver and Sloane. The great collector Sloane, for instance, not only accumulated a vast herbarium and more than twenty thousand medals and coins, but also a colossal library of half a hundred thousand printed books, manuscripts, prints, maps, and miniatures that he had gathered over seventy years (he died aged 93).⁵³ His correspondence with Tournefort offers a good example of this. Sloane had attended Tournefort's lectures at the Jardin du roi in 1683, while visiting Paris and Montpellier with the English physician Tancred Robinson during his youth: he and Petiver had kept a lifelong commerce of letters, specimens, and books with the French professor since then.⁵⁴ Tournefort sent them dried plants collected during his trips to Spain, Portugal, and the Levant, as well as French books, among them his own.⁵⁵ Books, in fact, seem to have largely dominated the exchange between the English naturalists around Sloane and the Temple Club, on the one hand, and the Parisian scholars around Tournefort, on the other. The exchange of printed materials across the Channel was actually intense. Gundelsheimer, for instance, wrote to Sloane in 1698 about the shipment of books printed in France that he had commanded to him and to Tournefort (ranging from the *Histoire des plantes qui naissent aux environs de Paris* to printed catalogs and treatises to "little papers that will serve to amuse the gentlemen at the Temple coffee house") and reporting on new publications, including the fortunes of Plumier's book on ferns.⁵⁶

⁵³ M. A. E. Nickson, "Hans Sloane, Book Collector and Cataloguer, 1682-98," *British Library Journal* 14, no. 1 (1988), 52-89, gives useful tools for navigating the now scattered paper collection of Sloane.

⁵⁴ Jean Jacquot, "Sir Hans Sloane and French Men of Science," *Notes and Records of the Royal Society of London* 10, no. 2 (1953), 85-98.

⁵⁵ See Tournefort's lettres to Sloane, like BL Sloane MS 4037, fol. 44 ("[Andreas Gundelsheimer] vous remettra six estampes des plantes que j'ai fait graver pour le premier volume de l'hisotire de l'academie royalle, et j'aurai l'honneur de vous envoyer ce volume aussitôt qu'il sera imprimé ce qui ne tardera pas car je veux le faire commencer incessamment"), fol. 55 ("Je vous enverray par Mr Lister la cucurbita monomotapensis cortice tomentoso et mon histoire des plantes des environs de Paris qui sera bien tot finie"), and fol. 211 (J'ay eu l'honneur de vous envoyer . . . l'histoire de l'academie royalle des sciences composée en latin par Mr Duhamel. . . Je vous envoie aussi la premiere feuille de mon ouvrage latin qui a pour titre *Institutines rei herbariae*"); MS 4059, fol. 84 ("je vous enverrois quelques bagatelles que iay ramassé en Espagne et en Portugal") and fol. 111 ("J'aurois bien souhaité qu'il eut peu vous porter mon livre mails il vous assurera qu'il s'en faut encore sept ou huit feuilles qu'il ne soit fini, ainsi vous ne le recevrez que dans le commencement de l'année prochaine"), or MS 4063, fol. 11 ("Nous voicy arrivez pour nous embarquer pour la Candie. Nous esperons Mr Gundelsheimer et moy trouver des tres belles choses et je vous assure que nous vous en ferons part. J'ay laissé à Mr Geoffroy un examplaire de mon livre intitulé *Institutiones Rei Herbariae*").

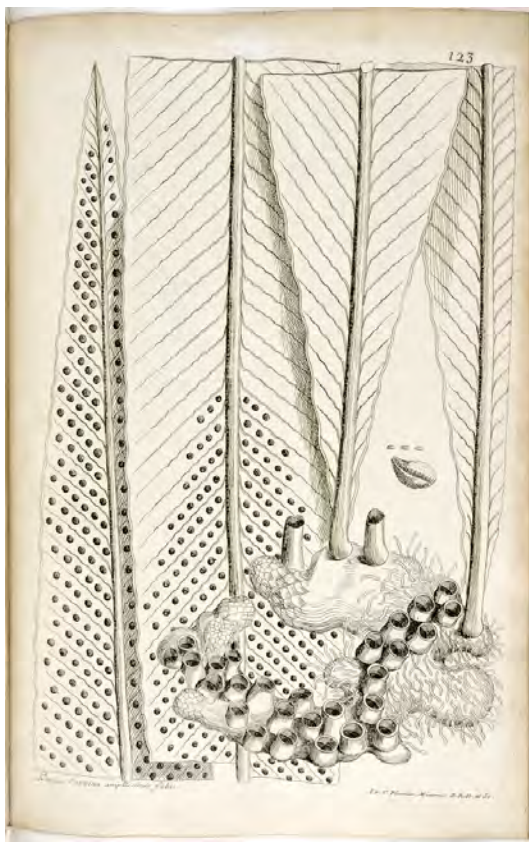
⁵⁶ Gundelsheimer to Sloane, Paris, September 27, 1698, in BL Sloane, MS 4037, fol. 130-1.

Fig. 6.5. (left) Plate VI from James Petiver's *Pteri-graphia Americana*. (Real Jardín Botánico, Madrid) (opposite) Copperplates in the *Traité des fougères* from which four of the figures of Plate VI (fig 7, 8, 15, and 16 – third and fourth column in the second and fourth rows) were drawn. (Bibliothèque nationale de France, Paris.) Note that the first figure in the second row is the one copied from the *Lingua cervina* analyzed in chapter 5 (see fig. 5.12). The comments in Petiver's plate ("rare," "on moist rocks," for the *Lingua cervina*) were also drawn from the *Traité des fougères*. Petiver, however, does not refer to Plumier in this figure (or in any other, for that matter), but the third volume of the *Historia plantarum* by John Ray.



In the second place, the example of Petiver also corroborates the consequence of material forms of appropriation and paper management in the daily work of naturalists: copying, either by means of paper and ink (like Plumier) or through print itself (like Petiver), was the most visible of these forms as far as images were concerned.

More broadly, the example calls attention to the fact that those scholars who reemployed Plumier's images for their own purposes (whether these uses took the form of editions like Burman's or copies like d'Agoty's or Petiver's) had made it their business to publish compilations of images by other authors. Petiver was, after all, a maker of images no less than a naturalist. The initially unpublished plates of the *Gazophylacii* are not his only copy of Plumier's printed images: he also used the friar's images in a series of twenty copperplate engravings entitled *Pteri-graphia* [from the Greek *περσις*, "fern"]



Americana . . . *ex Insulis nostris Charibbaeis* and printed, seemingly by the apothecary himself, in 1722.⁵⁷ The *Pteri-graphia* is yet another sort of paper museum by Petiver, following roughly the same structure as those mentioned above. The plates were accompanied by three pages of written text, also carved or etched in copper rather than printed with moveable types. The text listed 506 natural species, namely 179 sorts of ferns, and several dozen kinds of mosses, of corals and submarine sponges, and of shelled mollusks and insects. These items came up to about 400, most of them (but not all) depicted on the twenty plates that followed the list: each item referred to the number of the plate and the figure in which it was pictured.⁵⁸

The plates in Petiver's *Pteri-graphia* deserve a particularly focused attention. Many of the plates were signed by Sutton Nichols (fl. 1680-1740), a London artist known mainly for his architectural elevations and bird's-eye urban views.⁵⁹ Sutton signed most of the plates as the carver ("sculp."), and only in the last one did he inscribe his name also as the draftsman ("delin. et sculp."). The interest of the *Pteri-graphia*'s engravings for our purpose is that the large majority of the figures in them (around fifteen figures per plate) were reduced copies of those in Plumier's *Traité des fougères*—mostly ferns, but also mushrooms, corals, and algae (fig. 6.5). In Petiver's engravings, the figures followed the order neither of those in Plumier's book nor in Petiver's own list at the beginning of the *Pteri-graphia*. The names given by the English apothecary to the species were not those used originally in Plumier's book, and they were organized according to Ray's system, not Tournefort's, as in the *Traité des fougères*. A double net of cross-references linked the figures in the plates with the items in the list, and the listed items with the figures.⁶⁰ Apart from these multiple numerations, other references were carved around the figures: mention was occasionally made to John Ray's third volume of the *Historia plantarum* ("Ray 3"); comments were included on the rarity of the species and their environments ("rare," "in all woods," "often in woods," "in woods plentifully," "by rivers," "runs

⁵⁷ Petiver, *Pteri-graphia Americana icones continens plusquam 400 filicum variarum specierum. Viz. Arborescentes, scandentes, spinosas, floriferas, aliasque perraras; nec non muscos, lichenes, fungos, corallia, spongas, aliaq. Non pauca submarina cui adiiciuntur crustacea, testacea, aliaque animalia ferè omnia ex insulis nostris Charibbaeis viz Antego Barbados, St. Christophers, Nevis, Jamaica, & figuris Aenaeis, Folio incis. XX Tabulis. A Jacopo Petiver, Soc. Regal. S. Lond.* [London, 1712].

⁵⁸ Roughly the last hundred items of the list were included into a section labeled "American shells in our Museum, whose figures are not depicted in the *Gazophilacio Naturae*," and they were not depicted in the plates. These last hundred items included references to Petiver's gathering of specimens that eventually integrated Sloane's collection upon the apothecary's death.

⁵⁹ Lucy Peltz, "Nicholls, Sutton (fl. 1680-1740)," *Oxford Dictionary of National Biography* (Oxford: Oxford University Press, 2004), <http://www.oxforddnb.com/view/article/20115>

⁶⁰ Both the plates and the figures on them were twice numbered (the numeration to which the list referred and another one that sent back to the list (introduced by a "C." of "catalogue").

about trees,” “on trunks of trees”), all of them equally taken from the descriptions in Plumier’s *Traité des fougères*.

To better understand the way in which Petiver copied and reframed Plumier’s images of ferns, consider the example of the *Lingua cervina*, whose original plate in Plumier’s book has already been analyzed in the previous chapter. The engraving by Petiver included, first, a reference to the page and species entry in Ray’s book (“Ray 3, p. 52, 15”), where the English botanist used the same name given by Plumier (“*Lingua cervina* foliis acutis, & ad oras summitatum pulverulentis,” or “hart’s tongue acute with powdery edges”) and attributed its description to the friar; Petiver, in contrast, gave another name to the species, “*Phyllitis lineata*, hinc inde dentata,” and no mention was made to Plumier—no mention was made to the friar in the entire *Pteri-graphia*, for that matter.⁶¹ As all the other figures, Petiver’s version of the *Lingua cervina* was a reduced and simplified copy in etching of the original in the *Traité des fougères*. Petiver’s figure included two other written references on the plate itself, “rare” and “on moist rocks,” both drawn also from the *Traité des fougères*, where Plumier noted that “I have found this Plant on the Island of St Domingue, but rarely, & always against moist rocks.”⁶²

The *Pteri-graphia* was, therefore, a graphic and (to a certain extent) written synthesis of Plumier’s *Traité des fougères*: it copied in a reduced and slightly simplified form the figures of the latter, comprised them into composite plates of four rows and four columns, and transformed the voluminous, 170-plate folio published at the Imprimerie royale (whose circulation was necessarily limited both by its format and its not being originally a marketable product) into a short pamphlet of twenty-three plates (twenty of images and three of text).

Petiver’s *Pteri-graphia Americana* was a synthesis, however, that crucially lacked mentioning its own source. The friar was not mentioned even once in the whole pamphlet: no reference was made to any of his books or manuscripts, although there were to Ray’s and Sloane’s. Likewise, Plumier’s original nomenclature was replaced with a new one. While he did not mention the (by then deceased) author of the drawings, he took good care in carving the name of some other people. Nearly half of the plates were

⁶¹ Petiver, *Pteri-graphia*, pl. 6; Plumier, *Traité des fougères de l’Amérique* (Paris: de l’Imprimerie royale, 1705), 116, pl. 132, and John Ray, *Historia plantarum*, vol. 3 (London: Apud Sam. Smith and Benj. Walford, 1704). Ray was obviously not referring to Plumier’s *Traité des fougères*, which appeared a year later than the third volume of the English naturalist, but to the friar’s *Description*, where the same species of *Lingua cervina* was treated, p. 28, pl. 40.

⁶² Plumier, *Traité des fougères*, 116: “J’ay trouvé cette Plante dans l’Isle de Saint Domingue, mais rarement, & toujours contre les rochers humides.”

“humbly dedicated by Iames Petiver, F.R.S.” to some of his living correspondents and suppliers: Reverend George Jago (d. 1726), Vicar of Haberton; a certain Captain Richard Canning (d. 1726) of the Royal Navy; a Christopher Eglinger, physician in Basel; the renowned Dutch apothecary and collector Albertus Seba (1665-1736); the Galilean naturalist and experimentalist Antonio Vallisneri (1661-1730) in Padua; the Spanish apothecary Joan Salvador (b. 1683); the Puritan pastor Joseph Lord (1672-1748) in the British colony of Carolina; a Captain Thomas Walduck in Barbados, and Hannah English Williams (d. 1722), also in Carolina. As in the case of Burman’s engravings, Petiver’s plates gave to Plumier’s drawings yet another life within a new network of social and intellectual exchange.

So, how can we understand this unacknowledged appropriation in print of somebody else’s visual materials? The easy answer to this question would be one in terms of piracy, but this is a slippery concept; one, moreover, that happened to be widely dynamic and malleable across time and space.⁶³ To begin with, the printing conditions under which Petiver brought out the *Pteri-grahia* are not clear: as in the case of the *Musei Petiveriani* or the *Gazophilacii naturae & artis*, we do not know much about who printed it or at the expenses of whom (perhaps Petiver himself). It is also not entirely clear whether any of these paper museums were printed with commercial purposes in mind. However, it is worth remembering, as Adrian Johns has pointed out, that copyright policies did not see the light of day until the late eighteenth century, and the general concept of “intellectual property” only crystalized in the nineteenth century.⁶⁴ It was in the second half of the seventeenth century, however, that the notion of piracy emerged. The English trader and writer Daniel Defoe (1660-1731), for instance, authored “an Essay on the Regulation of the Press” in 1704 (a year before the printing of the *Traité des fongères*) in which he outlined the delicate boundaries of the “most injurious piece of Violence” when somebody “robs Men of the due Reward of Industry, the Prize of Learning, and the Benefit of their Studies.”⁶⁵ Defoe included among these forms of piracy printing practices that were well-extended on both sides of the Channel, and one of them consisted of abridgements or reeditions “in smaller Print, and meaner Paper, in order to

⁶³ The fundamental book on the topic of piracy in the book trade is Adrian Johns, *Piracy: The Intellectual Property Wars from Gutemberg to Gates* (Chicago: The University of Chicago Press, 2009), esp. chap. 1-7. Johns, however, focuses on written culture, not images.

⁶⁴ Johns, *Piracy*, 497-518.

⁶⁵ Daniel Defoe, *An Essay on the Regulation of the Press* (London: n.p., 1704), 19, referred to in Johns, *Piracy*, 497.

sell them lower than the first Impression”—a description that could fit well the *Pterigraphia*, if we knew more about its commercial distribution.

For the moment being, it is worth stressing one aspect in particular in the story of Petiver’s reemployment of Plumier’s images of ferns. While the role of scholars like the English apothecary in gathering specimens and natural objects has been widely acknowledged, the part they played in another sort of accumulation has been much less stressed: that of paper information, particularly of a visual kind, as a pivotal component of the natural historical work in the seventeenth and eighteenth centuries, as well as—and this was much more important—the editorial business linked to it. The drawings with which Plumier secured royal patronage and intellectual credit re-became a commodity in Petiver’s hands, reshaped to fit into a new environment.



Still another set of copies from Plumier’s manuscript drawings circulated through London in the late eighteenth century. Between May 8 and 19, 1794, Leigh and Sotheby auctioned part of the library of John Stuart, third Earl of Bute and Prime Minister to king George III. Fond of natural history and natural philosophy, Bute became a patron of science and even printed at his own expense a massive illustrated work on British flora in nine volumes.⁶⁶ He also created an extensive collection of natural specimens, scientific instruments, manuscripts, books, and prints.⁶⁷ The auction of 1794 was only devoted to the “botanical and natural history part of the library,” and this alone took ten days to sell. “His Lordship’s noble collection” included more than 1,200 items, among which were not only printed books, but also “coloured drawings in the natural history.” Of Plumier, there were two copies of his *Nova genera*, two others of the *Description* and one of the *Traité des fougères*. Among the “books of drawings”—which included about eighty volumes of manuscript drawings, from the originals of Jacob and Johann Philipp Breyne’s *Flora capensis* to those at the basis of Bute’s own publication—five volumes were attributed to Plumier. Entitled “Plants and Flowers,” the five volumes amounted to more than three hundred images “neatly drawn and coloured, mounted and bordered.”⁶⁸

⁶⁶ *Botanical Tables, containing the different families of British plants* (n.p. 1785), a work “more splendid than useful” according to William Clarke [*Repertorium Bibliographicum: Or, Some Account of the Most Celebrated British Library* (Cambridge: Cambridge University Press, 2014 [1819], 192] of which only sixteen copies were printed.

⁶⁷ G. L’E. Turner, “The Auction Sales of the Earl of Bute’s Instruments, 1793,” *Annals of Science* 23, no. 3 (1967), 213–42.

⁶⁸ *A Catalogue of the Botanical and Natural History Part of the Library of the Late John, Earl of Bute. Including his Lordship’s Noble Collection of Coloured Drawings in Natural History* (London: printed by the authors, 1794), 52.

Either at the 1794 auction or later, those five volumes ended up in the hands of Joseph Banks (1743-1720), from where they passed to the British Museum and, then, to the Natural History Museum in London, where they are kept today under the title “Plants by Plumier.” The drawings are in very different stages of realization (some simply sketched in pencil, others finished in ink, others still even colored), pasted onto the pages of the volumes within a colored frame, and including on occasion several nomenclatures (from the original by the friar to the Linnean one).⁶⁹ The story of how these drawings got into Bute’s collection is obscure, but it seems clear that these were also copies of the same drawings from which those in Boerhaave’s, Sherards’, and Sloane’s collections came. It is possible to compare, for instance, the manuscript images in Bute’s volumes with those printed under Burman’s supervision in Amsterdam. The image of the *Rivina floribus coryndrosis* (basketvine), for instance, appears in Bute’s albums drawn in ink and colored (although pencil lines can be detected beneath); the exact image is the one published by Burman in the *Plantarum Americanarum*, although inverted—the result of having manuscript images directly transcribed onto the plate (fig. 6.6).

It seems, therefore, that manuscript copies of Plumier’s original drawings (either those at the Academy of Sciences or those at the Minims’ convent, or both) were made and circulated between Paris, the Netherlands, and London. What is less clear is who made those copies, from which images in particular, and how many of these volumes were transiting across Europe. Another set of duplicates, for instance, appears to have been on the market at the dawn of the nineteenth century: these eight folio volumes, also with the title *Delineationes plantarum Americanarum* and dated between 1689 and 1697, were sold as part of the library of Charles L’Héritier de Brutelle (1746-1800), a Parisian magistrate and botanist.⁷⁰ This colossal collection also included the totality of the Minim’s printed books: the *Description*, both the first edition (in Latin and without texts)

⁶⁹ NHM BAUER UNIT SHELF H 1-5. The drawings in the five volumes include annotations referring to both Burman’s *Plantarum Americanarum* and the *Nova genera*. Curiously, the copies of both works at the London Natural History Museum also include pencil annotations referring both to each other and to the volumes of the “Plants by Plumier.” I was not able to establish the exact origins of any of the two printed works (although that of the *Nova genera* comes from the library of the Minim convent in Vitry-le-François, a town in the Champagne region), nor the approximate date of the pencil cross-references. They were perhaps made either while at Lord Bute’s library, when they integrated Bank’s collection, or either after they entered into the Natural History Museum. The *Nova genera* bears the classmark Special Books 581.9 (79P9.9) PLU, and the *Plantarum Americanarum* 581.9 (79P9.9) PLU F.

⁷⁰ *Catalogue des livres de la bibliothèque de feu C. L. L’Héritier de Brutelle* (Paris: chez Guillaume Debure, l’aîné, 1802), vi: “L’on trouvera quelques premières éditions d’une belle conservation, des Manuscrits précieux & inédits, sur la Botanique par le Père Plumier, M. Patris, médecin, & autres,” and 160: “1503. Copie des

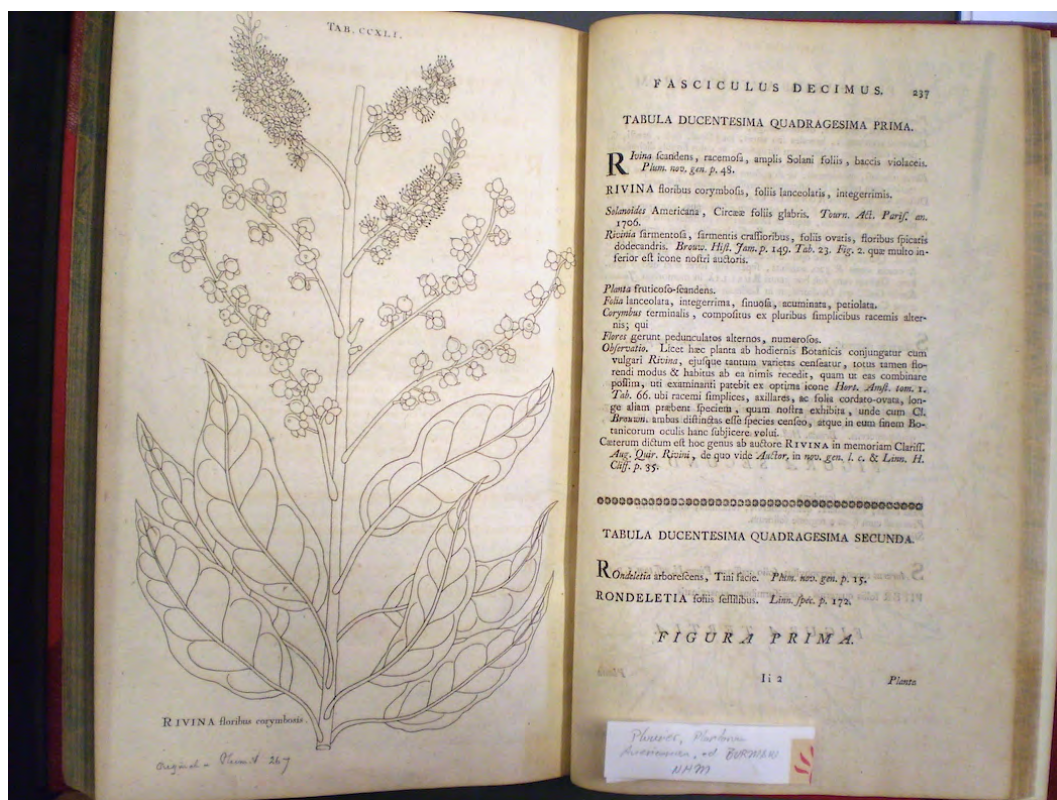


Fig. 6.6. (above) Engraving of the *Rivina floribus corymbosis* (basketvine) in Burman's edition of the *Plantarum Americanarum* by Plumier. (left) The same species in an ink-and-watercolor drawing in one of the five volumes owned by the Earl of Bute. Note that Burman's engraving inverts the manuscript image. (Natural History Museum, London.)

manuscripts du père Plumier, sur la botanique. 8 vol. in-fol. br. en cart. Gr Pap. Ces manuscrits, qui n'ont pas été imprimés, sont très-Précieus."

of the *Filicetum* and the bilingual version of the *Fougères*, the *Nova Genera*, and Burman's ten fascicules.⁷¹ Although the destiny of the “unpublished and precious” albums is unclear, L'Héritier was acquainted with distinguished Linnean naturalists in London, like the distinguished Joseph Banks or Aylmer Bourke Lambert. The latter was a Fellow of the Royal Society and one of the first members of the Linnean Society, to whose library he donated, at about the same time as his friend L'Héritier's death, the large book of tracings on onionskin paper of Plumier's drawings—these, however, are said to be copies of other copies kept at Oxford.⁷²

Be that as it may, the catalog of L'Héritier's library demonstrates that manuscript copies of Plumier's unpublished drawings (most of them in onionskin paper) were still circulating at the beginning of the nineteenth century, when a minor interest in the Minim's papers still existed among naturalists. At about the same time, for instance, a practically unknown French naval officer and botanist (curiously) named Aubert Aubert du Petit Thouars (1758-1831) wrote a natural history treatise of the flora of the islands of France and Bourbon (now Mauritius and Réunion) and dedicated one of its parts (the *Ptérographie*, devoted to ferns) to Plumier, “who first shed light on this interesting family of plants.”⁷³ The manuscript, unsurprisingly, was never published in its original form, and the author donated it to the library of the Paris Academy of Sciences. Another example that Plumier's manuscripts still either were copied or at least consulted at the turn of the nineteenth century brings us back to the drawings of the crocodile. In 1800, the same year in which L'Héritier and Petit-Thouars died, the French translation of an illustrated natural history of fishes by the German naturalist and ichthyologist Marcus Elieser Bloch (1723-1799) appeared.⁷⁴ In a notice devoted to the friar, Bloch gave high praise to Plumier's work, particularly his anatomical studies: his “very exact anatomy of the crocodile, the sea turtle, a sort of West Indian lizard, the Martinique viper, and a large frog” constituted, in his eyes, one of the most remarkable aspects of the manuscript corpus. Bloch regretted that the “Tétrapodes” drawings were unpublished:

⁷¹ *Catalogue du feu L'Héritier de Brutelle*, 148-9.

⁷² LSLA MS 635 “Tracings from unpublished drawings of Plumier in the library of the Botanic Garden, Oxford.”

⁷³ BIF MS 1824 “Flore des îles de France et Bourbon. Ptérogaphie ou description et histoire des fougères qui croissent dans ces îles, consacrée à la mémoire du R. P. Plumier, qui le premier à porté la lumière dans cette famille intéressante, par Aubert du Petit-Thouars.” The manuscript was donated to the Paris Academy of Sciences on June 29, 1829.

⁷⁴ Marcus Elieser Bloch, *Histoire naturelle des poissons, avec les figures dessinées d'après nature*, vol. 10 (Paris: Imprimerie de Crapelet, 1800), 117-33.

It would truly be a loss for natural history if this manuscript, and above all the part that deals with the anatomy of animals, was never published. In a moment in which the modern taste [*gout*] for travels and natural history increases more and more, it is to be expected that they would be described by other authors. . . . But can we praise somebody else for having penetrated to the interior of the animals as Father Plumier did, and having given to us such a detailed anatomy? . . . I am inclined towards the publication of useful works, and willing to grant the manuscript, with its drawings, to a publisher, and for a very modest sum; or I offer to publish it myself, if there is a number of subscribers large enough to cover the printing expenses.⁷⁵

At the turn of the nineteenth century, images of far-flung floras and faunas were as appealing to the eye as they had always been. An editorial project as the one proposed by Bloch for Plumier's images rested on its potential reception by a broad public interested in such objects of science and art—and history. But it was not only their beauty that kept them still slightly alive: some scholars kept on consulting and punctually copying some parts of the corpus—by that time, at the Muséum d'histoire naturelle. Bloch relates, for instance, that a folio volume of 169 pages came into his hands through a certain “Parisian who was in the service of the king” and brought it to Berlin, where it was sold at a public auction and bought by Bloch. The manuscript, entitled “Zoographia Americana,” contained drawings of fishes and birds, duplicates of drawings in one of the portfolios left by Plumier in the Parisian convent of Minims after his death, and reorganized into new folders at the beginning of the nineteenth century.⁷⁶

Unsurprisingly, Bloch's call for having Plumier's corpus published never came into fruition, but it is worth noting the concept that would only reach its due recognition in print. He wanted the publication of the entire manuscript on animals, and advanced not

⁷⁵ Bloch, *Histoire naturelle des poissons*, 127-8: “Ce seroit une véritable perte pour l'histoire naturelle, si ce manuscrit, et sur-tout la partie qui traite de l'anatomie des animaux, n'étoit jamais publiée. Quant aux animaux mêmes, le goût moderne des voyages et de l'histoire naturelle qui augment de plus en plus, fait espérer qu'ils seront peu à peu décrits par d'autres auteurs. . . . Mais peut-on bien se flatter que quelqu'autre pénètre dans l'intérieur des animaux, comme a fait le père Plumier, et qu'il nous donne une anatomie aussi détaillée? Toutes les parties anatomisées de ces animaux, sont représentées sur trente-cinq planches. Je veux bien me prêter à la publication des ouvrages utiles; je veux bien céder à un libraire le manuscrit avec les dessins, et pour un Prix très-modique; ou je m'offre moi-même de les publier, s'il se presente un nombre de souscripteurs assez grand pour fournir à la plus grande partie des frais de l'impression.”

⁷⁶ Bloch, *Histoire naturelle des poissons*, 124. The volume to which Bloch refers was entitled “D.O.M. Zoographia Americana, pisces et volatilia continens, auctore R. Patre Carolo Plumier, ordinis Minimorum provinciae Franciae et Botanico regio.” The same exact name cannot be found in the corpus, but a folio volume of drawings also entitled “Pisces et volatilia” was in the library of the Minim convent at Place Royale according to a catalog of 1722 (Maz. MS 4147 “Catalogue alphabétique de la bibliothèque des Minimes de la Place Royale, à Paris). The drawings were reorganized into new folders thereafter: one of the extant volumes is entitled “Zoographia Americana,” but the first word was corrected as “Ornitographia” and this one does not refer to “pisces et volatilia continens,” but “quadrupedia et volatilia.”

only intellectual reasons for doing so, but also patriotic ones: supporting the publication of the intellectual and artistic achievement of one of its subjects would bring honor to the French nation.⁷⁷ However rhetorical this turn may actually have been, the use of patriotic reasons for the publication of a work such as Plumier's is interesting, at least in that Bloch was not the first to mobilize it. It is worth considering now the reception that Plumier's work enjoyed within France: in this regard, the fortunes of the original corpus of manuscripts—its changing locations and materiality—can help us understand how the place of seventeenth-century natural knowledge, and the use of visual representation within it, changed over time.

The fortunes of an archive: Plumier's papers on the move

After the death of Plumier, his bundle of notes, drawings, and sketches moldered for more than six decades in the Parisian Minim convent at Place Royale. At some point during the first third of the eighteenth century, the historiographer and traveler Jean-Aymar Piganiol de la Force (1673-1753) visited the convent and caught some glimpses of it in his colossal, eight-volume *Description de Paris* (1742). With the descriptive eye of an antiquarian, Piganiol gave a dreary and detailed account of the history, architecture, and artistic treasures in the church and convent of the Minims, minutely transcribing the inscriptions over the tombs of the temple. He devoted several pages to the library, which he said was composed "of twenty thousand volumes, printed as well as manuscript."⁷⁸ Among the latter, the letters of Father Mersenne ("correspondent and intimate friend of Descartes") attracted his attention, but he also discovered "with surprise and admiration, a manuscript entitled *Herbarium vivum*, and containing a description of all the rare plants Father Charles Plumier, a Minim friar with a resolute passion for Botany, observed in different parts of the world, and particularly in America."⁷⁹ This manuscript, says Piganiol

⁷⁷ Bloch, *Histoire naturelle des poissons*, 128: "Mais ce que j'aimerois le mieux, c'est que quelqu'un se chargeât de publier tout le manuscrit, avec les poissons qui s'y trouvent, et que je n'ai pas encore décrits. Ce seroit surtout un honneur pour la nation française, à laquelle nous devons tant d'excellens écrits sur l'histoire naturelle, si elle vouloit contribuer à la publication de cet ouvrage.

⁷⁸ Jean-Aymar Piganiol de la Force, *Description de Paris, de Versailles, de Marly, de Meudon, de S. Cloud, de Fontainebleau, et de toutes les autres belles maisons & châteaux des environs de Paris*, 10 vols. (Paris: chez Charles-Nicolas Poirion, 1742), vol. 4, 359: "La Bibliotheque est d'environ vingt mille volumes tant imprimés que manuscrits."

⁷⁹ Piganiol de la Force, *Description de Paris*, vol. 4, 360: "Entre les manuscrits, sont les originaux des lettres qu'on écrivoit de toutes parts au P. Mersenne, le correspondant & l'ami intime de Descartes. . . . On voit aussi dans cette Bibliotheque, avec surprise & avec admiration, un manuscrit intitulé *Herbarium vivum* qui contient une description de toutes les plantes rares que le P. Charles Plumier, Religieux Minime qui avoit un goût déterminé pour la Botanique, avoit vues en différentes parties du monde, surtout en Amerique."

de la Force, was composed “of fifteen or sixteen folio volumes”: “nothing more exact,” he praises, “than the descriptions this father offers, and nothing more properly drawn than the figures, which are all of his hand.” Its author, no doubt, was “one of the most knowledgeable Botanists of the last two centuries.”⁸⁰

Several catalogs of the library were successively made during the eighteenth century, and they confirm that Plumier’s manuscripts were kept in the convent.⁸¹ In an alphabetical catalog from 1725, the only item mentioned under the entry of the naturalist was a mysterious “Voiages de ce R. P. Minime” in two folio volumes (a title to which no extant manuscript corresponds) that was placed among the “Miscellanea.”⁸² But another inventory from two years earlier listed no less than twenty four documents attributed to Plumier: eight volumes of what probably was an herbarium (“Plantes dessechées”), three of his printed books (the *Description* and the *Fougères* among the medical books, the *Art de tourner* among the mathematical),⁸³ and nineteen other manuscript items, most of them composed of one single volume and corresponding to extant documents.⁸⁴ Another

⁸⁰ Piganiol de la Force, *Description de Paris*, vol. 4, 360-4: “Rien de plus exact que les descriptions que ce père en donne, ni rien de plus proprement dessiné que les figures, qui sont toutes de sa main. Ce manuscrit composeroit quinze ou seize volumes *in folio*. . . . J’ai déjà parlé du P. Charles Plumier, un des plus sçavans Botanistes de ces deux derniers siècles.”

⁸¹ For a useful reflection on catalogs as a source for the history of early modern monastic libraries, see Bernard Dompnier and Marie-Hélène Froeschlé-Chopart, eds. *Les religieux et leurs livres à l’époque moderne* (Clermont-Ferrand: Presses Universitaires Blaise Pascal, 2000), esp. 9-18, although they focus mainly on revolutionary inventories.

⁸² Maz. MS 4148 “Catalogue alphabétique des différents auteurs et pièces différentes qui se trouvent reliez ensemble dans nos recueils, sous différentes lettres” [1725], unpaginated: “Voiages de ce R. P. Minime, fol. 2 F (red)/20/20.”

⁸³ One of the items listed was a quarto volume entitled “Nova plantar. americanar. genera,” but included among the “Manuscripta.” In another catalog (Maz. MS 4149 “Index generalisium omnia librorum bibliothecae conventus patrum minimorum Parisiensi” [1776], unpaginated), a section entitled “Nomina et opera Patrum ordinis minimorum composita vel traducta alphabetici distributa,” in which only printed books were listed, included the *Description*, the *Traité des fougères*, and the *Art de tourner* in the same sections previously mentioned, but not the *Nova genera*. Perhaps a draft of the subsequently printed book, this manuscript is now lost.

⁸⁴ Maz. MS 4147 “Catalogue alphabétique de la bibliothèque des Minimes de la Place royale, à Paris” [1722], fol. unpaginated: “Nova plantar. americanar. genera in 4° 1 - 1/J(r)/189; Penu botanicum in fol. 6 v. 7/J(r)/~~47~~ 44; Botanographia americana in fol. 1 3 /L(r)/~~70~~ 54; Les desseins du Tour, et cours de l’architecture de vitruve in fol. 1 v. 3/L(r)/~~74~~ 55; Figures originaires du Tour in fol. 1 v. 3/L(r)/~~74~~ 55; Botanographia americana in fol. 1 v. 7/J(r)/~~469~~ 30; Descriptiones Plantar. ex americana in fol. 1 v. 7/J(r)/~~466~~ 27; Synopsis botanica plantar. jam cognitar. in fol. 1 v. 1/J(r)/170 31; Plantes dessechées in fol. 8 v. 1/J(r)/172 33; Dictionnaire botanique in 12° 1 v. 1/J(r)/17; Description des plantes de l’amerique in fol. 1 v. 6/D(r)/11; Res herbariae in fol. 2 v. 7/J(r)/~~483~~ 47; Traité des fougères de l’amérique in fol. 1 v. 6/D(r)/58; Botanicum medicum in fol. 2 v. 1/J(r)/185 49; L’art de tourner in fol. 1 v. 8/B(r)/13; Livre des oyseaux in fol. 1 v. 3/L(r)/~~45~~ 29; 31. Pisces et volatilia in fol. 1 v. 3/L(r)/~~47~~; 30. Quadrupedia et volatilia ameriana in fol. 1 v. 3/L(r)/46; 51. Description des plantes de l’Amérique avec les figures in fol. 1 v. 3/J(r)/~~67~~; 49. Icones plantar. in fol. 1 v. 3/J(r)/~~65~~; 50. Filicetum americanum in fol. 1 v. 3/J(r)/~~66~~; 36. Pisces et aves in fol. 1 v. 3/L(r)/~~54~~; 35. Volucra in fol. 1 v. 3/L(r)/~~50~~; 32. Pisces et conchilia in fol. 2 v. 1/L(r)/48.”

catalog, this one undated, gave virtually the same list.⁸⁵ More interesting is a later catalog, dated 1776: by the time this last catalog was drawn up, most of Plumier's manuscripts had been seized from the convent on the orders of the king. The catalog lists the materials that remained in the convent: his printed books, the drafts and original drawings of the *Art de tourner* (now at the Bibliothèque de l' Arsenal), two collections of manuscript drawings (one on plants, the other on birds), whose whereabouts today can only be speculated on, and a collection of drawings originally by botanist Jacques Barrelier (1606-1673), seemingly ordered and corrected ("ordine alphabetico & congestae") by Plumier.⁸⁶

The rest of the friar's papers had left the convent a decade before. In December 1767, the Count of Saint-Florentin, Secretary of State of the King's House, ordered the *correcteur* or head of the Minim house, a certain Father Rousset, to have all of Plumier's papers sent to the Bibliothèque du roi in rue Richelieu. The transfer of the corpus into the hands of the state was supervised by Hugues-Adrien Joly (1718-1800), guard of the king's Cabinet of Prints ("Cabinet des estampes et planches gravées") from 1750 onwards. A figure who was well connected to connoisseurs and amateurs of art and prints in Paris as remarkable as the Count of Caylus and Pierre-Jean Mariette, Joly not only reorganized the department of prints at the Bibliothèque du roi and established a system of classification still in use today; he also oversaw a series of important acquisitions and legacies that tripled the size of the collection.⁸⁷ Probably conceived by Joly himself, the integration of Plumier's papers into the royal collection of prints was

⁸⁵ Maz. MS 4150 "Catalogue de la bibliothèque du couvent des Minimes à la Place Royale" [n.d.]. Only one item was missing: a folio volume entitled "Botanographia americana" and placed among the numismata "3/L (red)/70 54." But another "Botanographia americana," another folio volume among the "Manuscripta" ("7/J (red)/469 30") was listed in both catalogs.

⁸⁶ AN LL 1569 "Deuxième tome du catalogue de la bibliothèque des Minimes" [1776]. The books by Plumier remaining in the library were in the class "Numismatum" and the subsection "Simbola et icones": "24. Icones rariorum plantarum R. P. Jacobi Barlerii ord. Praedicat. Botanii . . . à R. P. Carolo Plumier ord. Minimorum ordine alphabetico & congestae – Paris, 1693; 27. Livre des oiseaux peints par le R. P. Plumier Minime [s.l.s.d.]; 32. Théâtre des instructions Mathématiques et Mécaniques par Jac. Besson. – Les figures du Tour, du P. Plumier – Lyon, 1578; 40. Icones Plantarum P. Plumier ; 41. Filicetum Americanum P. Plumier – Paris, 1703 ; 42. Description des plantes de l'Amérique avec les figures par le P. Plumier – Paris, 1693 ; 45. Filicetum Americanum P. Plumier ; 46. Figure originaire du Tour du P. Plumier. Livre des mors de chevaux." I have not found the first volume of this catalog. The shelf numbers vary on occasion from those in the alphabetical catalogs at the Bibliothèque Mazarine. On the two collections of manuscript drawings, the one on plants, with the title "Icones plantarum" in the catalog, could be the BCMNHN MS 3355, which entered the collections of the Muséum in a later period to the rest of Plumier's papers. It mostly consists of proof engravings of the *Description* with manuscript corrections.

⁸⁷ [Laure Beaumont-Maillet], "Les Gardes et directeurs du département des Estampes de 1720 à 2006," BNF, 2010, 5. http://www.bnf.fr/documents/directeurs_estampes.pdf and Rémis Mathis, "Pratiques quotidiennes de travail au Cabinet des Estampes dans les décennies 1750 et 1760," *Revue de la Bibliothèque nationale de France* 47 (2012), 52-57.

part of this program of expansion. On December 14, 1767 Joly received thirty-eight folio volumes on “Natural History, Botany and Mathematics, drawn and described by late Father Plumier, Minim friar and Royal Pensioner (*Pensionnaire du Roi*) and made by him in America and other places where he was on the orders of the King.” The volumes were handed to Joly by the librarian and the apothecary of the house, a certain Father Vigès, as well as Father Rousset himself. A year after the appropriation, Saint-Florentin issued an indemnification in the Minims’ favor consisting of thirty volumes of religious texts printed by the Imprimerie royale.⁸⁸ The indemnification was not in exchange of the papers, but “in consideration of having conserved the manuscript since the year 1704.” The crown, Joly was saying, was not buying Plumier’s folders, but claiming its property and graciously rewarding the Minims for their service.

We can only speculate about the exact motives for the crown’s sudden interest in Plumier’s hitherto forgotten archive. Perhaps it was not so much the crown in itself who had an interest in those papers as the Bibliothèque du roi itself, and the Joly in particular, in the context of its politics of expansion of the collections at the Cabinet of prints. But we can also hypothesize that, by 1760s, the role that scientific exploration could play in connection with the state’s imperial and commercial interests overseas had probably become more clear than to the eyes of the monarchy it was half a century before.⁸⁹ The idea of an “enlightened monarchy” inspired by the *esprit philosophique* had taken hold during the second third of the eighteenth century, and notions of the honor of the nation came to have greater sway in the link between state and scientific enterprise, especially in

⁸⁸ AN F¹⁷ 1096, dossier 5 “Minimes de la Place Royale à Paris, 1768-1769,” piece 47 “Reconnaissance au sujet des legs du R. P. Plumier 14 De[cem]bre 1767”: “Je, Garde du Cabinet des Estampes et Planches gravées de la Bibliothèque du Roi, soussigné reconnois que le Révérend père Roussau Correcteur des Minimes de la Place Royale et le père Bibliothécaire de cette maison, m’ont remis, suivant les ordres qu’ils ont reçus de Monseigneur le Comte de S. Florentin, la quantité de trente huit volumes in-folio, étant les travaux d’Histoire naturelle, Botanique et mathématique, dessinés et décrits par feu le sçavant Père Plumier Religieux minime et Pensionnaire du Roi, qu’il a fait tant en Amérique que ailleurs où il étoit allé par ordre du Roi: j’ai reçu lesdits volumes comme étant les surplus du choix de ceux qui en a été fait ci devant par l’académie royale des sciences, et m’en suis chargé pour le Cabinet des Estampes de Sa Majesté.” Piece 48 “Donation par le Roy de 30 volumes en dédomagement des ouvrages du P. Plumier, Janvier 1769” [January 19, 1769]: “Il est juste, Mon R. P. que le Roi dédommge votre Maison du présent qu’elle a fait, en remettant au Cabinet des Estampes de sa Majesté, les trente volumes manuscrits de Botanique du P. Plumier.” BNF Est. Réserve YE 27 Pet Fol, unpaginated: “Le Roy a fait présent à la Bibliothèque de la maison de la Place Royale, en considération de ce qu’ils ont gardés ces manuscrits depuis l’année 1704, époque de la mort du P. Plumier, jusqu’à ce jour, d’une collection de livres imprimés à l’Impri. Royale reliés aux armes de S. M.”

⁸⁹ As argued by Rob Iliffe in “Science and Voyages of Discovery,” in *The Cambridge History of Science*, vol. 4: *Eighteenth-Century Science*, ed. Roy Porter (Cambridge: Cambridge University Press, 2003), 618-45.

the wake of the royally supported expeditions to determine the Earth's curvature in the 1730s and 1740s.⁹⁰

Joly drew two catalogs of the pieces composing Plumier's corpus when this entered the Cabinet of Prints. In one of these catalogs, Joly listed up to twenty-two portfolios (*portefeuilles*): the first, nowadays lost, makes the inventory of some of Plumier's correspondence; the other twenty-one, for the most part conserved today at the Muséum national d'histoire naturelle in Paris, included a few volumes of proofs and corrections of some of his printed works, some bundles gathering single sheet drawings, and several thematic collections of drawings on shells, fishes, and birds. Joly noted in his catalog, once more, that the volumes of manuscripts were seized from the Paris convent on the orders of the king ("rétirés par ordre du Roi"). The second catalog inventories thirty-six portfolios: those included in the first one plus other manuscripts related to the preparation of the *Art de tourner's* text and engravings. In his catalog, Joly also remarked that eight other tomes of even "more finished drawings" were missing, since the Minims had previously provided them to the Academy of Sciences (those from which the Dutch and London copies were probably made), and he urged Secretary of State Saint-Florentin to take measures so as to have those eight bundles join the rest of the botanist's papers in the Bibliothèque du roi.⁹¹

Those eight volumes took on a life of their own in the decade prior to the Bibliothèque du roi's appropriation of the rest of Plumier's manuscripts, and they are

⁹⁰ The idea of "enlightened monarchy" was shared across different European states of the time, but it was probably in Spain where it became more clearly articulated around such an expression. For a comparison, see the debates about the foundation of a cabinet of natural or the funding of José Celestino Mutis's botanical expedition to New Granada in terms of the nation's and monarchy's honor studied by Juan Pimentel in "Across Nations and Ages: The Creole Collector and the Many Lives of the Meghaterium," in Schaffer *et al.*, eds., *The Brokered World: Go-Betweens and Global Intelligence, 1770-1820* (Sagamore Beach, MA: Science History Publications, 2009), 321-53 and the second part of his *The Rhinoceros and the Meghaterium: An Essay in Natural History* (Cambridge, MA: Harvard University Press, 2017). On the expeditions for measuring the Earth's curvature, see Neil Safier, *Measuring the New World: Enlightenment Science and North America* (Chicago: The University of Chicago Press, 2008) for La Condamine's expedition to South America, and Mary Terrall, *The Man Who Flattened the Earth: Maupertuis and the Sciences of the Enlightenment* (Chicago: The University of Chicago Press, 2002) for Maupertuis's journey to Lapland.

⁹¹ BNF Est. Réserve YE 27 Pet Fol, fol. 1-9: "Ces Religieux minimes ont prisé huit autres volumes, dont les dessins, du même père Plumier, sont plus terminés, à MM. de l'Académie des sciences. Comme ces volumes ne sont point encore rendus, il seroit nécessaire que M. le comte de S. Florentin, ministre de la Maison du Roi, ordonna que ces huit volumes fussent réunis avec les autres, et qu'il fut donné une expedition auxdits minimes de ce dernier arrangement." Johannes Burman also noted, in the preface to his 1755-1760 edition of Plumier's drawings, that the Minim's manuscripts were at that point in the Minim convent and the Academy of Sciences, both in Paris: *Plantarum Americanarum*, sig. [***v]: "Et quot non supersunt summi hujus Viri labores, indefessa opera confecti, suâque manu scripsa Volumina, quae in modo in Regiae Scientiarum Academiae, sed etiam in R.R.P.P. Minorum Caenobil Parisiensibus adservantur Bibliothecis."



Fig. 6.9. Bernard de Jussieu smuggling in his hat a seedling of the Lebanese cedar out of England. Even more remarkable than his participation in the international contraband of vegetables were Bernard's efforts as an editor of illustrated botanical works by French scholars of the late seventeenth and early eighteenth century. His pains to bring out a lavish edition of Plumier's unpublished drawings never came to fruition, but they reflect well his efforts to integrate the Minim friar within both a national and institutional lineage of French botanists around the Academy of Sciences. (Bibliothèque interuniversitaire de Santé, Paris.)

definitively worth a detour in our story. At some point during the second quarter of the eighteenth century, the Paris Academy of Sciences was proposed to sponsor the publication of these eight volumes of manuscript drawings of American flora and fauna by the Minim naturalist. The advocate of the project was Bernard de Jussieu (1699-1777), *sous-démonstrateur* of botany at the Jardin du roi from 1722, member of the Academy from 1725, and brother of Joseph and Antoine de Jussieu, distinguished and influential botanists themselves (fig. 6.7).⁹² Although Bernard de Jussieu was not a prolific author himself, he had published a revised and augmented edition of Tournefort's *Histoire des plantes qui naissent aux environs de Paris* in two octavo volumes.⁹³ He later presented to the learned company the "motives and plan for the edition of a manuscript work on Botany

⁹² Since several members of the Jussieu family are discussed in these pages, I refer to each of them by their given name. On the Jussieu family, see Louise Audelin, "Les Jussieu: une dynastie de botanistes au XVIII^e siècle" (Archivist-paleographer diss., École nationale de chartes, 1987).

⁹³ Joseph Pitton de Tournefort, *Histoire des plantes qui naissent aux environs de Paris, avec leur usage dans la Médecine. . . . Second édition revue & augmentée par M. Bernard de Jussieu*, 2 vols. (Paris: chez Jean Musier, 1725).

by R. F. Plumier, very interesting for the perfection of this science.”⁹⁴ It consisted of a selection of nothing less than 900 plants “observed on our islands . . . drawn from his hand and in the field” (*sur les lieux*), and accompanied by “no less exact” Latin descriptions indicating the distribution and the local names of the plants in question.⁹⁵

In his attempt to persuade his colleagues to sponsor such a high-priced project, Bernard gave several reasons. The first was one of responsibility: by accepting the donation of the eight manuscript volumes made by the Minims, he argued, the Academy had committed to revising and correcting the work with a view to publication.⁹⁶ Second, there was the intrinsic “merit of the work,” both intellectual and artistic: the friar described “a number of plants that were hitherto unknown, and of which there were neither figures nor descriptions”; they had been made “with such an exactness in the pictures that simple line drawings allow us to recognize the plants.”⁹⁷ Third, the interest of such a monumental work was far from restricted to the community of practitioners, for “the taste (*goût*) [for botany] seems to increase from day to day among the public”—a recurrent idea that was also to be found, for a famous example, along the pages of the *Encyclopédie*.⁹⁸ Finally, there was a commemorative—even patriotic, as it were—dimension to the project: Plumier’s manuscripts on the natural history of the American flora and fauna was, for Bernard, one of those “monuments” of the glory of Louis XIV’s reign

⁹⁴ Bernard de Jussieu, “Motifs et plan de l’édition [in-4°] d’un ouvrage manuscrit de botanique du R. P. Plumier, très intéressant pour la perfection de cette science” [n.d.], BCMNHN Ms. 1176, fol 1-7. These volumes may well correspond to four volumes now at the Bibliothèque de l’Institut de France: BIF MS 979 “*Historia plantarum per America insulas, annis 1680-1697 observatarum a R. P. Car. Plumier*,” and MSS 980-2 “*Americanarum plantarum icones*,” 3 vols. The drawings in these volumes amount to 1,058 according to my own count (370, 203, 232, and 253 respectively).

⁹⁵ B. de Jussieu, “Motifs et plan,” fol. 2: “C’est une collection de près de 900 plantes observées dans nos isles dans ses trois différents voyages depuis l’année 1689 jusqu’en 1697, dessinées de sa main, sur les lieux, et dont il a accompagné les figures de descriptions latines.”

⁹⁶ B. de Jussieu, “Motifs et plan,” fol. 3: “Les R. P. Minimes en remettant à l’académie, ce manuscrit se sont fâtés qu’elle voudroit bien en faire la revision pour la mettre en état de paroistre au jour, et l’académie à semblé en l’acceptant s’estre en quelque façon engagée à ce travail.”

⁹⁷ B. de Jussieu, “Motifs et plan,” fol. 2: “Le mérite de cet ouvrage consiste dans un nombre de plantes qui avant ce temps n’avoient point été connües et dont on n’avoit encore ny figures ny descriptions dans une exactitude des figures qui avec la simplicité d’un seul trait, ne laissent pas de faire reconnoistre d’abord les plantes.”

⁹⁸ B. de Jussieu, “Motifs et plan,” fol. 3: “il ne peut resulter qu’un grand avantage en faveur d’une science qui fait un de ses objets et dont le gout paroist s’augmenter de jour en jour, dans le public.” On the fashion of botany, see Roger L. Williams, *Botanophilia in Eighteenth-Century France: The Spirit of the Enlightenment* (Dordrecht: Kluwer Academic Publishers, 2001). See also the unsigned entry “Histoire naturelle,” in *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*, ed. Denis Diderot and Jean le Rond d’Alembert, vol. 8 (Neufchâtel: Samuel Faulche & Compagnie, 1765), 228: “Dans le siècle présent la science de l’*Histoire naturelle* est plus cultivée qu’elle ne l’a jamais été; non seulement la plupart des gens de lettres en font un objet d’étude ou de délassement, mais il y a de plus en goût pour cette science qui est répandu dans le public. . . . Le goût pour les sciences abstraites a succédé au goût pour la science des antiquités; ensuite la Physique expérimentale a été plus cultivée que les sciences abstraites; à present l’*Histoire naturelle* occupe plus le publique que la Physique expérimentale & que toute autre science.”

that had never seen the light of day. The scientific and artistic achievement of Plumier, Frenchman and royal botanist, were to be published not only with the aim of celebrating the Bourbons's longstanding commitment to the advancement of knowledge, but also so as to make "France enjoy the glory that is hers."⁹⁹ The academician, however, made no secret of the fact that there were more newly pressing motives for getting Plumier's drawings and descriptions into print, for they were being "used and could still be used . . . [by] foreign authors who had the manuscripts in communication."¹⁰⁰ The most recent among these foreign authors in exploiting the unpublished materials was Dillenius, who used several of the images in the eight volumes of the Academy for his *Hortus Elthamensis* (Plants of Eltham), published at his own expense in 1732.¹⁰¹ Bernard probably addressed his project to the Academy during the 1750s, and the report suggests that he may have been aware of the edition that Johannes Burman was preparing in Amsterdam of some of Plumier's manuscripts and unpublished drawings.

Bernard proposed his own services for editing the friar's manuscripts, yet with the "approval, auspices, and advices of the Academy."¹⁰² He suggested a publication in three parts. The first would include the descriptions and images of the manuscript but, instead of its actual arrangement, Jussieu would organize them in the order prescribed by Plumier himself in his *Nova genera*. The second part would consist of a catalog of the same plants according to Tournefort's *Institutions*, "an order that Father Plumier adopted himself in the catalog of plants of America, and that constituted the second part of the book on the new genera." The third and last section of the work would be an inventory of the plants in the manuscript "that were neither in the institutions of Mr de Tournefort, nor in the book of the new genera of Father Plumier."¹⁰³ Furthermore, he

⁹⁹ B. de Jussieu, "Motifs et plan," fol. 2 and 4: "Quelque quantité, qu'il y ait d'ouvrages imprimés, qui servent de monuments, pour apprendre à la posterité, ce que Louis 14^e a fait de grand, et de glorieux pour la perfection des sciences et des arts; on peut dire, qu'il y en a presque autant, qui n'ont pas encor vus le jour, et qui n'attendent ~~qu'une main favorable~~ que des circonstances pour estre rendus publics."

¹⁰⁰ B. de Jussieu, "Motifs et plan," fol. 4: "Outre ces motifs qui invitent à mettre au jour cet ouvrage, il y en a de nouveaux qui semblent nous obliger à en hater la publication, si nous sommes jaloux que la France jouisse de la gloire qui pourroit luy en revenir. La principal est l'usage qu'ont déjà fait et que pourroient encore faire de plusieurs de ces figures et de ses descriptions, divers auteurs et étrangers qui ont eu en communication ce manuscrit, entr'autres Mr Dillenius qui en a déjà donné quelques unes dans son *Hortus Elthamensis* nouvellement imprimé à Londres."

¹⁰¹ Dillenius, *Hortus Elthamensis*.

¹⁰² B. de Jussieu, "Motifs et plan," fol. 3: "j'ay formé le projet de donner une edition de cet ouvrage avec l'agrement, sous les auspices et avec les conseils de l'académie, si elle me juge capable de m'en tirer avec honneur."

¹⁰³ B. de Jussieu, "Motifs et plan," fol. 4-5: "La loy que je me suis imposée dans cette édition est de ne point suivre l'arrangement de ces plantes, tel qu'il est dans le manuscrit, qui seroit sujet à de tres grands inconvenients; mais de m'assujétir à l'ordre que l'auteur luy mesme s'étoit prescrit dans son

listed in his report a series of corrections and “new observations with which Botany has been enriched since the death of the author.”¹⁰⁴ For the descriptions, the botanist proposed to relate them to the accounts of the same species by other authors like Hans Sloane in his history of Jamaican plants; to develop the explanations of their medical properties as they had been studied by subsequent authors (including Surian, who accompanied Plumier on his first journey, and the Jesuit Father Le Breton); to complete Plumier’s list with those plants unknown to him and discovered in the meantime; and finally to revise their names, including their local, Caribbean designations.¹⁰⁵ Moreover, he conceived a bilingual edition: the original Latin text by Plumier would be placed side by side with a French translation by the academician, for “it was important that the work was accessible to all French people, especially those on our islands.”¹⁰⁶ More important still, Bernard was contemplating a quarto format, though the original drawings were in folio size, not only on the grounds that the costs of production of a folio edition were prohibitive—all the more so given that the project included nine hundred plates—but

ouvrage des nouveaux genres de plantes. Ce qui fera la première partie de celuy-ci. / Dans la seconde j’emploiray toutes les plantes de ce manuscrit dans l’ordre que Mr de Tournefort les a placés dans ses instituts, ordre que le Père Plumier luy mesme a adopté dans le catalogue des plantes d’Amérique, et qui fait la seconde partie du livre des nouveaux genres dont je viens de parler. Et je feray une troisième partie qui ne sera composée que des plantes de ce manuscrit, qui ne se trouvent ny dans les instituts de Mr de Tournefort, ny dans le livre des nouveaux genres du père Plumier. / Enfin j’auray soin de rapporter les espèces des plantes de ce manuscrit, qui ont été oubliées par cet auteur dans son livre des nouveaux genres et dans son catalogue des plantes américaines, et de placer ces espèces à la suite de celles auxquelles elles conviennent.”

¹⁰⁴ B. de Jussieu, “Motifs et plan,” fol. 3: “Il m’a paru avoir besoin d’un certain ordre qui y manque, de corrections qui sont nécessaires, et d’observations nouvelles, dont la botanique a été enrichie depuis la mort de cet auteur.”

¹⁰⁵ B. de Jussieu, “Motifs et plan,” fol. 4: “Une autre addition qui y est très intéressante est celles des rapports que celles de ces plantes qui n’étoient point connues ont avec les figures et les descriptions qui depuis le père Plumier ont été données des mesmes plantes par différentes auteurs de botanique, comme par Mr Sloanes dans celles de la Jamaïque. / Enfin comme l’utilité principale de la connoissance des plantes consiste dans celle de leurs usages en médecine et dans les arts, rien n’est plus nécessaire que d’indiquer dans elles cy ce qu’on en peut sçavoir et ce qui l’on en a appris depuis la mort du P. Plumier par les différents mémoires et par les relations qui m’ont été communiquées de ceux qui ont parcourus les memes isles tels que Surian, Mr Fraisier, et feu le père Lebreton jésuite. / L’ouvrage mesme seroit incomplet si a chaque description on ne joignoit les noms Caraïbes de ces plantes, tirés de ces mémoires et surtout du dictionnaire qu’en a donné en cette langue le dernier de ces auteurs.”

¹⁰⁶ The title considered by Bernard was “*Historia plantarum in Americanis insulis a R. P. Carolo Plumier ordinis minimorum, &c. observatraum quas manu propria delineavit et descriptionibus illustravit. Bernardo Dejussieu gallico versa, emendata in meliorum ordinem ad rei herbariae institutionum normam redacta, animardversionis, observationibusque necessariis illustrata*” (History of plants observed by Reverend Father Charles Plumier, from the order of Minims &c., and illustrated by drawings of his own hand and descriptions. Modified, emendated in a better order, reduced to the norm of the Botanical Institutions, and illustrated of the necessary critiques and observations by Bernard de Jussieu, Frenchman).

also due to “the uniformity it will have with works of the Academy and in particular with the institutions of Mr Tournefort, and with the book of the new genera.”¹⁰⁷

Another sort of correction regarded the figures: “however exact they were in their simplicity,” Plumier’s images seemed too spare (“*assez seches*”) to his eyes because, as the Minim himself had noted in his *Descriptions*, they were simple line drawings in the style of Leonhart Fuchs’s figures so as to allow readers to have them illuminated. Bernard therefore proposed to revise Plumier’s original drawings by comparing them with the living specimens—at least for those species that could be found at the Jardin du roi—in order to “give them the perfection that is missing.”¹⁰⁸ At the time he presented his project to the Academy, he already had several images engraved on copperplates in the format of the edition he had in mind (fig. 6.10).¹⁰⁹ Plumier’s original images were the size of one of his folio books printed at the Imprimerie royale—as with his *Description* and *Ferns*, so likewise he may have aspired to put them into print as a *recueil d’images* worth the glory of the king. In contrast, the material characteristics of the edition proposed by Bernard anticipated to have them integrate the scientific and editorial heritage of the Academy.

All in all, Bernard’s program for the edition of the manuscripts by Plumier that were in the hands of the Academy must be considered within a broader movement of “nationalization,” as it were, of the country’s scientific past—a process of which the transfer of the friar’s corpus to the Bibliothèque du roi is another example and the culmination. The term “nationalism” is taken here in the sense developed by David A. Bell, who distinguished it from national sentiment and defined it as “a political program which has as its goal not merely to praise, or defend, or strengthen a nation, but actively

¹⁰⁷ B. de Jussieu, “Motifs et plan,” fol. 5: “Pour ce qui est de la forme de l’édition je me suis persuadé que l’inquarto étoit la plus convenable, non seulement par la diminution des frais auxquels l’infolio qui est celle des figures pourroit engager, mais encore par l’univermité qu’elle aura avec les ouvrages de l’académie et en particulier avec les instituts de Mr Tournefort, et avec le livre des nouveaux genres.”

¹⁰⁸ B. de Jussieu, “Motifs et plan,” fol. 3: “Quelque bien qu’y soient les figures des plantes, comm’elles n’y sont dessinées que par de simples traits de la manière dont Fuchs donna autrefois les siennes dans la vüe de les faire enluminer, et que cette manière, quelque exacte qu’elle soit dans sa simplicité, est assez seche: on peut d’après les plantes de ce recueil, qui se trouvent actuellement dans le jardin du Roy, donner aux figures du P. Plumier la perfection qui leur manque.” Plumier, *Description des plantes de l’Amérique, avec leurs figures* (Paris: de l’Imprimerie royale, 1693), sig. [ã3^v]: “On sera peut-estre surprise que je n’en donne que le simple trait presque sans ombre, mais j’ay esté bien aise de les graver de maniere, qu’on y pust ajouter le coloris plus facilement, comme nous voyons dans tous les ouvrages de Fuchsius, qui sont gravez de mesme a simple trait, & dont la plupart sont enluminez.”

¹⁰⁹ The imprints of twenty of these engravings are conserved today in BCMNHN MS 1176, fig. 1-20. They are not signed by any carver.

to construct one.”¹¹⁰ Although the term “nationalism” was not coined until the late 1790s, Bell argues, political programs that deserve such a name emerged during the late eighteenth century on the basis of concepts like the nation itself and *patrie*, or fatherland, elaborated since the decades around 1700. Bell’s hypothesis on the development of a cult of the nation in eighteenth-century France serves as a plausible background for the process by which Plumier’s work came to be seen as a property of the state only from the mid-century onwards. As we have seen, Hugues-Adrien Joly highlighted the Minim’s status as “Pensionnaire du Roi” and the fact that his peregrinations in the Caribbean were done “on the orders of the King.” Bernard de Jussieu, in turn, did not fail to remark to his colleagues in the Academy that Plumier’s work was not only a monument “to show posterity what Louis XIV has done of great and glorious for the perfection of the arts and the sciences,” but also an achievement to be associated with that entity known as France.¹¹¹ While Plumier’s manuscripts languished for half a century in the convent at Place Royale and the Academy, the acts of royal patronage at their origin substantiated now (and only now) their conception as patriotic accomplishments. This revision of the relationship between Plumier and the monarchy legitimated claims like those of the Bibliothèque du roi over the legacy of botanist: his link to the state came to be seen as more close and clearer. Honors such as the title of Royal Botanist took a fully new significance, one that was to last a long time.

Bernard’s project to publish the manuscripts of Plumier kept in the Academy never came to fruition. To the traditional difficulties of publishing an illustrated account of natural history with 900 engravings, intellectual concerns were added now: botany had changed substantially since the death of the Minim. On August 28, 1740, Bernard wrote to Linnaeus from Paris to update the Swedish botanist on his brother Joseph’s journey of natural exploration to Peru, as well as on his own projects, among which was the edition of Plumier’s drawings: “The works of Plumier, which I was desirous of publishing, have not yet appeared, nor can they be given to the publick till they are properly arranged, on the principles of natural classification.”¹¹² The problem, therefore, was to adapt the iconographic corpus of Plumier to the now widely prevailing Linnean system. According to Bernard, the American genera and species depicted by Plumier required deep revision from the point of view of taxonomy: “a friend of mine, resident in the French West

¹¹⁰ David A. Bell, *The Cult of the Nation in France: Inventing Nationalism, 1680-1800* (Cambridge, MA: Harvard University Press, 2001), 3.

¹¹¹ AN F¹⁷ 1096, dossier 5, piece 47, and Jussieu, “Motifs et plan,” fol. 2.

¹¹² B. de Jussieu to Carl Linnaeus, Paris, July 20, 1740, quoted in Linnaeus, *Correspondence*, vol. 2, 209-10.

Indian islands, has devoted himself entirely to this object.” The friend in question, the Frenchman wrote to Linnaeus, “follows your principles, having, at the first sight of your system, become a Linnean, though originally a Tournefortian.”¹¹³

We cannot know with certainty whether the request made in 1767 by the head of the Cabinet of Prints to Secretary of State Saint-Florentin to have the manuscripts at the Academy transferred to the Bibliothèque du roi was satisfied. Perhaps these correspond to those volumes of Plumier’s drawings nowadays kept at the library of the Institut de France, the institution that inherited the collections of the old French academies. Four volumes are conserved nowadays, one of descriptions and three of images.¹¹⁴ The first, entitled “*Historia plantarum per Americas insulas*,” gathers almost four hundred pages of descriptions in Latin organized in tomes, from the second to the seventh—the first part was seemingly that edited by Johannes Burman between 1755 and 1760 in Amsterdam.¹¹⁵ The volume is said to have compiled observations of the second and third trips of Plumier to the American islands between 1689 and 1697, and to have been transcribed from the original manuscripts by Antoine de Jussieu (1686-1758), brother of Bernard and, like him, member of the Academy of Sciences. Antoine was also a tireless traveler and member of the Royal Society of London, and he had succeeded Tournefort as professor or *démonstrateur* of botany at the Jardin du roi soon after the accidental death of the latter.¹¹⁶ Each of the descriptions is identified with a numerated reference to the work of Plumier (e.g., “Plumier 81”), but does not follow the order of this numeration. They occasionally allude to other works by the Minim (“vid. Descripti.” for the *Descriptions* or “Hist. Fil.” for the *Fougères*), as well as by other authors (“vid. Iconem et Descript. In Paradi. Germ.”). Some of the plants are identified with the nomenclature of Plumier’s *Nova genera*, like the *Ian-Raia*, the *Begonia*, and the *Pisonia*. Moreover, they usually refer

¹¹³ B. de Jussieu to Linnaeus, Paris, July 20, 1740, Linnaeus, *Correspondence*, vol. 2, 209. On the reception of Linnean ideas in France, see Pascal Duris, *Linné et la France: 1780-1850* (Geneva: Droz, 1993).

¹¹⁴ BIF MSS 979-82.

¹¹⁵ The complete title is “*Historia plantarum per Americanas insulas annis 1689 1697 observatarum a R. P. Car. Plumier inedita partem primam a Burmanno editam continuant, ex auctoris manuscriptis in Bibliothecâ musaei Parisiensis observatis transcripta manu Ant. De Jussieu*” (History of plants observed through the American islands from the year 1689 to 1697 by the Reverend Father Charles Plumier, unpublished, continuing the first part edited by Burman, and transcribed by the hand of Antoine de Jussieu from the manuscripts of the author consulted at the library of the Parisian museum). The reference to the originals being kept at the “Parisian museum”—I assume this refers to the Muséum d’histoire naturelle—suggests that the title was written after the first third of the nineteenth century. Other references *within* the volume (e.g., “*Plantae rariores excerptae ex Penu Botanico R. P. Caroli Plumier Minimi et Botanici Regi, manuscripto et servato in Bibliothecâ P.P. Minimi, Platea Regiae Parisiis*”) indicate that the corpus at the convent of Minims had been consulted before their transfer to the Bibliothèque du roi.

¹¹⁶ Tournefort died after being run over by a carriage. He was succeeded by Antoine-Tristan Danty d’Isnard, who resigned a few months afterwards: he was replaced by Antoine de Jussieu.

the species of the plant in question to the catalog of plants described and drawn by him in America and printed along his *Nova genera*.¹¹⁷ The last six pages of the volume of manuscript descriptions held at the Bibliothèque de l'Institut de France includes a list of the “most strange plants extracted from the ‘Penu Botanico,’ by Charles Plumier . . . manuscript and conserved at the library of the Fathers Minims in the Royal Square in Paris.” The remark suggests that scholars like Antoine de Jussieu had access to Plumier’s manuscript corpus while this was still held at the library of the Minim convent.

The other three volumes kept at the library of the Institut de France, entitled “*Historia plantarum icones*,” are compilations of manuscript images, each of which contains between 200 and 250 fifty images. The figures refer to the volume of descriptions transcribed by Antoine de Jussieu, and each of them is identified by the tome and number. If the descriptions were copied by Antoine, the three volumes of images were likely those eight tomes donated by the Minims of Place Royale to the Academy, rearranged and collated by Antoine in three new volumes. These constitute a sort of atlas of Plumier’s images: they are on sheets of sometimes slightly different type and size that are pasted onto the pages of the three large elephant folio volumes. To the name of the plant written on the original sheet, probably by Plumier, has been added the new denomination according to the post-Linnean botanical nomenclature—occasionally, too, a reference to Burman’s edition of Plumier’s *Plantarum Americanarum*. The Linnean nomenclature partly reemployed the names given by the Minim to the genera that he had discovered in America and presented in his *Nova genera*, with updates made by Linnaeus himself—Plumier’s *Coa* in honor of Hippocrates of Cos, for instance, became Linnaeus’s *Hippocratea*, and the *Pittonia* originally dedicated by the Minim to Tournefort turned into *Tournefortia*. The representational style of the drawings in these volumes also corresponds to the images Bernard de Jussieu intended to publish: as typical for Plumier, the images consist of simple line drawings in ink. A very reduced number of pictures include colors and, when they do, these are limited to small sections so as to indicate the tones of specific relevant parts of the plants (mostly the flowers and the fruits), without covering the entire figures. As in the rest of the Minim’s botanical representations, chiaroscuro has been used as a visual strategy for the identification of the plants, and anatomical and microscopic details abound.

¹¹⁷ Plumier, “*Catalogus plantarum Americanarum, quarum genera in Institutionibus rei herbariae jam nota sunt, quasque P. Carolus Plumier Minimus, Botanicus Regius, descripsit & delineavit in Insulis Americanis*,” in *Nova plantarum Americanarum genera* (Paris: apud Joannem Boudot, 1703): pagination and signatures are different from the body of the book and the engravings.

Although Bernard's editorial project in the mid-eighteenth century never materialized, a new attempt to get the Academy's manuscripts of Plumier into print was made several decades afterwards by Bernard's nephew, Antoine-Laurent de Jussieu (1748-1836). Antoine-Laurent became a renowned botanist himself, influential in the very same institutions that made the glory of his uncles: he took up the position of *démonstrateur* at the Jardin du roi in 1770 and was elected member of the Academy of Sciences three years later.¹¹⁸ His correction and edition of Plumier's corpus was, as a matter of fact, one of the Academy's projects which was interrupted by the promulgation of a decree by the National Convention on August 8, 1793, by which the academies were suppressed.¹¹⁹ Two days after the decree was issued, the illustrious chemist Antoine de Lavoisier (1743-1794), then treasurer of the Academy of Sciences, sent a report to the National Convention's Committee on Public Instruction in an attempt to avoid the complete dissolution of the institution.¹²⁰ In the report, Lavoisier listed a series of editorial projects "undertaken in the name of the nation" which justified, in his view, the continuity of the Academy—partly because some sums had already been invested in their publication. Among these were the standardization of weights and measures, the work on comparative anatomy by Félix Vicq d'Azyr, the botanical engravings resulting from René Louiche Desfontaine's journey to the Barbary Coast, and the printing of "some precious manuscripts held in the library [of the Academy] after a long time, notably the work of Father Charles Plumier, Minim, famous botanist of the beginning of this century." What Lavoisier was attempting to do was to unfasten the tie that linked these projects—and the Academy by and large—to the extinct monarchy: in the case of Plumier's drawings, that very bond was the one that Bernard de Jussieu had been trying to fasten to ensure the publication of the friar's 900 pictures. According to Lavoisier, Plumier's manuscript, whose correction had been entrusted to "Citizen Jussieu," was supposed to be rendered to the printer in September of that same year.¹²¹

¹¹⁸ On Antoine-Laurent's botanical thought, see Peter F. Stevens, *The Development of Biological Systematics: Antoine-Laurent de Jussieu, Nature, and the Natural System* (New York: Columbia University Press, 1994).

¹¹⁹ "Décret portant suppression de toutes les académies & sociétés littéraires, patentes ou dotées par la nation," August 8, 1793, in *Collection générale des décrets rendus par la Convention nationale . . . Août 1793* (Paris: Baudouin, 1793), 56-7.

¹²⁰ Antoine de Lavoisier, "Second lettre de Lavoisier au Comité d'Instruction Publique," Paris, August 10, 1793, in *Procès-verbaux du Comité d'Instruction publique de la Convention nationale*, ed. M. J. Guillaume, vol. 2 (Paris: Imprimerie nationale, 1894), 314-7, and Roger Hahn, *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803* (Berkeley and Los Angeles: University of California Press, 1971), 245-6.

¹²¹ Lavoisier, "Second lettre," 315: "[L]'Académie a arrêté que quelques manuscrits précieux qui sont depuis longtemps dans sa bibliothèque, notamment l'ouvrage du Père Plumier, minime, célèbre botaniste

This Jussieu, Antoine-Laurent (Bernard's nephew), also failed at bringing Plumier's manuscripts into print, since their scholarly as well as symbolic significance had decreased by then. The rest of the corpus, originally transferred from the Minim convent to the Bibliothèque du roi, shows how this was only aggravated as the nineteenth century progressed. In November 1834, the Bibliothèque du roi and the Muséum d'histoire naturelle—the inheritor of the old Jardin du roi after the Revolution—reached an agreement by which the manuscripts of Plumier kept by the former were exchanged for two other illustrated works of natural history: *The Birds of America* by the English naturalist and painter John Audubon (1785-1851), a colossal collection of splendidly colored engravings published in London between 1827 and 1830, and thirty-two miniatures on vellum, the famous “Vélins du Roi” or king's vellums, painted by several seventeenth-, eighteenth- and nineteenth-century French artists like Aubriet, Françoise Basseporte (1701-1780), and Pierre-Joseph Redouté (1759-1840).¹²² The corpus of Plumier's manuscripts transferred to the Muséum, on the other hand, consisted of thirty-seven volumes roughly corresponding to the materials seized from the Minims at Place Royale in the mid-eighteenth century. Their materiality, however, was slightly transformed in the meantime: most of the drawings had been reorganized and pasted onto the pages of volumes bound in scarlet Morocco leather bearing Napoleon I's coat of arms.¹²³

The exchange between the Bibliothèque du roi and the Muséum d'histoire naturelle became controversial some years afterwards. Both parts of the exchange were originally valued at 3,6000 French francs, but the royal library complained that Audubon's volumes were incomplete. The Muséum denied this and denounced, in turn, that Plumier's manuscripts were far less valuable than Audubon's and the *vélin*s, for “they are not in part but copies of manuscripts that the Library of the Muséum already possesses, and in part works made before the trip of Plumier to America, and therefore they do not have any other interest than completing the opus of a naturalist in the specialized library of natural history.”¹²⁴ Moreover, the herbarium had “an insignificant value” (*la moindre valeur*), for it

du commencement de ce siècle, seraint imprimés. Le citoyen Jussieu s'occupe de la correction du manuscrit, qui doit être livré à l'imprimeur au 1^{er} septembre.”

¹²² BCMNHN MS AM 612 “Bibliothèque royale, échange de vélins contre 37 volumes de Plumier, 1834,” pieces 1-4.

¹²³ These are the thirty-seven volumes now conserved at BCMNHN MSS 1-37.

¹²⁴ BCMNHN MS AM 612, piece 2: “Les vélins d'Aubriet valent plus de 50 [French francs] chacun; et les manuscrits de Plumier sont très loin d'avoir une valeur de 3,600 puisque il ne sont en partie que des copies de manuscrits que la Bibliothèque du Muséum possède déjà, et en partie des travaux faits avant le

was composed of “plants collected in the south of France and most of them are in very bad conditions.” The administration of the Muséum went further: one of the volumes composing Plumier’s corpus was missing (“le n° 1326”) and the funds of the library, in any case, did not permit the addition of any further item to the exchange, particularly for a “work of an utterly secondary utility.”¹²⁵

By the 1830s, the reading of Plumier’s manuscript drawings had shifted significantly from when, a century earlier, Jussieu sought to publish what he saw as a “monument” to France’s glorious scientific past. Those old papers were now historical documents rather than reliable or necessary sources for the knowledge of West Indian nature, even though scholars like Bloch or the great Cuvier consulted them from time to time to clarify obscure, minor details on the anatomy of very specific species. Their beauty, which once allured savant and curious audiences alike, could also not contend now with an impressive enterprise such as Audubon’s massive, hand-colored plates of the *The Birds of America*. The scientific and aesthetic value of Plumier’s corpus, by then more than one hundred years old, had evaporated to a large extent. With yet another transfer from the Bibliothèque du roi to the Muséum, Plumier’s drawings became food for historians.

Conclusion

Michel de Certeau once wrote that “only the end of an age makes it possible to say what made it live, as if it had to die in order to become a book.”¹²⁶ In tracing the multiple tortuous lives of Plumier’s visual archive over nearly a century and a half after their production, this chapter aimed at making the point that any history of a corpus such as the one we have in hand is crucially determined by the operations that mediated over time our own reading of them. It also gave new evidence, I hope, to sustain my claim that images, as texts, are appropriated by means of material gestures: copying, cutting, pasting, binding. Plumier’s images changed many times, as did their materiality itself did. They were mostly a confused bunch of papers for nearly sixty years while in the library of the Parisian convent of Minims. They were rearranged after entering the Bibliothèque du

voyage de Plumier en Amérique et en conséquence que sans autre intérêt scientifique que de compléter dans notre bibliothèque spécialisée d’histoire naturelle les travaux d’un naturaliste.”

¹²⁵ BCMNHN MS AM 612, piece 2: “L’herbier n’a pas la moindre valeur et se compose de plantes recueillies dans la midi de la France et la plupart en fort mauvais état. . . . Un des volumes manque (le n° 1326) ce qui décomplète une des sections de l’ouvrage. Mais sans avoir égard à cette considération, le Muséum n’a point entendu fournir à cet échange un supplément en argent, la mendicité des fonds attribués à la Bibliothèque ne le permet pas surtout pour un ouvrage d’une utilité tout à fait secondaire.”

¹²⁶ Michel de Certeau, *The Practice of Everyday Life*, vol. 1 (Berkeley and Los Angeles: University of California Press, 1988 [1980]), 198.

roi in 1767, and beautifully bound in uniform, solemn volumes at some point during Napoleon I's rule. Some were published by d'Agoty with the new technique of color intaglio printing. Manuscript copies were made and sent to Leiden and Oxford. Burman edited some of these copies, published them, and dedicated them to his own benefactors, as he had done before with Rumphius's work. Petiver completely reshaped them, in form and size, and in line with his previous paper museums; he erased any trace of their author and made a new object out of them, an object of his own social and intellectual networks. Bernard de Jussieu tried to print them in a reduced form, so as to make them part and parcel of a now endangered institution, the Academy of Sciences, to which Plumier actually never belonged. The Bibliothèque du roi in Paris claimed them because they were no longer by a friar whose possessions were actually his congregation's, but the work of an agent of the crown. In summary, those drawings traveled quite a lot, in space, time, and form. With each act of appropriation, Plumier's drawings—and with them, their meaning—were “retold,” so to speak; they actually became a bit less his, and a bit more his readers'.

Conclusion

The initial ambition of this dissertation was to offer an account of a virtually untapped corpus of sources and of their rather obscure author. The life of the Minim friar, king's botanist, fern-lover, and adventurous traveler Charles Plumier, and the story of the sheer mass of drawings on the West Indies' nature that he composed at such great cost, is highly compelling in itself. This, along with the relatively little attention paid by the history of French science to the period between the Renaissance and the Enlightenment, seemed like a good enough reason for an inquiry such as "Nature in Draft." More specifically, however, this dissertation tackled Plumier's corpus as its very own object of analysis, and not only as its main cluster of sources. My purpose was to trace the fortunes of the archive from the Caribbean field to the Parisian libraries, from the printing house to the afterlives of manuscripts and books long after the death of their author. In proposing what we could call an "object study" of Plumier's corpus, my aim was twofold. First, I wanted to approach visual representations in natural history from the double standpoint of their—often changing—materiality (and their materiality's social and intellectual effects) and of the practices by which they were composed, circulated, and put to use. Second (and partly as a consequence), my aim was to relocate the much-debated question of "scientific images" into a history of the role that inscriptions (manuscript and printed images and texts of any kind, from written lists to copperplates, and from sketches to books) played in the making, transmission, and socio-cultural advancement of natural history in late seventeenth- and early eighteenth-century France.

Approached in this way, Plumier's papers have presented the opportunity to explore a series of topics on the history of natural history around 1700, namely its intellectual contours and methodological foundations as a field of knowledge, its place in the culture of absolutism, the material parallels between observation and reading, the modalities of the classification of information, the tortuous paths of image printing, and the ways in which physical mutations prompt shifts in meaning. More importantly, the study has contributed, in my view, to substantiate three main, broad arguments: first, the power of the case study for nuancing, and sometimes even disavowing, deceptively clear and linear historical narratives; second, the plural and fluid significations of any work, be it textual, graphic, or both; and third, the centrality of what we could call "non-narrative" discursive forms in the worlds of early modern scholarship. I would like to review these

three themes as they have been elaborated in the previous pages: I highlight them by way of summary and conclusion, but also in order to point to those aspects of my research that remain a work in progress.

Turning to the first of these considerations, this study on Plumier has shed light on the state's sponsorship of natural historical enterprises overseas around 1700, and demonstrated the difficulties to align stories such as that of the friar and *botaniste du roi* along a straight narrative on the role that science played over time in European regimes' imperial ambitions overseas. As it has been suggested here, the significance of natural history was fragile and its utility uncertain for the French crown. At some point, Plumier's images of the West Indian nature became, in the eyes of Louis XIV's ministers and high officers, objects with the potential of serving not any specific colonial ambition, but the glorification of the monarchy. They could only fulfill this purpose effectively in the form of *recueils d'images*, or collections of prints, rather than as a manuscript archive. This, and not their capacity to capitalize specific information on colonial natures, was the reason for the crown's sponsorship of Plumier's transatlantic journeys. Hence the expectation of the friar's patrons that he would not travel any further (to Guinea or to the Americas again) after his third trip, but would rather work on the printing of his images. And this despite the crucial fact that the state became decreasingly able to invest in lavish editorial projects and in the scholarly and artistic celebration of the crown by and large as its financial resources depleted. However, the capability of Plumier's images to work along the grain of the monarchy's program of cultural self-celebration did probably not predate their making. The initiative for Plumier's and Surian's 1687 journey to the West Indies did not come from the crown or its officers, and their support to the enterprise (for which Surian had to fight long and hard) was probably due to other considerations (such as, perhaps, Surian's chemical knowledge in a moment in which the Academy of Sciences cultivated some interest in such an approach to the study of plants).

The political or symbolic utility of Plumier's iconographic archive of the West Indies' flora and fauna (a utility that was actually never completely clear in the minds of the government officers) evaporated altogether by the turn of the eighteenth century for more than sixty years. Yet it somehow resurfaced half a century later, when Hughes-Adrien Joly, keeper of the royal cabinet of prints, succeeded in having Plumier's corpus seized from the Minim convent at Place Royale and brought to the king's library. Times had changed, or so mid-eighteenth-century educated Frenchmen believed. The place of

scientific travel within imperial and commercial interests overseas was becoming more transparent by the 1760s. The requisition of Plumier's papers for the Bibliothèque du roi may be seen as part of an attempt to construct the genealogy of a newly forged equation between science and empire, and of the Bourbon's longstanding support for scholarly enterprises overseas. Joly stressed Plumier's being a royal pensioner in new ways (closer to our dear notion of "agents of the king") and strengthened the link between the monarchy and the traveling naturalist. Significantly, the crown indemnified the Minims at Place Royale not in exchange for the papers, but for "having kept" the king's property for sixty years. The relationship between the crown and Plumier's enterprise in the West Indies had already been recast about a decade earlier by Bernard de Jussieu at the Academy of Sciences, also on the basis of the friar's papers and drawings. Bernard's (failed) project for the edition of Plumier's images in the form of a publication by the Academy was an attempt, after all, to integrate the friar into an institutional tradition he was refused during his lifetime. At a broader and deeper level, Bernard's was an attempt to align the friar into a freshly forged, Enlightened narrative about science and the French nation. All in all, it seems to me that deeply contextualized studies are still needed to understand the social, political, and cultural routine practices through which natural history took shape as a field of knowledge in Louis XIV's France. The case of naturalists in the short but remarkably rich period from the 1680s to the 1710s offers a still largely uncharted space to build historical accounts that are equally distant from quests for the origins of the Enlightenment and narratives that overemphasize the explanatory role attributed to the state in the development of science.

The second aspect I wanted to review here is that of circulation and reception. I have traced not only the making of Plumier's images and their (often tortuous) peregrinations from the field to his Parisian convent to the printing house, but also how this bunch of papers were rearranged and relocated, copied and plagiarized, used or ignored during and after their author's lifetime. Approaching the friar's archive from the standpoint of their changing materiality has proved important for two reasons. In the first place, the friar's archive reveals the complex, shifting relationships established between the material forms of his iconographic work and the expectations and concerns of its various audiences. Bégon's illuminated copy of the *Description* or Bernard de Jussieu's plan for a quarto edition of his drawings are some meaningful examples of the subtle but critical processes by which Plumier's corpus (or parts of it) were appropriated and the plural, often divergent meanings that different actors gave to it. Even more

significant are the friar's manipulation of the engravings originally included in his *Description* for publication in the *Traité des fougères*. Plumier and those engaged in the production of his books (Anisson, the director of the royal press, for instance) were well aware of the multilayered readings of the friar's depictions. Once placed in the context of the Imprimerie royale and in relation to the role this played in the cultural propaganda of the monarchy, Plumier's printed images appear under a new light. A small but significant example regards the involvement of the scientific author in the crafting of his own copperplates. Such a phenomenon has recurrently been interpreted in the history of science as an attempt by scholars to exert direct control over the printing of their images: their purported intention was to avoid professional carvers' potential blunders that could stain their scientific credit and authority. I hypothesized, however, that if Plumier ended up etching a good number of his plates on ferns—and perhaps himself manipulating some the *Description's* engravings to embellish them, too—it probably was because of the difficulties to bring such an editorial enterprise into fruition during the later years of the century. Incidentally, a review of Plumier's constraints as a “naturalist-author”—as he underwent the multiple determinations that organized both book production and the state's support of natural historical enterprises overseas—has allowed me to slightly nuance the picture on the role of images in the making of natural history. Plumier's exceptional reliance on graphic representations may have had deep epistemic roots, but it was, after all, one of the main reasons—if not *the* actual stimulus—for why he became a funded traveler and published image-maker.

The problems of circulation and reception appear also as the *sine qua non* of our own understanding, as historians, of any graphic and textual form. Issues of dissemination and appropriation are not limited to whether or not images like Plumier's were seen and used, but hint also at the different meanings they were given over time up to the point we historians now stand. To what extent is our own gaze on an archive like Plumier's affected by both the material transactions and intellectual interpretations that reshaped it over time? The very material form in which we can access Plumier's corpus at the present time has been crucially modelled by the operations that brought it to us. At some point or another during the second half of the eighteenth century, or perhaps the early nineteenth century, someone took quill and paper and set about organizing that assorted heap of papers into folders; he (it is unlikely this was a woman) included for each group an unornamented frontispiece indicating the content: “Birds drawn by Father Plumier,” “Tetrapods drawn by Father Plumier,” “Fishes and shells drawn by Father Plumier.” The

anonymous librarian or archivist might have also been operating selections and exclusions. We cannot know for sure if Plumier's drawings that were "copied" from printed books were consciously set aside at that point by a somewhat disappointed librarian ("this is not at all a work by father Plumier[!]"). Yet the fact that his *enchiridia* are today one of the few documents by Plumier that are not included in the consecutive folders conserved the Muséum national d'histoire naturelle is significant—especially if we agree with Michel Foucault in that authorship is based on a selection of those texts that can be assigned to the "author-function" from all the traces produced by an individual. What seems clear is that our eighteenth-century archivist was not only giving new order—and thus new meanings—to the papers of that skillful, but rather minor scholar. He was actually creating a tight link between an author, an intellectual work, and a physical object.

This leads to the third and last of the considerations listed at the beginning of this conclusion: the crucial importance of "non-narrative" discursive forms in the daily work of naturalists and scholars in general. One of the main consequences of analyzing Plumier's visual materials without isolating them a priori from the rest of his corpus has been to highlight that there was a whole world of paper underneath the surface of printed books and beautifully colored depictions. For natural historians like Plumier (as for most scholars of any time), knowing was an impalpable reality that, to a very large extent, entailed a *mise en papier*—one, moreover, that was not necessarily or exclusively driven by the goal of publication. First of all, this allows us to trace the contours of a manuscript organization of natural knowledge. The question is a key one if only because while historians have, indeed, been actively dismantling the bond between print and (scientific) modernity in the last two decades, they have achieved so by charting the social determinations of the culture of print, rather than by investigating what came to be known, somehow demeaningly, as "scribal scholarship."

The engagement of natural historians with the manuscript medium between 1650 and 1750 went well beyond correspondence, authors' drafts of their printed books, and Tournefort's inventory of his linen. One of the most compelling examples we can draw from Plumier's corpus is that of his graphic and textual practices of observation and reading (two gestures that, I argued, need to be taken side by side). By exploring in parallel both Plumier's field notes and sketches (or what we believe are inscriptions likely to have been produced, at least partly, in the field), on the one hand, and the abridgments and excerpts derived from his "reading" of printed texts and images, on the other, we

can make a compelling case for the weight of bookish practices in the culture of early modern empiricism, as well as for the mediating role of note-taking in selecting, stockpiling, and arranging both textual and graphic information from either the “little books” of men and the “great book” of nature. In particular, Plumier’s “reading notebooks” or *enchiridia* give us the chance to circumvent modern conceptions of authorship and originality that were mostly coined during the mid- and late eighteenth century. I regret that I was not able to place Plumier’s *enchiridia* within a broader picture of the place that copying and abridging by hand from printed books occupied in the working habits of contemporary naturalists and antiquarians. Yet Plumier’s selections from the images and texts printed in Tournefort’s *Éléments* and the *Historia naturalis Brasiliae* and his own manipulation of the original plates of the *Description* are two very different, but equally telling examples of the malleability of printed materials.

All in all, surprising sources such as the *enchiridia* open exciting lines of research on the working methods of European scholars in the early modern period. While writing this conclusion, however, I preferred the expression “non-narrative” tools to “manuscript culture” because I came to realize that the management of information on flora and fauna beyond the realms of print was often carried out by more unexpected means. The role of the herbarium, in particular, as a filing system for the storage, sorting, and speedy identification and retrieval of botanical knowledge still needs a comprehensive history. Plumier’s period may well have been pivotal in this regard: as we have seen, the world “herbarium” (*herbier*), in the sense of an *hortus siccus*, is commonly attributed to Tournefort. More importantly, the description of Tournefort’s herbarium by his executors as a collection of dried plants well arranged into four closets bears striking similarities with furniture used at the period for storing and wielding notes and slips. Herbaria, series of images, printed and manuscript dictionaries of synonyms or equivalences of botanical names, catalogs of plants within delimited geographical areas, *enchiridia* and similar forms of reading notation, and so forth, all constitute a cluster of largely unexplored sources, which opens fascinating paths for further inquiry.

In passing, this issue brings us back to my initial contention that an overemphasis on the visual aspects of Plumier’s corpus could, ironically, mislead us about the real significance of images in his project for a history of an overseas nature. The sheer number of visual representations in Plumier’s archive, the fact that contemporary enterprises of natural research overseas (such as Tournefort’s to the Levant) resulted in equally abundant graphic material, and the various ways in which these images were

often (but not always) put to use and appreciated by scholars and patrons at the time, all this does not account in itself for a predominantly visual epistemology. The abundance of images among the materials collected overseas by Plumier and other French naturalists seems rather one of the symptoms of, first, the social space occupied by natural history in France and, second, the methodical foundations on which the study of nature stood at the time—a good number of which were, as I argued, shared across our current disciplinary boundaries. Our eyes, like Lister's while he was perusing the folders of papers heaped in the friar's cell, are unavoidably drawn to the exquisitely colored figures of American shells and plants, or the skillful anatomical drawings of beasts as exceptional and exotic as crocodiles, snakes, and turtles. Plumier's iconographic archive was, no doubt, an extraordinary feat. But, as I argued through this dissertation, we can gain much insight on the role (often central, sometimes marginal) that images played in the early modern enterprise of natural history by inscribing them within the manifold worlds of paper in which naturalists then plied their trade.

Appendixes

I use the following editorial conventions: linebreak /; folio number and editorial commentaries []; authorial insertion <>; authorial deletion —, and marginal annotation {}.

1. Preface to “Synopsis botanica” (BCMNHN MS 10)

[24^r] Synopsis botanica/ plantarum iam cognitarum tum genera quam species complectens/ opera P. Caroli Plumier Minimi Botanici Regii/ Ann. 1703

[25^r] Praefatio

Postquam macies, et noua febrium, terris incubuit/ cohors, callidi serpentis fraude malâ gentibus illata, post/ quam scilicet malignantium spirituum inuidiâ, mors/ introiuit in orbem terrarum, omni potentis ac miserentis Dei/ benignâ providentiâ factum est, ut innumeris morbis, qui-/bus in dies impugnatur humana mortalitas, innumera/ etiam succurrerent medicamina, e regno vegetabilium/ potissimum desumpta: Unde plantarum orta scientia,/ Botanice, seu Res Herbaria communiter dicta; quae/ quidem in universum duobus comprehenditur capitibus, uno/ nomina, et formas plantarum monstrante, allero/ ipsarum vives et usus docente. Hoc medicos, illud/ pharmacopaeos spectat; Medicorum etenim est aegrotos/ medicaminibus sanare, pharmacopaeorum vero medicamina ipsa ex Medicorum praescripto parare. Utris-/que Ergo convenit invicem convenire, ne dissentientibus/ qui pro quo (ut aiunt) oriantur, magnum saepissime/ humanae vitae discrimen. Antea nefas ut Medicus phar-/macopaeo, pharmacopaeus medico consentiret, dum sci-/licet unica planta ob innumerabilium Botanicorum/ confusas sententias, centenariis synonymis assignabatur,/ alio nempe Brassicam, alio Raphanum, alio tandem/ napum asserente. Non sic; si male olim erat, nunc est/ summovit informes et turbidas Botanicorum tenebras/ splendidus fulgor Botanicus Turnafortius noster, clarissimis/ institutionibus suis, quae quidem tam medicis et phar-/macopaeis necessariae sunt, quam mathematicis et geo-/graphis circuli maioris in 360 partes aequales divisio,/ primique meridiani apud insulam ferro dictam consti-/tutio. His Ergo clarissimis institutionibus solis se/ [25^v] dedant, solasque institutiones sequantur, omnes ii,/ qui non modo stirpium, sed et reliquorum simplicium/ medicamentorum doctrinam et facultatem consequi/ peroptant. His etenim dirigentibus unius labii si-/tient et medicus et pharmacopaeus, qui prius mil-/lium labiorum, unus vinum postulabat, alter ol-/eum porrigebat. Maxime itaque congruum maximeque/ fuit necessarium, pro maiori et faciliori inter medicos/ et pharmacopaeus consensu ut singulae plantarum/ species saltem apud singulas respective nationes uni-/ca ac determinatâ designarentur

nomenclatura, potis-/simum vulgatiores et in medicinis usitationes plantae,/ quas quidem simplici et unica voce denominavi per./optarem. V.G. ut *Alsine vulgaris* solo nomine/ *Alsine* non per ly *Alsine media* appellaretur,/ *Caprifolium vulgare* solo nomine *Caprifolium* non/ per ly *caprifolium Germanicum* et sic de caeteris/ vulgatoribus plantis, pro recipe facilius et com-/modus ordinandis. Methodum existimem seme per/ quam commodam in illis saltem regionibus ubi vul-/gatiores et usitatiores in medicinis plantae in singulis/ locis communes nascuntur, apud Galliam V. G., ubi/ certum est *Alsinem vulgarem* et *caprifolium vulgare*/ in omnibus *Galiae* locis nasci. Quâ quidem methodo plan-/tas vulgatiores seu officinales facilius addiscent pharmacopaei; sua recipe commodius praescribent me-/dici; utrique tandem ob mutuam et commune/ nominum plantarum doctrinam, erronea periculosaque/ qui pro quo ex discordi utrorumque cognitione oriri/ solita, tutius declinabunt. Methodum adiuvabunt/ exactae plantarum icones; quae quia apud paucos/ authores Botanicos salis genuinae ac plantam suffici-/enter repraesentantes difficile reperiuntur; vix Botanicem/ praelibaveram ut ipsas quam melius potui, exacte de-/lineare, totum dederim animum, formarum descrip-/tionem, generumque characterem ex institutionibus/ Turnafortianis addendo, uti in tractatu plantarum/ officinalium seu vulgariorum et usitatorum, quem jam/ [26^r] summo favendo <numine> ad finem deduxi, patebit in hoc vero/ opusculo solos generum iam cognitarum <characteres> singulasque/ omnium generum species iam etiam cognitatas, quae/ scilicet tam in institutionibus et corollario Turnafortianis/ quam in meis novis plantarum Americanarum gene-/ribus continentur, in unum corpus colligere consilium/ fuit quasdamque voces Botanicas, quibus scilicet rei herba-/riae scriptores communiter utuntur, tam verbis quam/ figuris seu formis explanare, pro ampliori terminorum/ apud Botanicos vulgariorum, collustatione./

Botanices definitio et etymologia/

Botanices est scientia de nominibus et virtutibus plan-/tarum pertractans. A voce autem Graeca *Βοτάνη*, Her-/ba, nomen desumpsit: *Βοτάνη αβοτος*, esca *βοτος*/ tandem *αβώω* pasco, originem duxere. Omnia namque/ animalia mediate aut immediate ab Herbis pascuntur/ et nutriuntur. Equi, Boves, caeteraque iumenta herbas/ aut fructus comedunt, quibus immediate vivunt. Leones,/ tigres, aliaque animalia carnivora mediate herbis vescun-/tur, cum animalia devorent quorum immediata esca/ sciunt herbae. Homines vero mediate et immediate ab ipsis/ Herbis alimenta sumunt, nam pane, vino, oleribus/ aliisque fructibus vivunt et insuper animalium carni-/bus, ab ipsis Herbis immediata nutritorum./ Plantae definitio/

Planta est corpus organicum primo e terra germi-/nante productum, terrae
 radicum in terra nutritum <+> {+et vivens}, se-/menque in se habens, quo sibi simile
 corpus producere/queat. Dicitur 1° corpus organicum nam ex senten-/tia
 praestantissimarum philosopharum Malpighi et/ Turnefortii certum est in plantis inesse
 fibras, musculos,/ venas, arterias, fistulas et vesiculas, quibus tamquam ex/ [illegible] seu
 instrumentis, alimenta et aer suscipiantur, hu-/morum circulatis [?] fiat, et alimenta
 tandem veluti in [illegible]/ [26^v] concrecant. Dicitur 2° e terra germinante primo pro-
 /duct<um>. Certum namque etiam est omnes quascumque plan-/tas e terra sola
 immediate produci, nullatenus vero ex/ aquis. Videntur equidem quaedam plantae
 immediate ex/ aquis produci, quales sunt lenticularum palustrium/ species aliaeque
 quaedam plantae palustrium aquarum/ superficiem occupantes, in quibus nullae apparent
 radices/ cum fundo palustrium locorum communicantes. Sed/ non sic. Nam illae
 quaecumque plantae palustres, in/ limo fundi immediate <primo> germinant, deinde ob
 mulis/ levitatem, radicularumque brevitatem et exiguitatem/ ad aquarum superficiem
 elevantur, ibidemque ex ipsis aquis/ nutriuntur, radículas in ipsis sed brevissimas vixque
 quam/ doque conspicuas agunt et incrementum accipiunt. Aquis/ namque virtus inest
 plantas nutriendi et pisis incrementum/ praestandi. Abscindatur ramusculus menthae
 vulgaris/ hortensis, eius in sima pars intra phialam aquae plenum/ imponatur; Pars illa
 inferior aquae immersa in ipsa/ aqua radices aget; Pars vero extra phialam elevate/ ramos
 producet, tandemque in molem deveniet fere/ aequalem plantae, unde defumplus fuit.
 Dicitur 3°/ semen in se habere, quo sibi simile corpus producere valeat./ Ad rei autem
 intelligentiam sciendum est semen <+> {Plantae, esse illud omne a quo <primo>
 producitur aliqua planta; et/ semen sic sumptum &c.} aliud/ esse primum, aliud vero
 secundarium. {seminis defin.} Semen primum/ dico, aggregatum quoddam ex spiritu,
 sulphure et sale/ cum certa quadam proportione in terrae visceribus conten-/tum, et
 certa quodam aquae quantitate dilutum, unde/ certa quaedam nascatur planta primaria,
 quae deinde ad/ perfectum statum exaltata, semen quod secundar<i>um dico,/
 generabat, quo intra terram mandato, planta quae se-/cundaria dici potest, eiusdem
 speciei producitur. Verissi-/mum autem est illa primaria semina intra terram con-/tineri
 ex virtute sibi a Deo creante indita, cum dixit/ {Gen. 1°} ”Germinet terra herbam
 virentem et facientem semen, et/ ”lignum pomiferum faciens fructum iuxta genus suum/
 ”cuius semen in seme ipso sit super terram. Quia vero/ infinitae possent fieri
 proportiones particularum spiritus/ sulphuris et salis: ideo inde infinita orta sunt
 plantarum/ [27^r] genera, infinitaeque species, in quibus omnibus semina conti-/nentur

secundaria, aut sallem primariis seminibus iam/ dictis, analoga; qualia forte. Sunt semina muscorum/ Fungorum, tuberum plurimarumque plantarum in qui-/bus nullum sensibile semen apparet. Quod maxime pro-/babile videtur si attendatur illa tam grandis fungorum es-/culentorum copia quae toto fere anno super pullo illos/ fimetarios exsurgit, Hortulanorum industria praeparatus./ Nec dicatur dari generationem spontaneam plantarum,/ nullo praeeistente semine ex plantis earumdem specie-/rum producto. Si quae datur supponit aliquod praece-/dens principium, quod quidem semen primarium erit. Sin/ aliter, esset potius creatio quam generatio. Creatio au-/tem nulla fit virtute solius naturae, sed sola Dei poten-/tia, ad cuius imperium, omnium plantarum genera/ ex seminibus primariis jam dictis a Deo primo et calis in/ initio mundi terra parens produxit. Dicendum ergo in omnibus plantis cuiuscumque/ sint generis aut cuiuscumque speciei, semen aliquod aut primarium aut secundarium/ contineri potens plantam producere eiusdem generis et/ eiusdem speciei, <ac in illo semine secundario eamdem esse propor-/tionem particularum spiritus, sulphuris et salis, qualem in primario.>

Universa plantarum summa ex communi omnium/ Botanicorum consensu in quatuor distribuitur classes, ar-/borum scilicet, fruticum, suffruticum et herbarum./ Arbor definiri solet planta perennis, simplici, lignoso ac/ ramoso caudice assurgens. Quam quidem ergo definitionem/ mimis strictam censeo, ut pote non omnes plantas quae/ vera arbores sunt complectentem, quales sunt omnes/ palmarum species quae nullos ramos sed solummodo/ costas producunt. Et papayarum species etiam quae/ neque ramos neque costas sed tantum folia in caudi-/ce ut plurimum ferunt. De ramorum autem essentia/ est ut sint pars caudicis continua, a caudice ipso pro-/ducta et a caudice nullatenus separabilis sine ipsius/ caudicis laesione. Costae vero et folia ab ipso caudice se-/parantur, caudice remanente illaeso. Sed tantum nota quadam costae aut folii prae ariditate decidentium, signato/ [27ⁿ] unde crediderim Arborem rectius sic definiri/ posse. Arbor est planta perennis, caudicem a radice/ emittens <lignosum> aut ramos, aut costas, aut folia, producentem./

{inst. 673} Frutex ex Clariss. Turnefortio dicitur plan-/ta perennis et gemmipara, trunco ut plurimum mul-/tiplici, quae ad iustam magnitudinem arboris non assur-/git ut malus punica, Rosa, Nerion, caeteraeve id ge-/nus./ {inst. 676} Suffrutex ex eodem Clariss. Turnefortio est pl-/antae perennis, dura, lignosa, frutice humilior non/ gemmipara, ut Thymus, salvia, lavandula, stoechas &c./

{inst. 673} Herba ex eod. Clariss. Turnefortio est plantae/ genus, cuius caulis singulis annis perit novo deinde re-/nascente vel ab radice foliato ut in lactucis, verbascis/ &c. vel nudo ut in iuncis, scirpis, et alus quam plu-/rimis plantis, in quibus neque ad radicem neque cir-/ca caulem nascuntur folio ut sunt quaedam <+> {+ quae dicuntur in opuntis et melocatis folia, potius rami sunt/ quam folia. Flores namque et fructus in ipsis nascuntur/ et terrae plantati, plantam producunt aut in plantam /evehuntur eiusdem molise [?] formae et speciei} opuntiorum et melocactorum <+> <Aphyllanthes &c.> species, nulla omnino folia/ producentes. His addi etiam debent omnes illae planta/ quae folia tantum et flores aut fructum sine ullo caule/ statim ab ipsa radice fundunt ut sunt Carlinae Acaulos,/ primulae veris, et Bedidum plurimae species, quae nullum/ caulem producunt ut carlinae acaulos, aut tantum sim-/plices pediculos tenues, singulos florem aut fructum/ sustinentes ab radice immediate emittunt <ut Bellis &c.>/

Ex praedictis duo mihi occurrunt dicenda/ primo de illis plantis quae ut plurimum proprio semine/ non seruntur, sed tantum ex aliqua alia sui parte pro-/pagantur, ut aut ex quadam portione radicis, aut ex/ quadam portione caudicis aut rami, uti in quam plu-/rimis plantis quotidiana demonstrat praxis. Ad quod/ respondeo, providentiam Dei fuisse ut in ipsis plantis/ alia quaedam esset propagativa virtus praeter semina-/lem, qua plantae citius in plantas perfectas ado-/lescerent, citiusque ipsarum perciperentur fructus./

Secundo. Questionem movet Rdu. P. Terterius ad/ quamnam classem referenda sit planta illa, musa/ ab authoribus, vulgo vero Bananier Apud Americam/ nuncupata (cui et Bihai vulgo Balisier apud eandem/ [28^r] Americam, ediungam). Resp. ad Herbarum classem/ ambas esse reponendas; cum ab radice folia primo/ producant, deinde caulem emittant neque lignosum/ neque perennem, sed tenerum, non diu durabilem/ foliorumque initiis seu pediculis veluti vaginosis/ omnino circumvestitum./

Plantarum, cuiusque sint classis seu ordinis, semen/ secundo modo superius acceptum, praecipua pars semper/ existimandum; cum tota planta in ipso formaliter contine-/atur. Ex ipso namque radix, caudex, folia, flores et fruc-/tus procedunt. Illud autem vel nudum est aut vestitum./ Nudum dico in solo perianthio seu sola cute tenui aut/ crassa contectum, ut sunt semina umbelliferarum,/ valentianarum, ranunculorum &c. vestitum vero intra fruc-/tus, siliquas, folliculos aut ossicula conclusum, ut sunt/ semina pyrorum, fabarum, papaverum, Alkekengi, amyg-/dalarum &c. Nudum sit aut

vestitum, e tribus ut plurimum/ componitur partibus, germine scilicet, lobis aut lobo,/ et cuticula seu perianthio ipsum peritus contegente./

Germen est illa pars ovulo similis intra lobos ipsos/ ut plurimum loculata, aut lobis ipsis peritus adhaerens./ Ex ipso, tota planta procedit, primum radix, secundo folia/ seminalia seu prima, deinde pluma, primordium scilicet cau-/dicis aut cautis, ex quibus omnibus paulatim vegetantibus/ tota planta perfectum incrementum acquirit./

Lobus aut lobi sunt illa pars carnosae, candidae,/ germen ipsum continens, in duas partes ut plurimum sese/ explicans et nascenti plantulae lac, tanquam ex duo-/bus uberibus subministrans./

Cuticula est involucrum seu indumentum lobos vel/ lobum contegens immediate. Sive illa sit tenuis, mollis, membranacea aut dura, secundinam appellat Clariss. Malp./

Post semen, radix <plantae> secundas occupat. Ut pote prima/ ex germinis inferiori parte promanans, radícula tunc nun-/cupata, deinde varias crescendo adipiscens formas con-/sistentias et moles, prout sert ipsius plantae natura,/ exiguas scilicet aut ingentes, carnosas, lignosas, fibrosas,/ fibratas, capillaceas, napiformes, grumosas, tuberosas,/ squamosas, bulbosas, sphaericas, ovatas et palmatas;/ [28^v] {radicis defini. Institut. 675} quamcumque tandem sortiatur molem consistentiam et/ formam semper definienda venit, plantae pars, terrae ut/ plurimum affixa, a qua nutrimentum foliis, cauli, ramalis,/ caeterisque partibus per quosdam quasi tubulus im-/pertitur./

Radicem subsequitur in herbis folium; in arboribus/ fruticibus, et suffruticibus caudex. In herbis namque pri-/mo folia seminalia sola e germinis superiori parte/ nascuntur; in arboribus vero fruticibus et suffruticibus/ pluma (caudex deinde futura) cum duobus foliolis se-/minalibus elevatur. In arboribus tandem fruticibus ex/ suffruticibus succedunt caudici folia, flores, deinde/ fructus; in herbis vero post folia erumpit caulis, et/ in caule deinde flores et fructus <+> {+ interdum etiam folia, quod er saepissime}, producuntur./

{Folii defin.} Folium est pars plantae aut radici, aut caudici, cauli,/ ramis, aut costis adhaerens, singularis, ut plurimum virens,/ et ut plurimum longa, lata, parum profunda seu/ tenuis, diversimode figurata, et radicem, caudicem, cau-/lem, ramos, et costas relinquens sine ipsorum detrimento./ Dicitur primo singularis scilicet una in se et non ex/ plurimis individuis constans. Videntur equidem quaedam/ folia e plurimis foliis constare ut in millefolio/ vulgari; sed non; nam, quod vulgo dicitur in illo folio/ non est proprie folium unum, sed plurima folia tenui-/ssime dissecta tamen, uni costae affixa. Dicitur 2^o ut/ plurimum virens et ut plurimum longa, lata et parum/ profunda seu tenuis.

Quaedam etenim in sunt folia, in/ quibusdam plantis rubra, in quibusdam albertia etin/ aliis variis coloribus suffusa. In quibusdam plantis adis crassa sunt et carnosa ut in Asclepiade Africana aizoides/ Insitut. 94 in Ficoidibus, plurimisque aliis plantis, ut fere/ tam profunda sint quam lata scilicet omnino ferentia/ attamen vera dicenda sunt folia, cum ex radice, caudice,/ caule, ramis et costis nascantur et ipsos aliquando relin-/quant sine ipsorum detrimento./

{Quid/ candex et/ causis/ ex Turnat./ Instit. 669} Caudex, vocatur Arborum truncus; Caulis vero herbarium/ "virga illa a radice emergens, quae foliis floribusque donari so-/ "let. Hoc inter caulem et caudicem interest inquit Ruelius/ "ut cautis ad herbas, caudex ad fruticet et arbores duntaxat/ pertineat. Caudex itaque est corpus simplex a radice pro-/manans, supra terram elevatum, ut plurimum cylindraceum/ salis crassum, fractu contumax, lignosum et durabile. Caulis/ [29^o] vero est corpus implex, a radice immediate proveniens/ et super terram elevatum, mediocriter crassum non lingo-/sum; fractu facile et brevi periturum. Caudicis autem/ species sunt, caudex ramosus et caudex non ramosus,/ seu simplex et uniformis. Caudex ramosus ut quercus,/ ilicis, nucis in glandis &c. qui ramos sibi continuos pro-/ducit, nullatenus ex se seu caudice avellendos, nisi ipsius caudicis laesi-/one uti superius dixi. Nen ramosus sed potius dicen-/dus costosus et foliosus ut palmarum et papayarum/ &c. qui uti etiam superius dixi costas tantum et folia/ emittunt quondam sive caudicis laesione decidentia, aut/ si avellantur nullatenus caudicem laedentia. Caulis etiam/ multiplici differentia considerandus venit. Caulis scilicet/ dicendus, cum moles eius satis spectabilis est, ut verbasci/ vulgaris, sclarearum et campanularum plurimarum, &c. <&c.> ~~eam~~/ cauliculus vero seu coliculus, cum humilis et tenuis, ut/ Gallii cruciatae, auriculae ursi &c. Caulis et caulicu-/lus seu coliculus alii sunt ramosi alii vero non ra-/mosi seu uniformes. Non ramosi denique alii sunt/ nudi ut cyperi vulgaris, Butoni &c. alii vero ves-/titi seu foliosi, ut digitalis, antirrhini &c. nudos,/ virgas aut virgulas, pro molis quantitate dicendos vel-/lem, vestitos vero seu foliosos, thyrsos aut thyr-/sulos appellarem, si potissimum plurimis foliis ves-/titi <sint> ac plurimis floribus onustati ut sunt carduus/ ille polyacantha vulgaris dictus inst. 441 et cam-/panula illa Alpina echioides pyramidata dicta/ inst. r. herb. 109./

Caudex ut plurimum cortice et ligno constat./ {Cortius definitio} Cortex est dura quaedam et sicca materia lignum incrus-/tans et a ligno tamen separabilis. Quae si crassa est/ proprie cortex dicenda, sivero tenuis, tunica aut mem-/brana. Interdum cortex geminus est, exterior scilicet/ qui et crassior, interior vero qui et tenuis, lignum im-

/mediate vestiens, et liber propriae dictus; quod antiqui/ ipso tanquam papyro utebantur ad libros conscri-/bendos. {Ligni defin.} Lignum est, totius caudicis corpus et summa;/ ut plurimum materia dura et fissilis, cuius pars interna/ durior et lignum proprie dictum; externa vero seu cor-/tici propinquior, mollior et Alburnum nuncupata, eo/ quod interdum corde ipso ligni albidior, <de> [?] veluti Adeps” {inst. 667}/ [29^v] {Alburni definitio} ”arborum a nonnullis existimatur<a> haec autem est me/ materia quot annis ligno per intra susceptionem ad-/veniens, quae quamdiu recens <est> mollis et corruptio-/ni obnoxia, successu vero temporis indurescens et/ difficile corrumpenda./

{Rami defin.} Ramus est pars caudicis et/ caulis, ipsi caudici et cauli continua, extra peripheriam caudicis et caulis pro-/tensa, et sine caudicis et caulis laesione ab ipsis nus-/quam separanda; ad differentiam costarum et foli-/orum quae licet sint partes caudicis et caulis, ipsis/ tamen tantum sunt ut plurimum contiguae, ut pole/ ab ipsis sine ipsorum laesione separabiles./

Jam flores et fructus restant explicandi, tam-/quam ultimi plantarum termini existentes. Tota/ namque planta pro ipsis elaborandis omnes vires,/ nervos, ac munia sua contendit, tum ad animalibus/ in serviendum, tum ad se ipsam seminis ab ipsas pro-/ducti, ope perennandam./

Florem itaque quidam definiunt Gaudium arborum/ Herbarumque. {Raius Hist. 16} Alii partem plantae tenuiorem, figura/ et colore insignem, fructui praeviam, ipsius rudimento/ plerumque ad haerentem, ipsumque tenellum foven-/tem. Magis arridet Turnefortiana definitio. Flor-/em scilicet esse plantae partem coloribus propriis”/ persaepe insignem, fructuique nascendi plurumque ad”/ haerentem; cui primum alimentum ad tenerrimas”/ ejus partes explicandas ministrare videtur. Ad cu-“/ ius intelligentiam sciendum, ex Eiusdem Turnefortii/ {insti. r. h.. 68} sententia, omnes fere floris partes totidem inesse/ vasa ac viscera, pro quantitate alimenti tenello/ embryoni propria et apta paranda ac pro quantita-/te eiusdem alimenti debilia [?] ministranda; quod saepe/ nimis damnosa probat experientia; cum scilicet in-/tempestivis imbribus, nebulis et caloribus laeduntur/ flores, tum laeduntur et ipsi tenelli fructus, deflu-/entes ac evanescentes debito non sumpto alimento./

”Floris igitur proprium munus est nutricandi tenerum/ ”fructum, quod maxime praestabit si nulla noceat/ gravis tempestas, sed benigna foveat usque ad debitam/ tenelli embryonis aetatem./

Definitioni non obstat, quod in quarundam plantarum/ [30^v] generibus, praeter flores fertiles reperiantur etiam et flores/ steriles, in una et eadem planta, ut in plantis

cucurbitaceis;/ quod in aliis generibus, flores ab embryonibus in una/ et eadem planta, ab invicem separentur, ut in nucibus,/ quercubus et aliis; quod tandem in quibusdam generi-/bus embryones sint in una planta et flores in alia ut/ in populis, salicibus et &c.. Haec (inquam) omnia phaeno-/mena definitioni allatae non obstant; illi namque flo-/res revera non sunt steriles neque omnino inutiles/ cum Deus et natura nihil fecerint frustra ex omnium/ philosopharum effatu. Pulvisculus ille, quo replentur/ talium florum embryonibus carentium, apices, vegetati-/oni et faecunditati embryonum, florum aliorum, aut/ embryonum floribus nudatorum, maximae inserviunt./ Rustici bene norunt de foelici et infoelici future/ segete fructum talium plantarum ominare, iulos/ illarum V.G. quercum corylorum, castanearum &c./ cumbene au cum male se habeant, percipientes. Unde non/ vana omnino est illorum authorum opinio, asse-/rentium in plantis diversos inesse sexus sicut et in/ animalibus; quippe qui longa observatione docti/ fuerint, fructus tum ma-/gis praestantes, tum magis faecundos fieri, si pulvisculo illo intra florum/ embryonibus carentium, contento, tempeste ~~tem~~/pore aventis disperso, affundantur. Rem confir-/mat clariss. Turnefortius <+> {+ inst. r. herb. 69} ipsam scicitatus a quo-/dam legato Tripolitano ad Regem Chrstianissimum,/ asserente et declarante, ramulum floris palmae maris"/ in spatham palmae faeminae inseri, quo tempore"/ spatha hiare solet. Flos enim explicatus pulverem"/ fundit, sine cuius affectione dactyli acerbi forent"/ et insuaves. Imo et ossiculis carerent, camelis tantum et iumentis exhibendi, non male Ergo in"/ mares et faeminas a quibusdam distinguntur plan-/tarum illae species, quarum uni fructus, alteii vero [?]/ flores tantum innascuntur, marem illam appel-/lando, quae flores, faeminam vero illam, quae/ solos producit fructus, aut semina proprie dicta, uli-/mos scilicet plantarum terminos, ad quos tandem/ pertingendos et perficiendos omnis plantarum labor/ contendit, de semine iam superius satis diximus./ Nunc tellat de fructu dicendum, in universum esse/ seminis quodcumque conceptaculum, cuiuscumque male/ [30^v] materiae aut formae sit illud; carnosum scilicet, lig-/nosum, membranaceum, molle, durum, siccum, succo-/sum, folliculosum, siliquosum, oblongum, globosum,/ turbinatum, falcatum et millium tandem aliorum/ modorum, quos omnes recensere nimis longa esset/ ambages et Historia. Sciendum tamen, ex omnibus/ in universum fructibus, alios esse simplices, unico scilicet/ membro constantes ut sunt malus, pyrus faba &c../alios vero compositos ex plurimis scilicet membris,/ capitibus aut partibus separabilibus constatos [?]: ut/ sunt Helleborus, paeonia, aquilegia &c. Ex sim-/plicibus alii dicuntur unicapsulares unico scilicet/ aut plurimis seminibus in unica cavitate contentis,/ praegnantes; alii vero multicapsulares, si

intus/ plures habeant cavitates abinvicem separatas uno/ vel pluribus seminibus repletas. Dicuntur etiam/ multiloculares, si plurimis loculamentis intus distinguatur,/ ut sunt pyrus, cyodnia &c. biniloculares tandem/ si duobus tantum loculamentis divisi. Casulae autem/ et loculamenta cellulae quaedam sunt seminibus repletae,/ intra fructus meditullium ut plurimum ordinatae, interdum/ sacculorum aut marsupiorum instar ex omni parte con-/clusae, seu sextis quibusdam inter mediis separatae, interdum/ vero veluti totidem fossulae excavatae et communi/ aditu antea patefactae./

Haec pauca et quidem paucissima, si dignitas/ et profunditas Botanices attendatur. Praestantiora, am-/plioraque quae desiderantur, suppeditabunt clarissimi/ Bauhini, Turnefortius, Raius, caeterique rerum/ Botanicarum magistri maximi; inter quos Ego Botanicus Minimus Frater Carolus Plumier hoc opuscu-/lum ceu enchiridion, aut mihi manuale, confeci, Pari-/siis in conventu Minimorum, ad plateam Regiam,/ anno reparatae salutis 1703.

2. Preface to “Solum, Salum, Coelum Americanum” (BCMNH MS 23)

[1r] D· O· M

Solum, Salum, Coelum/ Americanum/ seu/ Plantarum, Piscium, Uolucrumque/
Insulis Antillanis Et Sandominicana / naturalium / Icones Et Descriptiones/ Authore/
Patre Carolo Plumier Ordinis Minimorum/ Phisico-Botanico/ nec non/ Parisiensis
Conuentus Alumno

Botanicis et Curiosis

Eodsem licet exantlauerint [sic: exanclauerint] labores, iisdemque insudauerint operibus no[n]/ pauci rerum naturalium perscrutatores sagacissimi, eorum tamen accensus/ studiis, me fragilem truci committere pelago, montes adire, ualles, siluasque/ americanas peragrarere non horruui.. ut in iis enascentium tum plantarum/ tum animalium mirabiles formas perlustrarem, spectandasque oculis/ [1^v] omnium exhiberem.. de uitae humanae breuitate, deque naturae operum in-/numerabilitate certior factus [est].. utpote que nec multi insimul uiri quam tum liber/ studiosi per totum uitae curriculum perfecte tractare potentes usquam ex-/istant. Huic sententiae me ex insulis antillanis minima confirmat solidatque, tot etenim tantarumque rerum mirabilium ferax conspicitur ut/ in ipsis discutiendis post multos adhibitos labores uita unius uiri non suff-/iciat. Tantorum igitur uirorum longe quam abhorrerem ob insudationes,/ quin potius magis ac magis pro mea uirili parte his totus incumbere dec-/reuerim.. Sperans fore ut aliquando et ipse noua incuderem, noua tamen/ incudenda posterioribus ac superstilibus relicturus quibuslibet

quamuis/ insumptis lucubrationibus. Quid tum, ipsius Lucii Annaei Senecae sententiam effari liceat, qui praecesserunt non mihi praeripuisse uidetur quae/ dici poterant, sed aperuisse.. Crescit enim in dies material, et inuenturis in-/ uenta non obstant. Contestatus fuerit quantumuis sapientissimus rex/ Salomon nihil sub sole nouum usquam existere.. Contrariis tamen/ confirmamur experientiis, de nouo quotidiana exoritur noua. Aristoteles,/ Plinius, Hipocrates, Galenus, Dioscorides, innumeri tandem sapientissimorum alii: tum uegetabilium, tum animalium naturae inuestigandae penitus incubue-/rint, attamen noua in dies insurgere ipsis omnino incognita demiramur.

Mathiolus, Bahuinus [*sic*], Paena, Lobel, ac ipse Clusius curas omnes/ rebus naturalibus insumpserint; innumera tamen nobis pertractanda reliq-/uerunt. Testes huius, aetatis nostrae insignes Botanicos, Bocconum, Raium,/ Hermandum aduoco, potissimum uero illustrissimos quos Gallia nostra/ oblectando reueretur ac intuetur, Fagonum dico et Tournafortium, alt-/erum Reginae Protomedicum nec non hortus regii praefectum, alterum uero/ regium botanicum ac demonstrandarum in Regio horto parisiensi planta-/rum publicum proffessorem. Quasnam, quotque num/ nobis plantas denouo ob oculos ab ipsis met detectas exponet, quibus/ se doctissimis quibusque demirandos demonstrant. Parcant ergo faue-/antque precor rerum perscrutatores diligentissimi ac me Botanicis inse-/rant. Me nec tam patiens Lacedemon, nec tam larissae percussit campus/ opimae quam gelidum nemus plantarumque decor, pro quibus bis patiar/ mori. Uerum enim ut fatear tantus meis exarsit uisceribus rerum/ Botanicarum fervor ut me neque noricus ensis, nec saeuus ignis, nec/ mare naufragum deterreret; dunc audax omnia perpeti uisam brit-/annos hospitibus seros et laetum equino sanguine concanum, uisam/ pharetratos gelonos et scithicum inuiolatus amnem. Non obtusa adeo/ gestamus pectora, casus mihi cogniti tam illustrium uirorum quibus,/ toto post Botanica pectore anhelantibus, nullique parcentibus labori/ dii tandem noua detegenda uendiderunt. Nec mihi nouercari deos cre-/diderim qui pro Botanicis potissimum magnas obeuntia terras tot maria/ intraui, penitusque repostas indorum gentes. Fauete ergo Doctissimi/ quique, meosque labores benigne accipite: fateor equidem tum in/ horto parisiensi, tum in horto malabarico satis spectanda reperiri/ quibus abunde ingeniis uestris satisfiat: attamen unum dicam, suis/ scilicet Americam decorari mirabilibus, aequae ac Europam et Asiam suis. Non pigeat ergo americanos labores perscrutari, licet eadem/ forte quae in hortis parisiensi, scilicet et malabarico uisuntur, conspicia-/tis, noua tamen poteritis demirari, tum florum in planta eiusdem

speciei/ ordinatione, tum foliorum incisuris, ac tandem fructum configuratione/ [2^a] quae quodammodo forte diuersa nouum aliquid oculis uestris demirandum/ subiicient.

Favete ergo Doctissimi uiri, meosque minimos labores / benigne adspicite. Ego namque pro benigno fauore, dum memor / ipse mei, dum spiritus hos reget artus, perque undas, perque inuia / saxa adnabo, ut naturam laboriose euiscerando mirabilia sua oculis / uestris satisfaciendo detegam; nouaque diis auspibus, diuorum et matre / secunda detegendo beneuolentiae uestrae satisfaciam.

Studiorum ac uirtutum uestram cliens humillimus

Fr. Carolus Plumier Minimus.

3. Copies of books with Plumier's ex libris

The library classmarks of the copies listed here are given between brackets.¹

Real Biblioteca, Palacio Real, Madrid

Piso, Willem. *Gulielmi Pisonis medici Amstelaedamensis De Indiae utriusque re naturali et medica libri quatuordecim, quorum contenta pagina sequens exhibet*. Amsterdam: Louis and Daniel Elzevier, 1658. [VIII/15228]

Biblioteca Nacional, Madrid

Worm, Ole. *Museum Wormianum. Seu historia rerum rariorum, tam naturalium, quam artificialium, tam domesticarum, quam exoticarum; quae Hasniae Danorum in aedibus auctoris seruantur. Adornata ab Olao Worm, Med. Doct. & in Regiâ Hasniensi Academiâ, olim Professore publico. Variis & accuratis Iconibus illustrata*. Leiden: Jean Elzevier, 1655. [3/50374]

Biblioteca Histórica Marqués de Valdecilla, Universidad Complutense, Madrid

Scilla, Agostino. *La vana speculazione disingannata dal senso. Lettera risponsiva circa i corpi marini, che petrificati si trovano in variî luoghi terrestri*. Naples: Andrea Colicchia, 1670. [BH MED 2584]

Bibliothèque centrale, Muséum nationale d'histoire naturelle, Paris

Linger, Louis. *La culture parfait des jardins fruitiers et potagers avec des dissertations sur des fausses maxims que plusieurs auteurs on établies jusqu'icy sur la taille des Arbres. Par le Sieur Louis Linger, d'Auxerre*. Paris: Damien Beugnié, 1702. [80 Res 764]

Lauremberg, Peter. *Petri Laurembergii Rostochiensis, Apparatus plantarius primus: Tributus in duos libros. I. De plantis bulbosis. II. De plantis tuberosis. Quibus Exhibentur praeter nomenclaturas, multiplices earum differentiae & species; Vires; Usus tam culinaris quam Medicus: Cultura sive ratio eas plantandi, conservandi, propagandi. Itemque quae Poetae, Philologi, Philosophi, sacrae litterae, &c. de iis memoratu digna annotarunt. Adiuncta sunt plantarum quarumdam novarum nova Iconographiae, & descriptiones*. Frankfurt am Main: Matthäus Merian, [1632] (bound with Faber, *Strychnomania*). [9596-2]

¹ I am very grateful to Fernando Bouza, who found Plumier's copies of Piso's *De Indiae utriusque re naturali et medica* and Worm's *Museum*, and so rightly insisted that I should immerse myself in Spanish libraries in the search of copies of Plumier's books and works with his ex libris.

Faber, Johann Matthäus. *Strychnomania explicans strychni manici antiquorum, vel solani furiosii recentiorum, historiae monumentum, indolis nocumentum, antidote documentum. Quam, occasione stragis, quâ crebritate, quâ celeritate, quâ gravitate mirabiliter noxiferae, ac miserabiliter neciferae, in Ducali Württemberg, sede, quae est Nostadij ad Cocharum, abortae, Año 1667. prid. Kal. Septembris Styl. Jul. Memoriae cautelae, Medelae gr. Public bono dedicat, Johannes Matth. Faber, August. M.D. Sereniss: suae Celsit. ibid. à Consil. Med. atque nunc Imperialis Heilbronnae Poliat. Primar. Augsburg: Theophilus Goebel and Johann Schönig, 1677 (bound with Lauremberg, *Apparatus plantariv primvs*). [9596-2]*

Aristotle. *De historia animalium libri IX. De partibus animalium & earum causis libri IIII. De generatione animalium libri V. Theodoro de Gaza interprete. De communi animalium gressu liber I. De communi animalium motu liber I. Petro Alcyonio interprete. Paris: Simon de Colines, 1524. [Fol Res 98]*

Sibbald, Robert. *Scotia illustrata sive prodromus historiae naturalis in quo regionis, incolarum ingenia & mores, morbi iisque medendi methodus, & medicina indigena accuratè explicantur: et multiplices naturae partus in triplice ejus regno, vegetabili scilicet, animali & minerali per hanc borealem magnae Britanniae partem, quae antiquissimum Scotiae regnum constituit, undiquaque diffusi nunc primum in lucem eruuntur, & varii eorum usus, medici praesertim & mechanici, quos ad vitae cum necessitatem, tum commoditatem praestant, cunctis perspicuè exponuntur: cum figuris aeneis. Opus viginti annorum serenissimi domini regis Caroli. II. magnae Britanniae, &c. monarchae jussu editum. Auctore Roberto Sibbaldo M.D. equite aurato, medico & geographo region, & regii medicorum collegii apud Edinburgum socio. Edinburg: Jacob Knibloe, Joshua Solingensius, John Colmar, 1684. [25 218]*

La Brosse, Guy de. *De la nature, vertu, et utilité des plantes. Divisé en cinq livres. Le I. traite, de l'excellente nature des plantes. Le II. definit & divise les plantes en leurs generales especes, d'autre sorte que celles des anciens, & cherbe leurs vertus. Le III. est un traicté general de la chimie, contenant son ordre & ses parties, monstrât qu'elle est science, qu'elle a des principes & maximes comme les autres sciences; & que mettant la main à l'oeuvre elle est un art tres-excellent, enseignant le moyen de connoistre les qualitez, facultez & vertus des plantes. Le IIII. discours des proprietéz generales des plantes. Le V. est de l'usage generale des plantes. Par Guy de La Brosse, conseiller & medecin ordinaire du Roy. Paris: chez Rollin Baragnes, 1628. [80 Res 1065]*

Bock, Hieronymus. *Hieronimi Tragi, De stirpium, maxime earum, quae in Germania nostra nascuntur, usitatis nomenclaturis, propriisq[ue] differentiis, neq[ue] non temperaturis ac facultatibus, commentariorum libri tres, Germanica primum lingua conscripti, nunc in Latinam conuersi, interprete Davide Kybero Argentinensi. Strasbourg: Wendelin Rihel, 1552. [80 Res 347]*

Belon, Pierre. *De la nature et diuersité des poissons, avec leurs portraits, representez au plus pres du naturel. Par Pierre Belon du Mans. A Monseigneur le Reverendiss. Cardinal de Chastillon. Paris: Charles Estienne, 1555. [80 Res 75]*

Bibliothèque interuniversitaire de Santé, pôle médecine-odontologie, Paris

Caldesi, Giovanni. *Osservazioni anatomiche di Giovanni Caldesi, Aretino, intorno alle tartarughe marittime, d'acqua dolce, e terrestri. Scritte in una lettera all'illustriss. sig. Francesco Redi. Florence: Piero Matini, 1687. [5547]*

Abbreviations

AAE	Archives des Affaires étrangères, La Courneuve
AAS	Archives de l'Académie des sciences, Paris
AN	Archives nationales, Paris
ANOM	Archives nationales d'outre-mer, Aix-en-Provence
Ars.	Bibliothèque de l'Arsenal, BNF, Paris
BCMNHN	Bibliothèque centrale of the Muséum national d'histoire naturelle, Paris
BHMV	Biblioteca Histórica Marqués de Valdecilla, Univesidad Complutense, Madrid
BIF	Bibliothèque de l'Institut de France, Paris
BIUM	Bibliothèque interuniversitaire de Santé, pôle médecine-odontologie, Paris
BL	British Library, London
BMM	Bibliothèque municipale, Marseille
BNE	Biblioteca nacional de España, Madrid
BNF	Bibliothèque nationale de France, Paris
BNF Est.	BNF, Estampes et photographie, site Richelieu, Paris
BNF Mss.	BNF, Département des manuscrits, site Richelieu, Paris
Bodl.	Bodleian Library, Oxford
BR	Biblioteca Real, Madrid
CUL	University Library, Cambridge
LSLA	Linnean Society Library and Archives, London
Maz.	Bibliothèque Mazarine, Paris
MMC	Médiathèque Michel-Crépeau, La Rochelle
NHM	Natural History Museum Library, London
SHDR	Service historique de la Défense, section Sudouest, Rochefort

Works Cited

1. Primary Sources – Manuscript

Aix-en-Provence, Archives nationales d'outre-mer (ANOM)

Correspondence of Governor the count of Blénac. Col. B^{8A} 9, B^{8B} 2.

Secretary of State of the Navy. Departure correspondence, 1645-1715. Col. B¹⁴.

Ancien Regime colonial personnel. Col. E337^{bis}.

La Courneuve, Archives des Affaires Étrangères (AAE)

Mémoire du Père Plumier sur St Domingue, 1690. Mémoires et documents, 5 (Amérique 2), 1661-1690.

La Rochelle, Médiathèque Michel-Crépeau (MMC)

“Catalogus Bibliothecae Begonianaec secundum scientias et artes digestus.” MS 425.

Collection manuscrite A. Bouyer. MS 656.

Copies of correspondence between Charles Plumier and Michel Bégon. MS 867.

London, British Library (BL)

Manuscript copy of the descriptions and drawings of Plumier's *Nova plantarum Americanarum genera*. Add MS 28609.

“C. Plumier. A Description of American Plants. Manuscript English translation of Plumier's Description des plantes de l'Amérique.” Sloane MS 2337.

“Delineationes plantarum Americanarum.” Sloane MS 4017.

Correspondence of Sir Hans Sloane. Sloane MSS 4020, 4036-39, 4059-60, 4062-64, 4067.

London, Linnean Society Library and Archives (LSLA)

“Tracings from unpublished drawings of Plumier in the Library of the Botanic Garden, Oxford.” MS No. 635.

London, Natural History Museum Library and Archives (NHM)

Watercolours and pen-and-ink drawing of plants copied from originals by Plumier. 5 vols. Bauer Unit Shelf H 1-5.

Marseille, Bibliothèque municipale (BMM)

“Flore américaine, redigée en Latin,” or “Icones plantarum.” MS 913.

“Catalogus librorum bibliothecae massiliensis minimorum.” MS 1485.

Oxford, Bodleian Library (Bodl.):

Correspondence of Martin Lister. MS Lister 2, 36-7.

Correspondence of Edward Lhuyd. MS Lister 1829, MS Ashmole 1814-17a.

Paris, Archives de l'Académie des sciences (AAS):

Claude Perrault, "Projet pour les Expériences et observations Anatomiques," *Procès verbaux de l'Académie royale des sciences*, vol. 1: "Registres de physique: 22 décembre 1666-avril 1668," fol. 22-30.

Paris, Archives nationales (AN):

Jardin du roi. Edicts and regulations, 1618-1793. AJ¹⁵ 501.

Jardin du roi. Journeys and missions. AJ¹⁵ 511.

Public Instruction. Minim convent at Place Royale, 1768-1769. F¹⁷ 1096.

Chapter registers of the Minim convent at Place Royale. LL 1566.

"Index generalissimus omnium librorum bibliothecae conventus patrorum minimorum parisiensium. Tom. 2." 1776. LL 1569.

Navy. Orders and dispatches. MAR B2 66.

Letter of the Minister of the King's House to Jean-Paul Bignon on Tournefort's journey to the Levant. O¹ 44, piece 95.

Navy of the West. Dispatches, 1687. O¹ 61.

Navy of the West. Dispatches, January-June 1689. O¹ 69.

Navy of the West. King's orders and dispatches, January-June 1704. O¹ 178.

"Mémoire que Monseigneur a dressé touchant la publication des ouvrages où il y a des planches gravées." 1670. O¹ 1964² cote 2.

Jardin du roi. Royal decisions, edicts, land patents, staff, etc., 1635-1708. O¹ 2124.

Paris, Bibliothèque centrale du Muséum national d'histoire naturelle (BCMNHN)

Exchange of a vellum collection for 37 volumes of drawings by Plumier between the Bibliothèque du roi and the Muséum d'histoire naturelle. AM 612.

Charles Plumier, "Filicetum Americanum seu historia Filicum in insulis Americanis nascentium. Authore Patre Carolo Plumier Ordinis Minimorum Provinciae Franciae. Ab anno 1689 usque annum 1697. Adumbrationes plantarum 197 continet illud volume." MS 1.

Charles Plumier, "Area umbelliferarum Horti Regii Parisiensis, seu plantae umbelliferae quas in Horto Regio demonstrabat Clariss.[imus] D.[ominus] Ios.[ephus] Pitton Tournefort." MS 16.

Charles Plumier, "Hortus Botanicus ex singularis plantarum generibus ad leges Institutionum Rei Herbariae constitutes singulari ex vulgatori specie consitus. Area prima . . . anno s. 1702. . . . Area secunda . . . An.[no] D.[omini] 1703. 1704." MSS 17-18.

Charles Plumier, "Solum, salum, coelum Americanum, seu plantarum, piscium, volucrumque Insulis Antillanis et Sandominicana naturalium icones et descriptiones." MS 23.

Drawings of fishes, birds, lizards, snakes and insects by Plumier. MS 24.

Charles Plumier, "Conchilia Americana. Authore Patre Carolo Plumier Minimo." MS 26.

Charles Plumier, "Ornithographia Americana, quadrupedia et volatilia continens. Authore R. Patre Carolo Plumier Ordinis Minimorum Provinciae Franciae et Botanico Regio." MS 27.

- Drawings of birds by Plumier. MS 29.
- Drawings of “tetrapods” by Plumier. MS 30.
- Drawings of fishes and shells by Plumier. MS 31.
- Diverse notes by Plumier. MS 33.
- Charles Plumier, “De naturalibus Antillarum, Authore Patre Carolo Plumier Ordinis Minimorum Provinciae Provencae. Tomus primus.” MS 35.
- “Herbier d’Amérique, du Père Plumier.” Colored drawings on velum. MS 37.
- Joseph Pitton de Tournefort, “Demonstrations de botanique.” MS 76.
- “Dissections de divers poissons faites sur les costes de France pendant les années 1679 et 1680.” MS 224.
- Tournefort’s register: catalog of his books, of his collection of portraits, state of his linen, expenses from his journey to Spain in 1687, list of plants, list of seeds sent to Portugal, Strasbourg, Montpellier, Siam, etc., names and addresses of his correspondents, etc. MS 253.
- “Description des plantes de l’Amérique par le Père Le Breton, avec une lettre de ce Religieux.” MS 667.
- Observations on American plants, with figures, by Adrien Le Breton, S.J. MS 668.
- Botanical descriptions made in Egypt by Augustin Lippi, and letters from him to Fagon. 1704. MS 944.
- Joseph Pitton de Tournefort, “Journal de botanique du Levant,” with letters from him. MS 998.
- Bernard de Jussieu, “Motifs et plan de l’édition [in-4°] d’un ouvrage manuscrit de botanique, du R.P. Plumier, très intéressant pour la perfection de cette science.” MS 1176.
- Botanical descriptions made in Egypt by Augustin Lippi, with figures. MS 1299.
- Sébastien Vaillant, “Journal du voyage que j’ay fait, avec Mr Danty d’Isnard, sur les costes de Normandie, pour la recherche de plantes, par l’ordre de Mr Fagon.” MS 1346.
- “Tableau élémentaire de botanique.” MS Jus 30/58.
- Paris, Bibliothèque de l’Arsenal, BNF (Ars.)*
- Plumier’s notes, abridgements, and excerpts from Tournefort’s *Éléments de botanique* and Bourdon’s *Nouvelle description anatomique*. MS 2502.
- “Descriptions des plantes de l’Amérique.” Manuscript draft of the images and texts in the printed book. MS 2875.
- “Index generalissimus omnium librorum bibliothecae conventûs partrum minimorum parisiensium. Tom. I.” 1730. MS 6203.
- Paris, Bibliothèque de l’Institut de France (BIF)*
- “Historia plantarum per Americas insulas, annis 1689-1697 observatarum a R. P. Car. Plumier.” MS 979.
- Charles Plumier, “Americanarum plantarum icones.” 3 vols. MS 980-2.

Aubert Aubert du Petit-Thouars. “Flore des Îles de France et Bourbon. Ptérogaphie ou description et histoire des fougères qui croissant dans ces îles, consacrée à la mémoire du R. P. Plumier, qui le premier a porté la lumière dans cette famille intéressante.” MS 1824.

“Lettre des Minimes de la Trinité-du-Mont à Louis XIII lui demandant sa protection,” 1620. MS Fonds Godefroy 268.

Paris, Bibliothèque Mazarine (Maz.)

“Catalogue de la bibliothèque des Minimes Place Royale.” MS 4146.

“Catalogue alphabétique pour la bibliothèque de RR.PP. Minimes de la Place Royale, dont les livres doivent se trouver un jour rassemblez dans un seul vaisseau, selon l’ordre que l’on va marquer, et qui se trouvent maintenant dispersez selon le même ordre, sous le titres suivants.” 1722. MS 4147.

“Catalogue alphabétique des différents auteurs et pièces différentes qui se trouvent relies ensemble dans nos recueils, sous différentes lettres fait par l’ordre du Reverend Pere Provinciale en 1725.” Alphabetical catalog of the library of the Minim convent in Place Royale. MS 4148.

“Index generalissimus omnia librorum bibliothecae conventus partrum minimorum Parisiensium. Tom. III.” 1776. MS 4149.

“Catalogue de la bibliothèque du couvent des Minimes à la Place Royale.” MS 4150.

Paris, BNF, Département des Estampes et photographie (BNF Est.)

Collection of 47 engravings of ferns and other plants. Ad-3-Pet. Fol.

Collection of plates from Filippo Bonanni’s *Ricreatione dell’occhio e della mente* (some of them coloured) with Plumier’s comments and some additional manuscript drawings. JB-68-4.

“Catalogue en forme d’inventaire du cabinet d’estampes de Mr Bégon, acquis par le roy le 23 avril 1770.” Ye-25-4.

“Catalogue de portefeuilles du père Plumier remis en 1767 au garde des Estampes du Roi.” Réserve Ye-27-Pet. Fol.

Paris, BNF, Département des Manuscrits (BNF Mss.)

Papers of Jean-Paul Bignon. Français 22225, 22229.

Collection of manuscript images of plants attributed to Plumier. Latin 18497.

“Annales de l’ordre des Religieux Minimes, et en particulier de la Province de France, où se trouve l’abrégé de la vie de St François de Paul son Fondateur, les généraux de l’ordre, les vingt huit couvents de la Province de France, les Provinciaux qui les ont gouvernées, et en particulier les Mémoires chronologiques du Convent des Minimes de Paris, ou de la Place Royale, par le fr. J. F. D. R. M.,” 1758. MS 23126.

2. Primary Sources – Printed

A Catalogue of the Botanical and Natural History Part of the Library of the Late John, Earl of Bute. Including his Lordship’s Noble Collection of Coloured Drawings in Natural History. London: printed by the authors, 1794.

- Acosta, José. *Histoire naturelle et morale des Indes, tant Orientales qu'Occidentales. . . . Composé en Castillan par Joseph Acosta, & traduite en François par Robert Regnault Cauchois*. Paris: chez Marc Orry, 1606.
- Bacon, Francis. *The Essayes or Counsels, Civill and Morall, of Francis Lo. Verulam, Viscount of St. Alban. Newly Written*. London: printed by John Haviland for Hanna Barret, and Richard Whitaker, 1625.
- . *The Works of Francis Bacon*. Edited by James Spedding, Robert L. Ellis, and Douglas D. Heath, 14 vols. London: Longmans, 1857-74.
- Baudelot de Dairval, Charles César. *De l'utilité des voyages et de l'avantage que la recherche des antiquitez procure aux sçavans*, 2 vols. Paris: chez Pierre Ausoïn et Pierre Emery, 1696.
- Bauhin, Gaspard. *ΦΙΤΟΠΙΝΑΞ [Phytopinax] seu enumeratio plantarum ab Herbarijs nostro seculo descriptarum, cum earum differentijs*. Basel: per Sebastianum Hericpetri [1596].
- . *Theatrum anatomicum novis figuris aeneis illustratum et in lucem emissum opera & suptibus Theodori de Bry p. m. relicta vidua & filiorum Ioannis Theodori & Ioannis Israelis de Brji*. Frankfurt: typis Matthaei Beckeri, 1605.
- . *Catalogus plantarum circa Basileam spontè nascentium cum earumdem Synonymiis & locis in quibus reperiuntur*. Basel: Johan Jacobi Genathii, 1622
- . *Πίναξ [Pinax] Teatri Botanici Caspari Baubini Basileens. Archiatri & Professoris Ordin. sive Index in Theophrasti Dioscoridis Plinii et Botanicorum qui à seculo scripserunt opera: Plantarum circiter ex millium ab ipsis exhibitatarum nomina cum earundem synonymiis & diferentiis*. Basel: suptibus & typis Ludovici Regis, 1623.
- Belon, Pierre. *Les observations de plusieurs singularités et choses memorables, trouvées en Grece, Asie, Indée, Egypte, Arabie, & autres pays estranges, redigées en trois livres*. Paris: en la boutique de Gilles Corrozet, 1553.
- . *L'histoire de la nature des oyseaux, avec leurs descriptions, & naijs portraits retirez du naturel*. Paris: en la boutique de Gilles Corrozet, 1555.
- . *La nature & diversité des poissons, avec leur pourtraicts, representez au plus pres du naturel*. Paris: chez Charles Estienne, 1555.
- Bianchini, Francesco. *La istoria universal provata con monumenti e figurate con simboli degli antichi*. Rome: stampata à spese dell'Autore nella Stamperia di Antonio di Rossi, 1697.
- Blegny, Nicolas. See Abraham du Pradel.
- Bloch, Marcus Elieser. *Histoire naturelle des poissons, avec les figures dessinées d'après nature*. 10 vols. Paris: Imprimerie de Crapelet, 1800.
- Blois, Théodore de. *Histoire de Rochefort, contenant l'établissement de cette ville, de son port et arsenal de marine, et les antiquitez de son château*. Paris: chez Briasson, 1733.
- Bonanni, Filippo. *Observationes circa viventia, quae in rebus non viventibus reperiuntur. Cum micrographia curiosa sive rerum minutissimarum observationibus, quae ope microscopii recognitae ad vivum exprimuntur*. Rome: Typis Dominici Antonii Herculis, 1691.
- . *Ricreatione dell'occhio e della mente nell'osservation' delle chiocciolate, proposta à curiosi delle opere della natura dal P. Filippo Buonanni dell Compagnia di Giesù. Con quattrocento, e cinquanta figure di testacei diversi, sopra cui si spiegano molti curiosi problemi*. Rome: per il Varese, a spese di Felice Cesaretti, 1691.

- . *Numismata summorum pontificum templi vaticani fabricam indicantia. Chronologica ejusdem fabricae narratione, ac multipli eruditione explicata, atque uberiori numismatum omnium pontificiorum lububrationi vleit prodromus praemisa.* Rome: sumptibus Felicis Caesaretti, & Peribeni, typis Dominici Antonii Herculis, 1696.
- . *Musaeum Kircherianum sive musaeum a P. Athanasio Kirchero In Collegio Romano Societatis Jesu jam pridem incoeptum nuper restitutum, auctum, descriptum, & Ionibus illustratum.* Rome: Typis Giorgii Plachi, 1709.
- Borch, Ole. *Hermetis, Aegyptiorum, et chemicorum sapientia ab Hermanni Conringii animadversionibus vindicata.* Copenhagen: sumptibus Petri Hauboldi, Reg. Acad. Bibl., 1674.
- Bosse, Abraham. *Traicté des manières de graver en taille-douce sur l'airin.* Paris: chez ledit Bosse, 1645.
Reedited as *De la manière de graver à l'eau forte et au burin.* Paris: Charles-Antoine Jombert, 1745.
- Bourdon, Amé. *Nouvelles tables anatomiques. Ou son représentées au naturel toutes les parties du Corps humain, toutes les nouvelles découvertes, le cours de toutes les humeurs, les lieux où elles déposent leurs excréments. On y a joint un petit livre qui en fait la description et en explique clairement les Usages, avec ordre et en peu de mots. Le tout desiné et compose par Amé Bourdon, medecin.* Cambrai: chez l'auteur; Paris: chez Laurens d'Houry, 1678.
- . *Nouvelle description anatomique de toutes les parties du corps humain, & de leurs usages, avec le cours de toutes les humeurs. Sur le principe de la circulation, & conformément aux nouvelles découvertes. Le tout représenté au naturel sur plusieurs grandes Tables, réduit en un tres-bel ordre, expliqué en peu de mots, & d'une manière tres-lisible.* Paris: de l'Imprimerie de Jacques Langois, 1679.
- Boyle, Robert. "General Heads for a Natural History of a Countrey, Great or small, imparted likewise by Mr. Boyle." *Philosophical Transactions* 1 (1665): 186-9.
- . *The correspondence of Robert Boyle*, edited by Michael Hunter, Antonio Clericuzio and Lawrence M. Principe. London: Pickering & Chatto, 2001.
- Brice, Germain. *Description nouvelle de la ville de Paris, ou recherché curieuse des choses les plus singulières & les plus remarquables qui se trouvent à present dans cette grande ville*, 2 vols. Paris: Nicolas Le Gras, Nicolas Le Clerc, Barthelemy Girin, 1698.
- Burton, Robert. *The Anatomy of Melancholy.* 1621. 3 vols. New York: Sheldon and Company, 1862.
- Caldessi, Giovanni. *Osservazioni anatomiche di Giovanni Caldessi Aretino intorno alle tartarughe marittime, d'acqua dolce, e terrestre. Scritte in una lettera all'illustriss. sig. Francesco Redi.* Florence: per Piero Matini, 1687.
- Catalogue de feu M. Danty d'Isnard, Medecin, Ancien Professeur Royal des Plantes au Jardin du Roy; & de l'Académie royale des sciences.* Paris: Gabriel Martin, 1744.
- Catalogue des livres de feu M. Bellanger, Trésorier general du Sceau de France.* Paris: Gabriel and Claude Martin, 1740.
- Catalogue des livres de feu M. Giraud de Moucy.* Paris: Barrois, 1753.
- Catalogue des livres de feu M. Imbert, ecuyer et premier apothicaire du corps du roi.* Paris: Dvaidts, 1763.
- Catalogue des livres de feu M. le comte d'Autry.* Paris: Gabriel Martin, 1750.
- Catalogue des livres de la bibliothèque de feu C. L. L'Héritier de Brutelle.* Paris: chez Guillaume Debure, l'ainé, 1802.
- Catalogue des livres rares de Mr Le Camus de Limare.* Paris: Guillaume de Bure, fils aîné, 1786.

- Clusius, Carolus. *Rariorum plantarum historia*. Antwerp: Officina Plantiniana, 1601.
- . *Exoticorum libri decem*. Leiden: Officina Plantiniana, 1605.
- Colbert, Jean-Baptiste, *Lettres, instructions et mémoires de Colbert. Publiés d'après les ordres de l'empereur sur la proposition de son excellence M. Magnet, ministre secrétaire d'État des finances*. Edited by Pierre Clément. 8 vols. in 10. Paris: Imprimerie impériale, 1861-82.
- Commelin, Jan. *Catalogus plantarum indigenarum Hollandiae*. Amsterdam: H. & viduam T. Boom, 1683.
- Coronelli, Vincenzo. "Dell'Utilità de' Viaggi, e XX. Precetti per i Giovini, che gli entraprendono." In *Viaggi del P. Coronelli, Parte Prima*, 1-16. Venice: per Giovan Battista Tramontino, 1697.
- Costa, Cristóvão da. *Tractado de las drogas, y medicinas de las Indias orientales, con sus plantas debuxadas al bivo por Christoval Acosta medico y cirujano que las vio ocularmente*. Burgos: por Martín de Victoria, 1578.
- Cotgrave, Randle. *A Dictionarie of the French and English Tongues*. London: printed by Adam Islip, 1611.
- Cuvier, Georges. "Sur les différentes espèces de crocodiles vivans et sur leurs caractères distinctifs." *Annales du Muséum national d'histoire naturelle, par les professeurs de cet établissement* 10 (1807).
- . *Histoire des sciences naturelles, depuis leur origine jusqu'à nous jours, chez tous les peuples connus, professé au Collège de France*, ed. Magdelaine de Saint-Agy, 5 vols. Paris: Fortin, Mason, et Cie. Libraires, 1841-5.
- Cyrano de Bergerac, Savinien de. *The Comical History of the States and Empires of the Worlds of the Moon and Sun*. Translated by A. Lovell. London: Henry Rhodes, 1687.
- Daléchamps, Jacques. *Historia generalis plantarum*. Lyon: apud Guglielmuum Rovillum, 1586.
- Defoe, Daniel. *An Essay on the Regulation of the Press*. London: n. p., 1704.
- Defournier, Esprit. *Discours des admirables qualitez et vertus des eaux minérales retrouvées dans le terroir de la ville de Baignolx. . . Distillées par le Ministère de F. Jean Germain, religieux de l'ordres des Minimes*. Lyon: Louys Odin, 1636.
- "Décret portant suppression de toutes les académies & sociétés littéraires, pattendées ou dotées par la nation." August 8, 1773. In *Collection générale des décrets par la Convention nationale . . . Août 1793*, 56-7. Paris: Baudoin, 1793.
- Description anatomique d'un caméléon, d'un castor, d'un dromadaire, d'un ours, et d'une gazelle*. Paris: chez Frédéric Léonard, 1669.
- Dezallier d'Argenville, Antoine-Joseph. *L'histoire naturelle éclaircie dans deux de ses parties principales, la litbologie et la conchyliologie, dont l'une traite des pierres et l'autre des coquillages*. Paris: chez Du Bure l'Ainé, 1742.
- Dictionnaire de la Provence et du Comté-Venaisin . . . par une société de gens de lettres*. Marseille: Jean Mossy, Pere & Fils, 1787.
- Dictionnaire des monogrammes chiffrés, lettres initiales, logogryphes, rébus, &c. sous lesquels les plus célèbres peintres, graveurs & dessinateurs ont dessiné leurs noms*. Paris: Sébastian Jorry, 1750.

- Diderot, Denis, and Jean le Rond d'Alembert. *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*. The ARTLF Encyclopédie, <http://encyclopedie.uchicago.edu>.
- Dillenius, Johann Jakob. *Catalogus plantarum sponte circa Gissam nascentium*. Frankfurt-am-Main: J. Maximilianum à Sande, 1719.
- . *Hortus Elthamensis*. London: sumptibus auctoris, 1732.
- Dionis, Pierre. *L'anatomie de l'homme suivant la circulation du sang, & les dernières découvertes*. Paris: chez Laurent d'Houry, 1690.
- "Directions for Sea-Men, Bound for Far Voyages." *Philosophical Transactions* 1 (1665): 140-3. Translated into French as "Extrait du journal d'Angleterre, contenant des instructions pour ceux qui ont à faire de long voyages sur mer." In *Journal des sçavans*, 193-6. Paris: chez Jean Cusson, 1666.
- Dodart, Denis. *Mémoires pour servir à l'histoire naturelle des plantes*. Paris: de l'Imprimerie royale, 1676.
- Du Laurens, André. *Discorsi della conservation della vista, delle malattie melanconiche, delli catarri, e della vecchiaia, composti in lingua franceses dal sig. Andrea Lorenzo, medico fisico. . . . Tradotti in lingua italiana, e commentate, da Fr. Gio. Germano*. Naples: per Lazzaro Scorigio, 1624.
- . *Historia anatomica humani corporis et singularum eius partium multis controversis & observationibus novis illustrata*. Frankfurt: apud Matthaeum Bekerum impensis Theodorici de Bry viduae et duorum filiorum, [1599?]. Translated by François Sisé as *Histoire anatomique, en laquelle toutes les parties du corps humain sont amplement déclarées: enrichie de controverses & observations nouvelles*. Lyon: Simon Rigaud, [1631].
- Du Tertre, Jean-Baptiste. *Histoire générale des isles de S. Christophe, de la Guadeloupe, de la Martinique et autres dans l'Amérique*. Paris: chez Jacques Langlois et Emmanuel Langlois, 1654.
- . *Histoire générale des Antilles habitées par les François*. 3 vols. Paris: chez Thomas Jolly, 1667-71.
- Ellis, John. *An Essay Towards a Natural History of the Corallines* (London: printed for the author, and sold by A. Millar, 1755).
- "Eulogio di P. Filippo Buonanni." *Giornale de' letterati d'Italia* 37 (1725): 360-88.
- Extrait d'une lettre écrite à Monsieur de La Chambre, qui contient les observations qui ont été faites sur un grand poisson dissequé dans la bibliothèque du roy, le ving-quatrième juin 1667 [with Observations qui ont été faites sur un lion dissequé dans la bibliothèque du roy, le ving-huictième juin 1667. Tirées d'une lettre à Monsieur de La Chambre]*. Paris: chez Frédéric Léonard, 1667.
- [Fernández de Oviedo y Valdés, Gonzalo.] *La Historia general de las Indias con privilegio real*. [Seville: Juan Cromberger, 1535].
- Feuillée, Louis. *Journal des observations physiques, mathématiques, et botaniques*, 3 vols. Paris: chez Pierre Giffart, 1714-1725.
- Fontenelle, Bernard Le Bovier. "Éloge de M. de Tournefot." In *Histoire de l'Académie royale des sciences. Année MDCCVIII*, 143-54. Paris: par la Compagnie des Libraires, 1708.
- Furetière, Antoine. *Dictionnaire universel, contenant généralement tous les mots françois, tant vieux que modernes, & les termes de toutes les sciences et les arts*. 3 vols. The Hague and Rotterdam: chez Arnout & Reinier Leers, 1690. 2nd edition, 1701.
- Garidel, Pierre-Joseph. *Histoire des plantes qui naissent aux environs d'Aix, et dans plusieurs autres endroits de la provence*. Aix-en-Provence: Joseph David, 1715.

- Germain, Jean. *Breve e sustantiale trattato intorno alle figure anatomiche delli piu principali Animali terrestri, Aquatili, et Volatili, con la simpatia et convenienza che hanno, o in parte, on in tutto, con il corpo humano con maturi et succinti discorsi dalle loro naturali proprietà di Geroglifici, et moralità piu curiosi, cavati. Composto da F. Gio. Germano Frãcese Medico Chirurgico, et al presente Religioso minimo del ordine di S. Francisco di Paola*. Naples: per Domenico Maccarino, 1625.
- . *La parfaite quint-essence de la chirurgie reduite en cinq parties*. Lyon: chez Simon Rigaud, 1630.
- Gessner, Conrad. *Catalogus plantarum Latinè, Graecè, Germanicè, & Gallicè*. Zurich: apud Christoph. Froschouerum, 1542.
- Grew, Nehemiah. *The Anatomy of Plants. With an Idea of a Philosophical History of Plants*. London: printed by W. Rawlins, for the Author, 1682. Translated by Louis Le Vasseur as *Anatomie des plantes qui contiennent une description exacte de leurs parties & de leurs usages, & qui fait voir comment elles se forment, & comment elles croissant*. Paris: Lambert Roulland, 1675.
- . *The Comparative Anatomy of Trunks, Together with an Account of their Vegetation grounded thereupon; in Two Parts*. London: printed by J. M. For Walter Kettilby, 1675.
- . *Musaeum Regalis Societatis. Or A Catalogue & Description of the Natural and Artificial Rarities Belonging to the Royal Society*. London: printed by W. Rawlins, for the Author, 1681.
- Hermann, Paul. *Schola botanica, sive Catalogus plantarum*. Amsterdam: apud Henricum Wetstenium, 1689.
- . *Paradisus Batavus: continens plus centum plantas affabrè aere incisas & descriptionibus illustratas*. Leiden: apud Abrahamum Elzevier, 1698.
- Histoire de l'Académie royale des sciences, année 1700. Avec les Memoires de Mathematiques & de Physique, pour la même année. Tirés des Registres de cette Academie*. Paris: apud Joannem Boudot, 1703.
- Hooke, Robert. *Micrographia: or some physiological descriptions of minute bodies made by magnifying glasses*. London: printed by Jo. Martyn and Jo. Allestry, 1665.
- Labat, Jean-Baptiste. *Nouveau voyage aux isles de l'Amérique, contenant l'histoire naturelle de ces pays, l'origine, les mœurs, la religion & le gouvernement des habitans anciens & modernes*. 6 vols. La Haye: chez P. Husson, T. Johnson, P. Gosse, J. van Duren, R. Alberts, & C. Le Vier, 1724.
- Lavoisier, Antoine-Laurent de. "Seconde lettre de Lavoisier au Comité d'Instruction Publique," Paris, 10 August 1793, in *Procès verbaux du Comité d'Instruction publique de la Convention Nationale*, ed. M. J. Guillaume, vol. 2. Paris: Imprimerie Nationale, 1894: 314-17.
- Le Clerc, Jean. "Monsieur Le Clerc's Character of Mr Lock's Method with his Advice about Use of Common-places." In John Locke, *A New Method of Making Common-Place-Books*. London: printed for J. Greenwood, 1706.
- Le dictionnaire de l'Académie françoise, dédié au Roy*, 2 vols. Paris: chez la veuve de Jean Baptiste Coignard, et chez Jean Baptiste Coignard, 1694.
- Leibniz, Gottfried Wilhelm. *Oeuvres de Leibniz, publiées pour la première fois d'après les manuscrits originaux*, edited by Louis-Alexandre Foucher de Careil, vol. 1. Paris: Librairie de Firmin Didot Frères, Fils et Cie., 1859.
- Leméry, Nicolas. *Traité universel des drogues simples, mises en ordre alphabétique*. Paris: chez Laurent d'Houry, 1698.
- Linnaeus, Carl. *Genera plantarum eorumque characteres naturales secundum numerum, figuram, situm, & proportionem omnium fructificationes partium*. Leiden: apud Conradum Wishoff, 1737.

- . *Sytema naturae, per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis*. 10th ed. 2 vols. Stockholm: Impensis Direct. Laurentii Salvii, 1758.
- . *A Selection of the Correspondence of Linnaeus, and Other Naturalists, from the Original Manuscripts*. Edited by James Edward Smith. 2 vols. London: Longman, Hurst, Rees, Orme, and Brown, 1821.
- . *The "Critica Botanica" of Linnaeus*. Translated by Arthur Hort. London: Ray Society, 1938.
- . *The Linnaean Correspondence*. <http://linnaeus.c18.net>.
- Lister, Martin. *A Journey to Paris in the Year 1698*. London: printed for Jacob Tonson, 1699.
- Mabillon, Jean. *Traité des études monastiques*. Paris: chez Charles Robustel, 1691.
- Magnol, Pierre. *Botanicum Mospeliense. Sive plantarum circa Mospelium nascentium index. In quo plantarum nomina meliora seliguntur: loca, in quibus plantae spontè adolescent, tum à prioribus Botanicis, tum ab Authore observata indicantur: & praecipuae facultates traduntur*. Montpellier: ex officina Danielis Pech, 1686.
- Maignan, Emmanuel. *Perspectiva horaria, sive de horographia gnomotica tum theoretica, tum practica libri quatuor*. Rome: Philippi Rubei, 1648.
- Malpighi, Marcello. *Anatome plantarum*, 2 vols. London: impensis John Martyr, Regiae Societatis Typographi, 1675.
- Marcgraf, Christian. "The Biography of Georg Marcgraf (1610-1643/4) by his brother Christian, translated by James Petiver." Edited by P. J. P. Whitehead. *Journal of the Society for the Bibliography of Natural History* 9, no. 3 (1979): 301-14.
- [Marcgraf, Georg, and Willem Piso.] *Historia naturalis Brasiliae, auspicio et beneficio illustriss. I. Mauritii Com. Nassau illius provinciae et maris summi praefecti adornata, in qua non tantum plantae et Animalia, sed et indigenarum morbi, ingenia et mores describuntur et iconibus supra quingentas illustrantur*. Leiden: apud Franciscum Hackium; Amsterdam: apud Lud. Elzevirium, 1648.
- Mariette, Pierre-Jean. *Abecédario de P. J. Mariette et autres notes inédites de et auteur sur les arts et les artistes*, 2nd ed. Paris: J. B. Dumoulin, 1858-1859.
- Ménéstrier, Claude-François. *Les recherches du blason. Seconde partie de l'usage des armoires*. Paris: chez Estienne Michallet, 1673.
- Mentzel, Christian. Πίναξ Βοτανώνυμος Πολύγλωσσος Κατολικός [Pinax Botanonymos Polyglottos Katholikos] *Index nominum plantarum universalis*. Berlin: Officina Rungiana, 1682.
- Molière. *Le malade imaginaire*. 1673. In *Oeuvres complètes*, edited by Georges Couton. Paris: Gallimard, 1988.
- Molinet, Claude du. *Le cabinet de la bibliothèque de Sainte Genevieve*. Paris: chez Antoine Dezallier, 1692.
- Montfaucon, Bernard de. *Diarium italicum. Sive monumentorum veterum, bibliothecarum, musaeorum, &c. Notitiae singulares in itineraio collectae, additis schematibus ac figuris*. Paris: apud Joannem Anisson Typographiae Regiae Praefectoum, 1702.
- . *L'antiquité expliquée et représentée en figures*. 10 vols. Paris: chez Florentin Delaulne, Hilaire Foucault, Michel Clousier, Jean-Geoffroy Nyon, Etienne Ganeau, Nicolas Gosselin, et Pierre-François Giffart, 1710. Translated by David Humphreys as *Antiquity explained, and represented in sculptures, by the learned father Montfaucon*. 5 vols. London: printed by J. Tonson and J. Watts, 1721-2.

- Morison, Robert. *Plantarum umbelliferarum distributio nova, per tabulas cognationis et affinitatis ex libro Naturae observata & detecta*. Oxford: E Theatro Sheldoniano, 1672.
- Nadal, Jerónimo. *Evangelicae historiae imagines: ex ordine Evangeliorum quae toto anno in missae sacrificio reicantur in ordinem temporis vitae Christi digestae*. Antwerp: n.p. 1593.
- . *Adnotationes et meditationes in evangelia quae in sacrosanto missae, sacrificio toto anno leguntur; cum evangeliorum concordantia historiae integritati sufficienti*. Antwerp: excudebat Martinus Nutius, 1595.
- Nicéron, Jean-François. *La perspective curieuse, ou magie artificielle des effets merveilleux de l'optique, par la vision directe; la catoptrique, par la reflexion des miroirs plats, cylindriques & coniques; la dioptrique, par la refraction des cristaux*. Paris: chez Pierre Billaine, 1648.
- [Noël, François, and Joseph Planche.] *Éphémérides politiques, littéraires et religieuses*. 3rd ed. Paris: chez Le Normant et H. Nicolle, 1812.
- Orta, Garcia da. *Colóquios dos simples e drogas e cousas mediçinais da India*. Goa: por João de Endem, 1563.
- Perrault, Charles. *Les hommes illustres qui ont paru en France pendant le XVII^e siècle*. 2nd ed. 2 vols. Paris: chez Antoine Dezallier, 1701.
- [Perrault, Claude, ed.] *Mémoires pour servir à l'histoire naturelle des animaux*. Paris: de l'Imprimerie royale, 1671. Translated [by Alexander Pitfield] as *Memoir's for a Natural History of Animals, Containing the Anatomical Description of Several Creatures Dissected by the Royal Academy of Sciences at Paris*. London: printed for John Clarke, 1701.
- Perrault, Claude. *Essais de physique, ou recueil de plusieurs traitéz touchant les choses naturelles*. Paris: chez Jean Baptiste Coignard, 1680.
- Petiver, James. *Musei Petiveriani centuria prima, rariora naturae*. London: ex officina S. Smith & B. Walford, 1695.
- . "A Catalogue of Some Guinea-Plants, with Their Native Names and Virtues." *Philosophical Transactions* 19 (1695-1697): 677-86.
- . *Brief Directions for the Easie Making, and Preserving Collections of all Natural Curiosities*. London: n.p. [1709?]
- . *Pteri-graphia Americana icones continens plusquam 400 filicum variarum specierum. Viz. Arborescentes, scandentes, spinosas, floriferas, aliasque perraras; nec non muscos, lichenes, fungos, corallia, spongas, aliaque animalia ferè omnia ex insulis nostris Charibbaeis viz Antego Barbados, St. Christophers, Nevis, Jamaica, & figuris Aenaeis, Folio incis. XX Tabulis. A Jacopo Petiver, Soc. Regal. S. Lond. [London: n. p., 1712].*
- . *Jacobi Pettiveri Opera, Historia Naturalem Spectantia: Containing Several Thousand Figures of Birds, Beasts, Fish, Reptiles, Insects, Shells, Corals, and Fossils*. London: printed for John Millan, 1767.
- Piazza, Carlo Bartolomeo. *Euseuologio romano*. Rome: Felice Cefaretti et Paribeni, 1698.
- Piganiol de la Force, Jean-Aymar. *Description de Paris, de Versailles, de Marly, de Meudon, de S. Cloud, de Fontainebleau, et de toutes les autres belles maisons & châteaux des environs de Paris*, 10 vols. Paris: chez Charles-Nicolas Poirion, 1742.
- Piso, Willem. *Indiae utriusque re naturali et medica libris quatuordecim. Quorum contenta pagina sequens exhibirent*. Amsterdam: apud Ludovicum et Danielem Elzeverios, 1658.
- Pliny, *Natural History*. Edited and translated by W. H. S. Jones, vol. 7. London: Heinemann, 1966.

- Plukenet, Leonard. *Almagestum botanicum, sive phytographiae Plukenetianae onomasticon method syntheticâ digestum*. London: Sumptibus autoris, 1696.
- Plumier, Charles. *Description des plantes de l'Amérique avec leurs figures*. Par le R. P. Charles Plumier, Religieux Minime. Paris: de l'Imprimerie royale, 1693.
- . *L'art de tourner, ou de faire en perfection toutes sortes d'ouvrages au tour. Dans lequel outre les principes & élémens du Tour qu'on y enseigne méthodiquement pour tourner tant de bois, l'ivoire &c. que le fer & tous les autres métaux, on voit encore plusieurs belles machines à faire des Ovals, tant simples que figures de toutes grandeurs; la maniere de tourner le globe parfait, le rampante, l'excentrique, les pointes de diamant, les facettes, le panier ou ébiquier, la couronne ondoyante, la rose à raiseau, les manches de couteaux façon d'Angleterre, les ovaires, la torse à jour ondée & goderonnée, les globes concentriques, la massué à pointes, les tabatieres barlongues de toutes figures, le baton rompu, les cannelures, les écailles &c. & généralement toutes les methodes les plus secretes de cet art, avec la disposition des Tours, etc. Ouvrage tres curieux, et tres necessaire à ceux qui s'exercent au Tour. Composé en François & en Latin en faveur des Etrangers, & enrichi de près de quatre-vingt Planches*. Par le R. P. Charles Plumier, Religieux Minime. Imprimé à Lion, & se vend à Paris: chez Jean Jombert. Reedited as *L'art de tourner, ou de faire en perfection toutes sortes d'ouvrages au tour dans lequel, outre les principes & les élémens du Tour qu'on y enseigne pour Tourner tant le bois & l'ivoire, que le fer & les autres métaux, on voit encore plusieurs belles Machines à fiare des Ovals, tant simples que figurées, de toutes grandeurs; la maniere de Tourner le globe parfait, le rampant, l'excentrique, les pointes de diamant, les facettes, le panier ou ébiquier, la couronne ondoyante, la rose à raiseau, les manches de couteaux façon d'Angleterre, les ovaires, la tourse à jour ondée & goderonnée, les globes concentriques, la massué à pointes, les tabatieres barlongue de toutes figures, le bâton rompu, les canelures, les écailles, &c. & généralement toutes les méthodes les plus secretes de cet Art. Ouvrage très-curieux et très-necessaire à ce qui s'exercent au Tour. Composé en François & en Latin en faveur des Etrangers, & enrichi de quatre-vingt Planches*. Par le R. P. Charles Plumier, Religieux Minime. Nouvelle edition, corrigée & augmentée. Paris: chez Charles-Antoine Jombert, 1749. Translated as *Die Kunst zu dreheln, oder alle Arten von Arbeit auf der Drehbank vollkommen zu verfertigen, ehemals in französischer und lateinischer sprache vom brn. P. Carl Plümier, aus dem Orden der Minimien, abgefaßt, nun neben der französischen Urschrift mit einer deutschen Uebersetzung, einigen Anmerkungen, Zusätzen und Kupfern vermehrt herausgegeben von einem Liebhaber der Drehkunst. Mit vier und achtzig Kupfertafeln*. Lepizig: verlegts Bernhard Christoph Breitkopf und Sohn, 1776.¹
- . *Filicetum Americanum, seu filicum, polypodiorum, adiantorum, &c. in America nascentium, icones*. Paris: E Typ. Regia, 1703.
- . *Nova plantarum Americanarum genera. Authore P. Carolo Plumier Ordinis Minimorum in Provincia Franciae, & apud Insulas Americanas Botanico Regio*. Paris: apud Joannem Boudot, 1703.
- . “Réponse du P. C. Plumier Minime, à une lettre de Mr Baulot écrite de la Rochelle.” In *Mémoires pour l'Histoire des Sciences & des beaux Arts. Recueillis par l'Ordre de Son Altesse Sérénissime Monseigneur Prince Souverain de Dombes. Septembre 1702*, 112-128. Trévoux: de l'Imprimerie de S. A. S. à Trévoux, et se vendent à Paris, chez Jean Boudot, 1704.
- . “Réponse du R. P. Plumier à diverses questions d'un Curieux sur le Crocodile, sur le Colubri, & sur la Tortuë.” In *Mémoires pour l'Histoire des Sciences & des beaux Arts. Recueillis par l'Ordre de Son Altesse Serenissime Monseigneur Prince Souverain de Dombes. Janvier 1704*, 165-75. Trévoux: de l'Imprimerie de S. A. S à Trévoux, et se vend à Paris, chez Jean Boudot, 1704.

¹ I have only included here those of editions of Plumier's books that I actually used. For a comprehensive list of all the editions of Plumier's books that I have been able to trace, see fig. 5.1.

- . *Tractatus de Filicibus Americanis. Authore R.P. Carolo Plumier, Ordinis Minimorum in Provincia Franciae, & apud Insulas Americanas Botanico Regio/Traité des fougères de l'Amérique. Par le R.P. Charles Plumier, Minime de la Province de France, & Botaniste du Roy dans les Isles de l'Amérique.* Paris: de l'Imprimerie royale, 1705.
- . "Observation XI. Concernant les soruds, & sur l'oreille de la tortue, par le R. P. Charles Plumier, de l'Ordre des PP. Minimes & Botaniste du Roi." Edited by Jacques-Fabien Gautier, or Gautier d'Agoty. In *Observations sur l'histoire naturelle, sur la physique et sur la peinture* 1, no. 3 (1752): 131-8.
- . *Plantarum Americanarum fasciculus primus [-decimus], continens plantas, quas olim Carolus Plumierius, Botanicorum Princeps detexit, eruitque, atque in Insulis Antillis ipse depinxit. Has primum in lucem edidit, concinnis descriptionibus, & observationibus, aeneisque tabulis illustravit Joannes Burmannus, M. D. Athenaei illustris, & in Horto Medico Amstelaedamensi Professor Botanices, Academiae Caesareae Naturae Curiosorum Socius.* Published by the author [Burman]; sold in Amsterdam: Botanic Garden and Widow and son of S. Schouten, and Leiden: Gerard Potuliet and Theodore Haak, 1755-60.
- Pomet, Pierre. *Droguier curieux: ou catalogue des drogues simples et composées*, 2nd ed. Paris: chez Laurent d'Houry, 1709.
- Pradel, Abraham du [Nicolas du Blegny]. *Le livre commode des adresses de Paris pour 1692.* 1692. Edited by Édouard Fournier, 2 vols. Paris: Paul Daffis, 1878.
- Ramusio, Giambattista. *Delle Navigazioni e viaggi.* Venice: nella stamperia de Giunti, 1556.
- Ray, John. *Catalogus plantarum circa Cantabrigiam nascentium.* Cambridge: excudebat J. Field, 1660.
- . *Observations Topographical, Moral, & Physiological; Made in a Journey Through part of the Low-Countries, Germany, Italy, and France.* London: printed for John Martyn, 1673.
- . *Catalogus plantarum Angliae, et insularum adjacentium: tum indigenas, tum in agris passim cultas complectens.* London: typis Andr. Clark, impensis Joh. Martyn, 1677.
- . *Historia plantarum*, 3 vols. London: typis Mariae Clark, prostant apud Hemicum Faithorne & Joannem Kersey (vol. 3 apud Sam. Smith & Benj. Walford), 1686-1704.
- . *Styrpium Europaeorum extra Britannias nascentium sylloge. Quas partim observavit ipse, partim à Car. Clusii Historia, C. Baubini Prod. & Cat. Bas. F. Columnae Ecpbrasi, Catalogis Hollandicar. A. Commelini, Altorsinarum M. Hofmanni, Sicularum P. Bocconi, Monspeliensium P. Magnoli collegit.* London: prostant apud Sam. Smith & Benj. Walford, Societatis Regiae Typographos, 1694.
- . *The Correspondence of John Ray.* Edited by Edwin Lankester. London: printed for the Ray Society, 1848.
- Recchi, Nardo Antonio. *Rerum medicarum Novae Hispaniae Thesaurus, seu plantarum, animalium, mineralium Mexicanorum historia ex Francisci Hernandez.* Rome: ex Typographeio Vitalis Mascardi, 1651.
- Richelet, César-Pierre. *Dictionnaire françois, contenant les mots et les choses, plusieurs nouvelles remarques sur la langue françoise.* Geneva: chez Jean Herman Widerhold, 1690.
- Rochefort, Charles. *Histoire naturelle et morale des iles Antilles de l'Amérique.* Rotterdam: chez Arnoud Leers, 1658.
- Rondelet, Guillaume. *Libri de piscibus marinis, in quibus verae piscium efigies expressae sunt.* Lyon: apud Matthiam Bonhomme, 1554.

- [Rooke, Lawrence?] "Directions for Sea-Men, Bound for Far Voyages." *Philosophical Transactions* 1 (1665-6): 140-3.
- Ruinart, Thierry. *Abrégé de la vie de dom Jean Mabillon*. Paris: chez la veuve François Muguet et Charles Robustel, 1709.f
- Rumphius, Georg Eberhard. *Herbarium Amboinense, plurimas complectens arbores, frutices, herbas, plantas terrestres & aquaticas*, edited by Johannes Burman. 6 vols. Amsterdam: Franciscum Changuion, Joannem Catuffe, Hermannum Uytwerf; The Hague: Petrum Gosse, Joannem Neaulme, Adrianum Moetjens, Antonium van Dole; Utrecht: Stephanum Neaulme, 1741-1755.
- Saint-Simon, Louis de Rouvroy, Duke of. *Mémoires*, edited by Arthur de Boislisle, vol. 8. Paris: Hachette, 1891.
- Saugrin, Claude-Marin. *Code de la librairie et imprimerie de Paris*. Paris: aux dépens de la Communauté, 1744.
- Sloane, Hans. *Catalogus plantarum quae in insula Jamaica sponte proveniunt, vel vulgo coluntur, cum earundem synonymis & locis natalibus*. London: impensis D. Brown, 1696.
- . *A voyage to the islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, insects, Reptiles, &c. of the last of those Islands*. London: printed by B. M. for the author, 1707-1725.
- Spanheim, Ezechiel. *Dissertatio de praesentia et usu numismatum antiquorum*. Rome: apud Blaisum Deversin, & Felicem Cesarettum, typis Fabii de Falcho, 1667.
- [Spon, Jacob, or Jacques.] *Recherche des Antiquités et curiosités de la ville de Lyon, ancienne colonie des Romains & capitale de la Gaule Celtique. Avec un mémoire des principaux antiquaires & curieux de l'Europe*. Lyon: de l'Imprimerie de Jacques Faeton, 1673.
- Stuart, John, third Earl of Bute. *Botanical Tables, containing the different families of British plants*. N.p., 1785.
- Tournefort, Joseph Pitton de. *Éléments de botanique, ou méthode pour connoître les plantes. Par Mr Pitton de Tournefort de l'Académie Royale des Sciences, & Professeur en Botanique au Jardin Royal des Plantes*. 3 vols. Paris: de l'Imprimerie royale, 1694.
- . *Histoire des plantes qui naissent aux environs de Paris*. Paris: de l'Imprimerie royale, 1698.
- . *Institutiones rei herbariae. Editio altera, gallica longe auctior, quingentis circiter Tabulis aeneis adornata*. 3 vols. Paris: E Typographia Regia. 1700.
- . *Corollarium institutionum rei herbariae, in quo plantae 1356 munificencia Ludovici Magni in orientalibus regionibus observatae recensentur, & ad genera sua revocantur*. Paris: E. Typ. Regia, 1703.
- . *Relation d'un voyage du Levant, fait par ordre du Roy*. 2 vols. Paris: de l'Imprimerie royale, 1717.
- Tyson, Edward. *Orang-Outang, sive Homo Sylvestris: or, the Anatomy of a Pygmy Compared with that of a Monkey, an Ape, and a Man. To Which is Added, A Philological Essay concerning the Pygmies, the Cynocephali, the Satyrs, and Sphinges of the Ancients. Wherein it Will Appear that They Are All either Apes or Monkeys, and not Men, as Formerly Pretended*. London: printed for Thomas Bennet and Daniel Brown and are to be had of Mr. Hunt, 1699.
- Vaillant, Sébastien. *Botanicon Parisiense. Operis majoris prodituri prodromus*. Leiden: apud Petrum vander Aa, 1723.
- Vesalius, Andrea. *Humani corporis fabrica Libri septem*. Basel: [ex officina Ioannis Oporini,] 1543.

- Von Haller, Albrecht. *Bibliotheca anatomica. Qua scripta ad anatomen et physiologiam facientia a rerum initiis recensentur*, vol. 1. Tiguri: apud Orell, Gessner, Fuessli, et Socc. 1774.
- Willughby, Francis. *De Historia Piscium Libri Quatuor*, edited by John Ray. Oxford: e Theatro Sheldoniano, 1686.
- Woodward, John. *Brief Instructions for Making Observations in All Parts of the World: As Also Collecting, Preserving, and Sending Over Natural Things. Being an Attempt to Settle an Universal Correspondence for the Advancement of Knowledge both Natural and Civil*. London: printed for Richard Wilkin, 1696.

3. Secondary Sources

- “A Specialist’s Guide to the Sloane Database,” <http://www.nhm.ac.uk/resources-rx/files/sloane-specialist-guide-128098.pdf>
- Abbri, Ferdinando. “Alchemy and Chemistry: Chemical Discourses in the Seventeenth Century.” *Early Science and Medicine* 5, no. 2 (2000): 214-26.
- Aït-Touati, Frédérique. *Fictions of the Cosmos: Science and Literature in the Seventeenth Century*. Chicago: The University of Chicago Press, 2014.
- Albano, Caterina. “Visible Bodies: Cartography and Anatomy.” In *Literature, Mapping, and the Politics of Space in Early Modern Britain*, edited by Andrew Gordon and Bernhard Klein, 89-106. Cambridge: Cambridge University Press, 2001.
- Alberg, Albert. *The Floral King: A Life of Linnaeus*. London: W. H. Allen & Co., 1888.
- Álvarez Peláez, Raquel. *La conquista de la naturaleza americana*. Madrid: CSIC, 1993.
- Anstey, Peter. “Francis Bacon and the Classification of Natural History.” *Early Science and Medicine* 17, no. 1-2 (2012): 11-31.
- Arber, Agnes. *Herbals, their Origin and Evolution: A Chapter in the History of Botany, 1470-1670*. Cambridge: at the University Press, 1912.
- . “Nehemiah Grew (1641-1672) and Marcello Malpighi (1628-1694): An Essay in Comparison.” *Isis* 34, no. 1 (1942): 7-16.
- Ashworth, William B. “The Persistent Beast: Recurring Images in Early Zoological Illustration.” In Ellenius, *Natural Sciences and the Arts*, 46-66.
- Asma, Stephen T. *Stuffed Animals and Pickled Heads: The Culture and Evolution of Natural History Museums*. Oxford: Oxford University Press, 2001.
- Audelin, Louise. “Les Jussieu: une dynastie de botanistes au XVIII^e siècle.” *Archivist-paleographe diss., École de chartres*, 1987.
- Ayscough, Samuel. *A Catalogue of the Manuscripts Preserved in the British Museum Hitherto Undescribed*. 2 vols. London: John Rivington, 1782.
- Bailey, Gauvin Alexander. “‘Le style jésuite n’existe pas’: Jesuit Corporate Culture and the Visual Arts.” In *The Jesuits: Cultures, Sciences, and the Arts, 1540-1773*, edited by John W. O’Malley et al., 38-89. Toronto: University of Toronto Press, 1999.
- Balayé, Simone. *La Bibliothèque nationale des origines à 1800*. Geneva: Droz, 1988.
- Baldriga, Irene. *L’occhio della lince: I primi Lincei tra arte, scienza e collezionismo (1603-1630)*. Rome: Accademia nazionale dei Lincei, 2002.

- Banks, Kenneth J. *Chasing Empire across the Sea: Communications and the State in the French Atlantic, 1713-1763*. Montréal and Kingston: McGill-Queen's University Press, 2003.
- Barbier, Frédéric, Sabine Juratic, and Annick Mellerio, *Dictionnaire des imprimeurs, libraires et gens du livre à Paris, 1701-1789*. Geneva: Droz, 2007.
- Basalla, George. "The Spread of Western Science." *Science* 156, no. 3775 (1967): 611-22.
- Baschet, Jérôme. *L'iconographie médiévale*. Paris: Gallimard, 2008.
- Bassy, Alain-Marie. "Le texte et l'image." In Martin and Chartier, *Le livre triomphant*, 140-61.
- Beal, Peter. *In Praise of Scribes: Manuscripts and their Makers in Seventeenth-Century England*. Oxford: Oxford University Press, 1998.
- [Beaumont-Maillet, Laure,] "Les Gardes et directeurs du département des Estampes de 1720 à 2006." [2010.] http://www.bnf.fr/documents/directeurs_estampes.pdf
- Becker. G. *et al. Tournefort*. Paris: Muséum national d'histoire naturelle, 1957.
- Bell, David A. *The Cult of the Nation in France: Inventing Nationalism, 1680-1800*. Cambridge, MA: Harvard University Press, 2001.
- Beltrán, José. "Regard, dessin, histoire naturelle: Charles Plumier et l'iconographie naturaliste au XVII^e siècle." Master's diss., École des Hautes Études en Sciences Sociales, 2012.
- . "Nature *au naturel* in late-seventeenth-century France." In *Ad Vivum? Visual Materials and the Vocabulary of Life-Likeness in Europe before 1800*, edited by Joanna Woodall and Thomas Balfe. Leiden: Brill, forthcoming.
- Benítez, Miguel. *La face cachée des Lumières. Recherches sur les manuscrits philosophiques clandestins de l'âge classique*. Paris and Oxford: Universitas-Voltaire Foundation, 1996.
- . *Le Foyer clandestin des Lumières. Nouvelles recherches sur les manuscrits clandestins*. Paris: Honoré Champion, 2013.
- Bergvelt, Ellinoor, Peter Jan Knegtman, and Marian Schilder, eds. *Kleurrijke Professooren. 375 jaar portretkunst in de collectie van de Universiteit van Amsterdam/Colorful Professors: 375 Years of Portraiture in the Collection of the University of Amsterdam*. Amsterdam: Amsterdam University Press, 2007.
- Bernard, Auguste. *Histoire de l'Imprimerie royale du Louvre*. Paris: Imprimerie impériale, 1867.
- Bertoloni Meli, Domenico. *Mechanism, Experiment, Disease: Marcello Malpighi and Seventeenth-Century Anatomy*. Baltimore, MD: The Johns Hopkins University Press, 2011.
- Bertrand, Romain. "Un continent des possibles oubliés. Les relations économiques Europe-Asie à l'époque moderne." *Esprit* 12 (2013): 33-45.
- Bezard, Yvonne. *Fonctionnaires maritimes et coloniaux sous Louis XIV: les Bégons*. Paris: Albin Michel, 1932.
- Beziat, Charlene. "L'imprimeur du roi à Lyon au XVIII^e siècle." Master diss., Université Lyon 2 and École nationale supérieure des sciences de l'information et des bibliothèques, 2011.
- Biagioli, Mario. *Galileo, Courtier: The Practice of Science in the Culture of Absolutism*. Chicago: The University of Chicago Press, 1993.
- . *Galileo's Instruments of Credit: Telescopes, Images, Secrecy*. Chicago: The University of Chicago Press, 2006.

- Biagioli, Mario, and Peter Galison, eds. *Scientific Authorship: Credit and Intellectual Property in Science*. New York: Routledge, 2003.
- Biasi, Pierre-Marc de. "Sciences: des archives à la genèse. Pour une contribution de la génétique des textes à l'histoire des sciences." *Genesis* 20 (2003): 19-50.
- . *Génétique des textes*. Paris: CNRS Éditions, 2011.
- Birn, Raymond. "Le *Journal des savants* sous l'Ancien Régime." *Journal des savants* 1, no. 1 (1965): 15-35.
- Blair, Ann. "Humanist Methods in Natural Philosophy: the Commonplace Book." *Journal of the History of Ideas*, 53, no. 4 (1992): 541-55.
- . *The Theater of Nature: Jean Bodin and Renaissance Science*. Princeton: Princeton University Press, 1997.
- . "Reading Strategies for Coping with Information Overload, ca. 1550-1700." *Journal of the History of Ideas* 64, no. 1 (2003): 11-28.
- . "An Early Modernist's Perspective." In "Scientific Readers." Special issue, *Isis* 95, no. 3 (2004): 420-30.
- . *Too Much to Know: Managing Scholarly Information before the Modern Age*. New Haven, CT: Yale University Press, 2010.
- . "Hidden Hands: Amanuenses and Authorship in Early Modern Europe." A.S.W. Rosenbach Lectures in Bibliography, University of Pennsylvania Libraries, Philadelphia, PA, March 17, 18, 20, 2014. Podcasts on <http://repository.upenn.edu/rosenbach/8/>
- . "Scholarly Critique in Early Modern Europe." *H-France Salon* 7, no. 20, #2 (2015), <http://www.h-france.net/Salon/Salon7Blair.pdf>
- . "Reflections on Technological Continuities: Manuscripts Copied from Printed Books." *Bulletin of the John Rylands Library* 91, no. 1 (2015): 7-33.
- . "Early Modern Attitudes toward the Delegation of Copying and Note-Taking," In Cevoloni, *Forgetting Machines*, 265-85.
- Blair, Ann, and Jennifer Milligan, eds. "Towards a Cultural History of Archives." Special issue, *Archival Science* 7, no. 4 (2007): 289-397.
- Blair, Ann, and Peter Stallybrass. "Mediating Information, 1450-1800." In *This Is Enlightenment*, edited by Clifford Siskin and William Warner, 139-63. Chicago: The University of Chicago Press, 2010.
- Blanckaert, Claude. *Le Muséum au premier siècle de son histoire*. Paris: Muséum national d'histoire naturelle, 1997.
- Bleichmar, Daniela. "Atlantic Competitions: Botany in the Eighteenth-Century Spanish Empire." In Delbourgo and Dew, *Science and Empire*, 225-52.
- . *Visible Empire: Botanical Expeditions and Visual Culture in the Hispanic Enlightenment*. Chicago: The University of Chicago Press, 2012.
- Boogart, E. van den, ed. *Johan Maurits van Nassau-Siegen, 1604-1678: A Humanist Prince in Europe and Brazil*. The Hage: The Johan Maurits van Nassau Stichting, 1979.
- Borao Mateo, José Eugenio. "La version china de la obra ilustrada de Jerónimo Nadal *Evangelicae Historiae Imagines*." *Goya: Revista de arte* 330 (2010): 16-33.

- Bossi, Maurizio, and Claudio Greppi, eds. *Viaggi e scienza: Le istruzioni scientifiche per i viaggiatori nei secoli XVII-XIX*. Florence: Leo S. Olschki, 2005.
- Boucher, Philip B. *France and the American Tropics to 1700: Tropics of Discontent?* Baltimore, MD: The Johns Hopkins University Press, 2008.
- Boumediène, Samir. *La colonisation du savoir: Une histoire des plantes médicinales du "Nouveau Monde."* Vaulx-en-Velin: Les éditions des mondes à faire, 2016.
- Bourguet, Marie-Noëlle. "L'explorateur." In *L'homme des Lumières*, edited by Michel Vovelle, 285-345. Paris: Le Seuil, 1996.
- . "La collecte du monde: voyages et histoire naturelle (fin XVII^e-début XIX^e siècle)." In Blanckaert, *Le Muséum*, 163-96.
- . "Écriture du voyage et construction savante du monde. Le carnet d'Italie d'Alexander von Humboldt." Max-Planck-Institut für Wissenschaftsgeschichte, Preprint 266 (2004).
- . "La fabrique du savoir. Essai sur les carnets de voyage d'Alexander von Humboldt." In "Festschrift für Margot Falk," special issue, *Humboldt im Netz* 7, no. 13 (2006): 17-33.
- . "A Portable World: The Notebooks of European Travellers (Eighteenth to Nineteenth Centuries)." *Intellectual History Review* 20, no. 3 (2010): 377-400.
- Bourguet, Marie-Noëlle, and Pierre-Yves Lacour. "Les mondes naturalistes: Europe (1530-1802)." In Van Damme, *De la Renaissance aux Lumières*, 255-81.
- Bourlière, François. "The *Ornitographia Americana* of Father Charles Plumier, 1689-1696." *Wilson Bulletin* 61, no. 2 (1949): 103-5.
- Bousquet-Bressolier, Catherine. "Charles-Antoine Jombert (1712-1784): un libraire entre sciences et arts." *Bulletin du bibliophile* 2 (1997): 299-333.
- Bouza, Fernando. *Comunicación, conocimiento y memoria en la España de los siglos XVI y XVII* (Salamanca: Seminario de Estudios Medievales y Renacentistas, 1999. Translated by Sonia López and Michael Agnew as *Communication, Knowledge, and Memory in Early Modern Spain*. Philadelphia, PA: Pennsylvania University Press, 2004.
- . *Corre manuscrito. Una historia cultural del Siglo de Oro*. Madrid: Marcial Pons, 2002.
- . "La biblioteca de la Torre Alta del Alcázar de Madrid." In Santiago Páez, *La Real Biblioteca*, 175-96.
- . "Realeza, aristocracia y mecenazgo (del ejercicio del poder *modo calamo*)." In *Mecenazgo y Humanidades en tiempos de Lastanosa: Homenaje a Domingo Ynduráin*, edited by Aurora Egido, José Enrique Laplana Gil, 69-88. Huesca: Instituto de Estudios Altoaragoneses-Institución Fernando el Católico, 2008.
- . *Hétérographies. Formes de l'écrit au Siècle d'Or espagnol*. Translated by Jean-Marie Saint-Luc. Madrid: Casa de Velázquez, 2010.
- Bowers, Fredson. *Principles of Bibliographical Description*. Princeton: Princeton University Press, 1949.
- Boxer, C. R. *Two Pioneers of Tropical Medicine: Garcia d'Orta and Nicolás Monardes*. London: Wellcome Historical Medical Library, 1963).

- Brescius, Moritz von. "Empires of Opportunity: German Scholars between Asia and Europe in the 1850s." PhD diss. European University Institute, 2015.
- Bruley, Yves, ed. *La Trinité-des-Monts redécouverte: arts, foi et culture*. Rome: De Luca, 2002.
- Bullard, Paddy, and Alexis Tadié, eds., *Ancients and Moderns in Europe: Comparative Perspectives*. Oxford: Voltaire Foundation, 2016.
- Burke, Peter. *The Fabrication of Louis XIV*. New Haven, CT: Yale University Press, 1992.
- . *The Fortunes of the Courtier: The European Reception of Castiglione's Cortegiano*. Cambridge: Polity Press, 1995.
- . "Images as Evidence in Seventeenth-Century Europe." *Journal of the History of Ideas* 64, no. 2 (2003): 273-96.
- Buser, T. "Jerome Nadal and Early Jesuit Art in Rome." *Art Bulletin* 58 (1976): 424-33.
- Bustamante García, Jesús. "La empresa naturalista de Felipe II y la primera expedición científica en suelo americano: la creación del modelo expedicionario renacentista." In *Felipe II (1527-1598). Europa y la Monarquía Católica*, edited by José Martínez Millán, 39-59. Madrid: Parteluz, 1998.
- Carlino, Andrea. *Paper Bodies: A Catalogue of Anatomical Fugitive Sheets, 1538-1687*. Translated by Noga Arikha. London: Wellcome Institute for the History of Medicine, 1999.
- Carrillo Castillo, Jesús. "Taming the Visible: Word and Image in Oviedo's *Historia General y Natural de las Indias*." *Viator* 31 (2000): 399-431.
- . "Naming Difference: The Politics of Naming in Fernández de Oviedo's *Historia general y natural de las Indias*." *Science in Context* 16, no. 4 (2003): 489-504.
- . *Naturaleza e imperio. La representación del mundo natural en la 'Historia general y natural de las Indias' de Gonzalo Fernández de Oviedo*. Madrid: Doce Calles, 2005.
- . "The Eyes of the New Pliny: The Use of Images in Gonzalo Fernández de Oviedo's *Historia general y natural de las Indias*." In *The Art of Natural History: Illustrated Treatises and Botanical Paintings, 1400-1850*, edited by Therese O'Malley and Amy R. W. Meyers, 108-25. Washington, D.C.: National Gallery of Art, 2008.
- Castelnau-L'Estoile, Charlotte, and François Regourd, eds. *Connoissances et pouvoirs. Les espaces impériaux, XVI^e-XVII^e siècle. France, Espagne, Portugal*. Bordeaux: Presses Universitaires de Bordeaux, 2005.
- Catalogue of Manuscripts Belonging to Oxford University Department of Botany, Deposited in the Bodleian Library Oxford, 1957, and referenced Ms. Sherard 1-478*. Oxford: Bodleian Libraries, 1953.
- Cavalho, Guglielmo, and Roger Chartier, eds. *Histoire de la lecture dans le monde occidental*. Paris: Le Seuil, 1997.
- Certeau, Michel. *L'écriture de l'histoire*. Paris: Gallimard, 1975. Translated by Tom Conley as *The Writing of History*. New York: Columbia University Press, 1988.
- . *L'invention du quotidien*, vol. 1: *Arts de faire*. Paris: Gallimard, 1990 [1980]. Translated by Steven Rendall as *The Practice of Everyday Life*, vol. 1. Berkeley: University of California Press, 1988.
- Cevolini, Alberto, ed. *Forgetting Machines: Knowledge Management Evolution in Early Modern Europe*. Leiden: Brill, 2016.

- Chapman, Sara E. *Private Ambitions and Political Alliances: The Phélypeaux de Pontchartrain Family and Louis XIV's Government, 1650-1715*. Rochester, NY: The University of Rochester Press, 2004.
- Charmantier, Isabelle. "Carl Linnaeus and the Visual Representation of Nature." *Historical Studies on the Natural Sciences* 41, no. 4 (2011): 365-404.
- Chartier, Roger. "Les pratiques de l'écrit." In *Histoire de la vie privée*, edited by Philippe Ariès and Georges Duby, vol. 3, *De la Renaissance aux Lumières*, edited by Roger Chartier, 113-61. Paris: Le Seuil, 1987.
- . *The Order of Books: Readers, Authors, and Libraries in Europe between the Fourteenth and the Eighteenth Centuries*. Stanford, CA: Stanford University Press, 1994 [1992].
- . "Pouvoirs et limites de la représentation: sur l'oeuvre de Louis Marin." *Annales. Histoire, Sciences Sociales* 49, no. 2 (1994): 407-18.
- , ed. *Histoire de la lecture: un bilan de recherche*. Paris: Institut Mémoires de l'édition contemporaine-Maison des sciences de l'homme, 1995.
- . "Foucault's Chiasmus: Authorship between Science and Literature in the Seventeenth and Eighteenth Centuries." In Biagioli and Galison, *Scientific Authorship*, 13-31.
- . *Inscrire et effacer. Culture écrite et littérature (XI^e-XVIII^e siècle)*. Paris: Le Seuil, 2005. Translated by Arthur Goldhammer as *Inscription and Erasure: Literature and Written Culture from the Eleventh to the Eighteenth Century*. Philadelphia, PA: University of Pennsylvania Press, 2007.
- . "The Order of Books Revisited," *Modern Intellectual History* 4, no. 3 (2007): 513-4.
- . "Bibliographie et histoire culturelle." In *Au bord de la falaise. L'histoire entre certitudes et inquiétude*, 305-20. Paris: Albin Michel, 2009.
- , ed. *The Culture of Print: Power and Uses of Print in Early Modern Europe*. Princeton: Princeton University Press, 2014. Translated by Lydia G. Cochrane. Originally published as *Les usages de l'imprimé*. Paris: Fayard, 1987.
- . *Cardenio entre Cervantès et Shakespeare: Histoire d'une pièce perdue*. Paris: Gallimard-NRF, 2011.
- . *The Author's Hand and the Printer's Mind*. Translated by Lydia G. Cochrane. Cambridge: Polity Press, 2015.
- Chouillet, Anne-Marie. "Observations sur l'histoire naturelle, sur la physique et sur la peinture (1752-1757, 1771-1793)." In *Dictionnaire des journaux, 1600-1789*, edited by Jean Sgard, vol. 2, 995-8. Paris: Universitas, 1991.
- Choulant, Ludwig *History and Bibliography of Anatomic Illustration*. Translated by Mortimer Frank. New York: Hafner, 1962. Originally published as *Geschichte und Bibliographie der Anatomischen Abbildung* (Leipzig: Rudolf Weigel, 1852).
- Clark, Stuart. *Vanities of the Eye: Vision in Early Modern European Culture*. Oxford: Oxford University Press, 2007.
- Clarke, Jack A. "Abbé Jean-Paul Bignon 'Moderator of the Academies' and Royal Librarian." *French Historical Studies* 8, no. 2 (1973): 213-35.
- Clarke, William. *Repertorium Bibliographicum: Or, Some Accounts of the Most Celebrated British Library*. Cambridge: Cambridge University Press, 2014 [1819].
- Cobb, Matthew. "Malpighi, Swammerdam and the Colourful Silkworm: Replication and Visual Representation in Early Modern Science." *Annals of Science* 59, no. 2 (2002): 111-47.

- Coello de la Rosa, Alexandre. *Historia y ficción. La escritura de la 'Historia general y natural de las Indias' de Gonzalo Fernández de Oviedo y Valdés (1578[sic]-1557)*. Valencia: Publicacions de la Universitat de Valencia, 2012.
- Cole, Francis Joseph. *A History of Comparative Anatomy: From Aristotle to the Eighteenth Century*. London: Macmillan, 1944.
- Collini, Silvia. "Conseils pratiques et orientations théoriques dans les instructions pour voyageurs (XVIII^e siècle)." In *Le terrain des sciences humaines (XVIII^e-XX^e siècle)*, edited by Claude Blanckaert, 57-72. Paris: L'Harmattan, 1996.
- Collini, Silvia, and Antonella Vannoni. "I testi di istruzioni scientifiche per i viaggiatori: aspetti di un genere dal seicento al novocento." In *Viaggi et scienza: Le istruzioni scientifiche per i viaggiatori nei secoli XVII-XIX*, edited by Maurizio Bossi and Claudio Greppi, xxi-liv. Florence: Leo S. Olschki, 2005.
- Colón Mendoza, Ilenia. *The Cristos yacentes of Gregorio Fernández. Polychrome Sculptures of the Supine Christ in Seventeenth-Century Spain*. Farnham: Ashgate, 2015.
- Constantino, María Eugenia, and Juan Pimentel. "Cómo inventariar el (Nuevo) Mundo. Las instrucciones como instrumentos para observar y coleccionar objetos naturales." In *Circulación de saberes: Instrumentos y colecciones en la historia*, edited by Laura Cházaro, Achim Miruna, and Nuria Valverde. México: CINVESTAV, UNAM, CONACYT, in press.
- Contant, Jean-Paul. *L'enseignement de la chimie au Jardin royal des Plantes à Paris*. Cahors: A. Coueslant, 1952.
- Contat, Michel, and Daniel Ferrer, eds. *Pourquoi la critique génétique? Méthodes, theories* (Paris: CNRS Éditions, 1998).
- Cook, Harold J. *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*. New Haven, CT: Yale University Press, 2007.
- Cooper, Alix. *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe*. Cambridge: Cambridge University Press, 2007.
- . "Latin Words, Vernacular Worlds: Language, Nature, and the 'Indigenous' in Early Modern Europe." *East Asian Science, Technology, and Medicine*, 26 (2007): 17-59.
- Copenhaver, Brian P. "A Tale of Two Fishes: Magical Objects in Natural History from Antiquity through the Scientific Revolution." *Journal of the History of Ideas* 52, no. 3 (1991).
- . *Magic in the Western Culture from Antiquity to the Enlightenment*. New York: Cambridge University Press, 2015.
- Cremers, Georges, and Cécile Aupic. "Spécimens de Charles Plumier déposés à Paris dans les collections de ptéridophytes américains de Tournefort, Vaillant, Danty d'Isnard et Jussieu." *Adansonia*, 3rd ser., 29, no. 2 (2007): 159-93.
- Crespo Fajardo, José Luis. "Amé Bourdon y su atlas de láminas anatómicas." *Tsantsa. Revista de investigaciones artísticas* 1 (2014).
- Cunningham, Andrew. *The Anatomist Anatomis'd: An Experimental Discipline in Enlightenment Europe*. Farnham: Ashgate, 2010.
- Dandeleat, Thomas James. *The Renaissance of Empire in Early Modern Europe*. Cambridge: Cambridge University Press, 2014.

- Dandy, J. E. *The Sloane Herbarium: An Annotated List of the Horti Sicci Composing It*. London: British Museum, 1958.
- Darton, Robert. "Extraordinary Commonplaces." *The New York Review of Books*, December 21, 2000. <http://www.nybooks.com/articles/2000/12/21/extraordinary-commonplaces/>
- Daston, Lorraine. "The Factual Sensibility." *Isis* 79, no. 3 (1988): 452-67.
- . "The Moral Economy of Science," *Osiris* 10 (1995): 2-24. Translated by Samuel Lézé as *L'économie morale des sciences modernes*. Paris: La Découverte, 2014).
- . "Introduction." In *Things that Talk: Object Lessons from Art and Science*, ed. Lorraine Daston, 9-24. New York: Zone Books, 2002.
- . "Taking Note(s)." In "Scientific Readers." Special issue, *Isis* 95 (2004): 443-8.
- . "Description by Omission: Nature Enlightened and Obscured." In *Regimes of Description: In the Archive of Eighteenth Century*, edited by John Bender and Michael Marrinan, 11-24. Stanford, CA: Stanford University Press, 2005).
- . "The Empire of Observation, 1600-1800." In Daston and Lunbeck, *Histories of Scientific Observation*, 81-113.
- . "The Sciences of the Archive." *Osiris* 27 (2012): 156-87.
- . "Epistemic Images." In *Vision and Its Instruments: Art, Science, and Technology in Early Modern Europe*, edited by Alina Payne, 13-35. University Park, PA: The Pennsylvania State University Press, 2015."
- Daston, Lorraine, and Elizabeth Lunbeck. *Histories of Scientific Observation*. Chicago: The University of Chicago Press, 2011.
- Daston, Lorraine, and Peter Galison. "The Image of Objectivity." *Representations* 40 (1992): 81-128.
- . *Objectivity*. New York: Zone Books, 2010 [2007].
- Daston, Lorraine, and Katharine Park. *Wonders and the Order of nature, 1150-1750*. New York: Zone Books, 2001.
- Daudin, Henri. *De Linné à Lamarck. Méthodes de la classification et idée de série en botanique et en zoologie (1740-1790)*. Paris: Éditions des archives contemporaines 1983 [1926].
- De Vos, Paula. "Natural History and the Pursuit of Empire in Eighteenth-Century Spain." *Eighteenth-Century Studies* 40, no. 2 (2007).
- Dear, Peter. "The Meanings of Experience." In Park and Daston, *Early Modern Science*, 106-31.
- Décultot, Élisabeth. *Johann Joachim Winckelmann. Enquête sur la genèse de l'histoire de l'art*. Paris: Presses Universitaires de France, 2000.
- , ed. *Lire, copier, écrire. Les bibliothèques manuscrites et leurs usages au XVIII^e siècle*. Paris: CNRS Éditions, 2003.
- . "L'art de l'extrait: définition, évolution, enjeux." In Décultot, *Lire, copier, écrire*, 7-30.
- . "L'art winckelmannien de la lecture. Reprise et subversion d'une pratique érudite." In Décultot, *Lire, copier, écrire*, 91-110.
- , ed. *Musées de papier. L'Antiquité en livres (1600-1800)*. Paris: Éditions du Louvre and Gourcoff Grandenigo, 2010.

- . “Du musée d’images au musée imaginaire. Les recueils d’antiquités et la tradition des musées de papier aux XVII^e et XVIII^e siècles.” *Revue de l’Art* 182, no. 4 (2013): 19-26.
- . “The Art of Excerpting in the Eighteenth Century Literature: Subversion and Continuity of an Old Scholarly Practice.” In Cevoloni, *Forgetting Machines*, 108-27.
- DeJean, Joan. *Ancients against Moderns: Culture Wars and the Making of a Fin de Siècle*. Chicago: The University of Chicago Press, 1997.
- Delbourgo, James. “Listing People.” In Delbourgo and Müller-Wille, “Listmania,” 735-42.
- Delbourgo, James, and Nicholas Dew, eds. *Science and Empire in the Atlantic World*. London: Routledge, 2008.
- Delbourgo, James, and Staffan Müller-Wille, eds. “Listmania.” Special issue, *Isis* 103 (2012).
- Dennis, Michael Aaron. “Graphic Understanding: Instruments and Interpretation in Robert Hooke’s *Micrographia*.” *Science in Context* 3, no. 2 (1989): 309-64.
- Desormeaux, Paulin. *L’art du tourneur*, 2 vols. Paris: Audot, 1824.
- Dew, Nicholas. “Scientific travel in the Atlantic world: the French expedition to Gorée and the Antilles, 1681-1683.” *The British Journal of the History of Science* 43, no. 1 (2010): 1-17.
- . “Un Colbertisme scientifique?” In Van Damme, *De la Renaissance aux Lumières*, 431-45.
- Dictionnaire des graveurs-éditeurs et marchands d’estampes à Lyon aux XVII^e et XVIII^e siècles: Catalogue de pièces retrouvées*. Lyon: Presses Universitaires de Lyon, 2002.
- Didi-Huberman, Georges. *Devant l’image. Question posée aux fins d’une histoire de l’art*. Paris: Éditions de Minuit, 1994. Translated by John Goodman as *Confronting Images: Questioning the Ends of a Certain History of Art*. Philadelphia, PA: Penn State University Press, 2005.
- Dietz, Bettina. “Mobile Objects: The Space of Shells in Eighteenth-Century France.” *The British Journal for the History of Science* 39, no. 3 (2006): 363-2.
- Dompnier, Bernard, and Marie-Hélène Froeschlé-Chopard, eds., *Les religieux et leurs livres à l’époque moderne*. Clermont-Ferrand: Presses Universitaires Blaise Pascal, 2000.
- Dressler, Stefan. “Plate 321. *Marcgravia umbellata*.” *Curtis’s Botanical Magazine* 14, no. 3 (1997): 130-1.
- Dry, Sarah. *The Newton Papers: The Strange and True Odyssey of Isaac Newton’s Manuscripts*. Oxford: Oxford University Press, 2014.
- Dubourg Glatigny, Pascal, and Antonella Romano, eds. “La Trinité-des-Monts dans la ‘République romaine des sciences et des arts.’” *Mélanges de l’École française de Rome. Italie et Méditerranée* 117, no. 1 (2005): 17-20.
- Dubourg Glatigny, Pascal, and Marianne Le Blanc, “Architecture et expertise mathématique: la contribution des minimes Jacquier et Le Seur aux polémiques de 1742 sur la coupole de Saint-Pierre de Rome,” in Dubourg Glatigny and Romano, “La Trinité-des-Monts,” 159-87.
- Dupart, G. “Les manuscrits de Tournefort conservés au Muséum national d’Histoire naturelle.” In Becker *et al.*, *Tournefort*, 207-38.
- Duplesis, Georges. “Le Cabinet du Roi: Collection d’estampes commandées par Louis XIV,” extract of the *Bibliophile français*. Paris: Bachelin-Deflorence, 1869.
- . *Un curieux du XVII^e siècle: Michel Bégon, intendant de La Rochelle*. Paris: Auguste Aubry, 1874.

- Duris, Pascal. *Linné et la France: 1780-1850*. Geneva: Droz, 1993.
- Egmond, Florike. *The World of Carolus Clusius: Natural History in the Making, 1550-1610*. London: Pickering & Chatto, 2010.
- Egmond, Florike, Paul Hoftijzer, Robert Visser, eds. *Carolus Clusius: Towards a Cultural History of a Renaissance Naturalist*, Amsterdam: Edita, 2008.
- Eisenstein, Elizabeth L. "An Unacknowledged Revolution Revisited." *American Historical Review* 107, no. 1 (2002): 87-105.
- . *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-Modern Europe*. 2 vols. in 1. New York: Cambridge University Press, 2005 [1979].
- Ellenius, Allain, ed. *The Natural Sciences and the Arts*, edited by Allain Ellenius. Uppsala: Almqvist & Wikell, 1985.
- Espagne, Michel. *De l'archive au texte: Recherches d'histoire génétique*. Paris: Presses universitaires de France, 1998.
- Ezell, Margaret J. M. "Handwriting and the Book." In *The Cambridge Companion to the History of the Book*, edited by Leslie Howsam, 80-106. Cambridge: Cambridge University Press, 2015.
- Fabre, Pierre-Antoine. "Les 'Exercices spirituels' sont-ils illustrables?" In *Les jésuites à l'âge baroque, 1540-1670*, edited by Luce Giard and Louis de Vaucelles, 197-209. Paris: Jérôme Milton, 1996.
- Favino, Federica. "Scienza ed erudizione nei collegi degli ordini religiosi a Roma tra Sei e Settecento." *Cheiron* 43-44 (2005): 331-70.
- . "Minimi in 'Sapienza': François Jacquier, Thomas Le Seur et il rinnovamento dell'insegnamento scientifico allo studium urbis," in Dubourg Glatigny and Romano, "La Trinité-des-Monts," 189-218.
- Ferreira Furtado, Júnia. "Tropical Empiricism: Making Medical Knowledge in Colonial Brazil." In Delbourg and Dew, *Science and Empire*, 127-51.
- Findlen, Paula. *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*. Berkeley: University of California Press, 1994.
- . "Francis Bacon and the Reform of Natural History in the Seventeenth Century." In *History and the Disciplines: The Reclassification of Knowledge in Early Modern Europe*, edited by Donald R. Kelley, 239-60. Rochester, NY: The University of Rochester Press, 1997.
- . "Natural History." In Park and Daston, *The Cambridge History of Science*, 435-68.
- Foucault, Michel. *Les mots et les choses. Une archéologie des sciences humaines*. Paris: Gallimard, 1994 [1966].
- Flores, Jorge. "Distant Wonders: The Strange and the Marvelous between Mughal India and Habsburg Iberia in the Early Seventeenth Century." *Comparative Studies in Society and History* 49, no. 3 (2007): 553-81.
- Freedberg, David. "A Source for Rubens's Modello of the Assumption and Coronation of the Virgin: A Case Study in the Response to Images." *The Burlington Magazine* 120, no. 904 (1978): 432-41.
- . *The Eye of the Lynx: Galileo, His Friends, and the Beginnings of Modern Natural History*. Chicago: The University of Chicago Press, 2002.

- Freiche, Andrée. "Michel Bégon. Intendant de Louis XIV à Rochefort ville nouvelle du XVII^e siècle, 1688-1710." 2 vols. PhD diss., École des hautes études en sciences sociales, 2004.
- Frostin, Charles. *Les Pontchartrain, ministres de Louis XIV: Alliances et réseau d'influence sous l'Ancien Régime*. Rennes: Presses universitaires de Rennes, 2006.
- Fuhring, Peter, Louis Marchesano, Rémi Mathis, and Vanessa Selbach, ed. *A Kingdom of Images: French Prints in the Age of Louis XIV, 1660-1715*. Los Angeles/Paris: The Getty Research Institute/Bibliothèque nationale de France, 2015.
- Fumaroli, Marc. "Sur les seuils des livres: les frontispices graves des traités d'éloquence." In *L'école du silence: le sentiment des images au XVII^e siècle*, 421-44. Paris: Flammarion, 1998 [1994].
- . "Les abeilles et les araignées." In *La Querelle des Anciens et des Moderns (XVII^e-XVIII^e siècles)*, edited by Anne-Marie Lecoq, 7-218. Paris: Gallimard, 2001.
- Gaetgens, Thomas W. "The Arts in the Service of the King's Glory." In Fuhring, *Kingdom of Images*, 1-8.
- Galuzzi, Alessandro. *Origini dell'ordine dei Minimi*. Rome: Pontificia Università Lateranense, 1967.
- Gascoigne, Bamber. *How to Identify Prints: A Complete Guide to Manual and Mechanical Processes from Woodcut to Ink Jet*. London: Thames and Hudson, 1986.
- Gascoigne, John. "The Study of Nature." In *The Cambridge History of Eighteenth Century Philosophy*, vol. 2, edited by Knud Haakonssen, 854-72. Cambridge: Cambridge University Press, 2006.
- Gaskell, Philip. *A New Introduction to Bibliography*. Oxford: Clarendon Press, 1972.
- Gaskell, Roger. "Printing House and Engraving Shop: A Mysterious Collaboration." *The Book Collector* 53 (2004): 213-51.
- George, Wilma. "Sources and Background to Discoveries of New Animals in the Sixteenth and Seventeenth Centuries." *History of Science* 18 (1980): 79-104.
- Gerbi, Antonello. *La natura delle Indie Nove. Da Cristoforo Colombo a Gonzalo Fernández de Oviedo*. Milan: Riccardo Ricciardi, 1975.
- Gitelman, Lisa. "The Note-Taking Self." In *Take Note*.
- Glarion, Philippe. "Les comparaisons et les monstres: figures structurales de la description zoologique dans *L'histoire de la nature des oyseaux* de Pierre Belon du Mans." *Anthropozoologica* 13 (1990): 27-43.
- , ed. *L'histoire naturelle au XVI^e siècle. Introduction, étude et critique de La nature et diversité des poissons de Pierre Belon (1555)*. Geneva: Librairie Droz, 2011.
- Goldstein, Carl. *Print Culture in Early Modern France: Abraham Bosse and the Purposes of Print*. Cambridge: Cambridge University Press, 2012.
- Goldstein, Claire. "Collecting Versailles: Scriptural economies of the *Cabinet du Roi*." *Studies in the History of Gardens & Designed Landscapes: An International Quarterly* 23, no. 3 (2003): 258-66.
- Goodman, Dena. *The Republic of Letters: A Cultural History of the French Enlightenment*. Ithaca, NY: Cornell University Press, 1994.
- Grafton, Anthony. *Defenders of the Text: The Traditions of Scholarship in an Age of Science, 1450-1800*. Cambridge, MA: Harvard University Press, 1994 [1991].
- . "Le lecteur humaniste." In Cavalho and Chartier, *Histoire de la lecture*, 209-48.

- . “Libraries and Lecture Halls.” In Park and Daston, *Early modern Science*, 238-50.
- . *What Was History? The Art of History in Early Modern Europe?* Cambridge: Cambridge University Press, 2007.
- . *Humanists with Inky Fingers: The Culture of Correction in Renaissance Europe*. Florence: Leo S. Olschki, 2011.
- . “Introduction.” In Hazard, *Crisis of the European Mind*, vii-xii.
- Grazia, Margreta de, and Peter Stallybrass. “The Materiality of the Shakespearean Text.” *Shakespeare Quarterly* 44, no. 3 (1993): 255-83.
- Grenon, Thomas, ed. *L’Herbier du Muséum. L’aventure d’une collection*. Paris: Muséum national d’histoire naturelle, 2013.
- Griffiths, Antony. *Prints and Printmaking: An Introduction to the History and Techniques*. London: British Museum Press, 1996.
- Grivel, Marianne. *Le commerce de l’estampe à Paris au XVII^e siècle*. Geneva: Droz, 1986.
- Gudger, E. W. “The Five Great Naturalists of the Sixteenth Century: Belon, Rondelet, Salviani, Gesner and Aldrovandi: A Chapter in the History of Ichthyology.” *Isis* 22, no. 1 (1934): 21-40.
- Guerra, F. “Medicine in Dutch Brazil.” In van den Boogart, *Johan Maurits*, 472-93.
- Guerrini, Anita. “The King’s Animals and the King’s Books: The Illustrations for the Paris Academy’s *Histoire des animaux*.” *Annals of Science* 67, no. 3 (2010): 385-6.
- . *The Courtiers’ Anatomists: Animals and Humans in Louis XIV’s Paris*. Chicago: The University of Chicago Press, 2015.
- Guichard, Charlotte. “La signature dans le tableau aux XVII^e et XVIII^e siècles: identité, réputation et marché de l’art.” *Société & Représentation* 25 (2008): 49-77.
- . *Les amateurs d’art à Paris au XVIII^e siècle*. Seyssell: Champ Vallon, 2008.
- . “Fragonard et les jeux de la signature.” *Revue de l’art* 177, no. 3 (2012): 47-55.
- . “La coquille au XVIII^e siècle: un objet frontière?” *Techniques & Culture* 59 (2012): 150-63.
- . “Taste Communities: The Rise of the Amateur in Eighteenth-Century Paris.” *Eighteenth-Century Studies* 45, no. 4 (2012): 521-2.
- . “La main et le geste. Signature et autographie au XVIII^e siècle.” In *De l’authenticité. Une histoire des valeurs de l’art (XVI^e-XX^e siècle)*, edited by Charlotte Guichard, 63-77. Paris: Publications de la Sorbonne, 2014.
- . “‘D’après nature’ ou ‘chose vue’? Autorité et vérité de l’image scientifique au XVIII^e siècle.” In *À perte de vue: les nouveaux paradigmes du visuel*, edited by Daniel Debusson and Sophie Raux, 35-51. Dijon: Les presses du réel, 2015.
- Guiral, Pierre. “Tournefort et son voyage au Levant.” In Becker *et al.*, *Tournefort*, 77-96.
- Hahn, Roger. *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803*. Berkeley: University of California Press, 1971.
- Hamonou, Aline, and François J. Meunier. “Les dessins ichtyologiques réalisés par J.-G. Duverney et P. de la Hire pendant leur voyage en Basse-Bretagne en 1679-1680.” *Cybiurn* 34, no. 1 (2010): 19-27.

- Hamou, Philippe. *Voir et connaître à l'âge classique*. Paris: Presses Universitaires de France, 2002.
- Haskell, Francis. "Introduction." In *The Paper Museum of Cassiano dal Pozzo*. [Ivrea]: Olivetti, 1992: 1-10.
- . *History and Its Images*. New Haven, CT: Yale University Press, 1993.
- Haudrère, Philippe. "Esquisse de portrait intellectuel de Michel Bégon," in *Le temps de Bégon*, 15–26.
- Hazard, Paul. *La crise de la conscience européenne, 1680-1715*. Paris: Boivin et Cie., 1935. Translated by J. Lewis May as *The Crisis of the European Mind: 1680-1715*. New York: The New York Review of Books, 2013 [1953].
- Hess, Volker, and J. Andrew Mendelsohn. "Case and Series: Medical Knowledge and Paper Technologies, 1600-1900." In Hopwood, Schaffer, and Secord, "Seriality and Scientific Objects," 287-314.
- Hillman, David, and Carla Mazzio, eds. *The Body in Parts: Fantasies of Corporeality in Early Modern Europe*. New York: Routledge: 2009.
- Hoisington, Rena M. "Learning to Etch." In Stein *et al.*, *Artists and Amateurs*, 15-39.
- Hopwood, Nick, Simon Schaffer, and Jim Secord, eds. "Seriality and Scientific Objects in the Nineteenth Century." Special issue, *History of Science* 48 (2010): 251-499.
- Hrodej, Philippe. "Saint-Domingue en 1690. Les observations du père Plumier, botaniste provençal." *Revue française d'histoire d'outre-mer* 84, no. 317 (1997): 93–117.
- Huisman, Gerda C. *The University of Groningen: Four Hundred Years of History in Four Buildings, Fourty Collections, and Infinite Pictures*. Groningen: Barkhuis & University Library Groningen, 2014.
- Hunter, Matthew C. *Wicked Intelligence. Visual Art and the Science of Experiment in Restoration England*. Chicago: The University of Chicago Press, 2013.
- Hunter, Michael, ed. *The Boyle Papers: Understanding the Manuscripts of Robert Boyle*. Aldershot: Ashgate, 2007.
- Hurel, Daniel-Odon. "Les Bénédictins de Saint-Maur et l'histoire au XVII^e siècle." *Littérature classiques* 30 (1997): 33-50.
- . "Les Mauristes, consommateurs et producteurs de livres aux XVII^e et XVIII^e siècles." In Dompnier and Froeschlé-Chopard, *Les religieux et leurs livres*, 177-94.
- , ed. *Érudition et commerce épistolaire: Jean Mabillon et la tradition monastique*. Paris: Vrin, 2003).
- Hurel, Daniel-Odon, and Raymon Roge, eds. *Dom Bernard de Montfaucon*. Saint-Wandrille: Éditions de Fontenelle, 1998.
- Iliffe, Robert. "Material Doubts: Hooke, Artisan Culture and the Exchange of Information in 1670s London." *The British Journal for the History of Science* 28, no. 3 (1995): 285-318.
- . "Science and Voyages of Discovery." In *The Cambridge History of Science*, vol. 4: *Eighteenth-Century Science*, edited by Roy Porter, 618-45. Cambridge: Cambridge University Press, 2003.
- Israel, Jonathan. *Radical Enlightenment: Philosophy and the Making of Modernity, 1650-1750*. Oxford: Oxford University Press, 2001.
- Ivins, William M., Jr. *Prints and Visual Communication*. Cambridge, MA: The MIT Press, 1969 [1953].
- Jackson, H. J. *Marginalia: Readers Writing in Books*. New Haven, CT: Yale University Press, 2001.

- Jacob, Christian. "From Alexandria to Alexandria: Scholarly Interfaces of a Universal Library," http://dc-mrg.english.ucsb.edu/conference/2002/documents/christian_jacob.html
- , ed. *Les lieux de savoir*, vol. 2, *Les mains de l'intellect*. Paris: Albin Michel, 2011.
- Jacob, Margaret C. "Afterword: Science, Global Capitalism, and the State," in Delbourgo and Dew, *Science and empire*, 333-44.
- Jacquot, Jean. "Sir Hans Sloane and French Men of science." *Notes and Records of the Royal Society of London* 10, no. 2 (1953): 85-98.
- Jagger, Graham. "Joseph Moxon, FRS, and the Royal Society." *Notes and Records of the Royal Society of London* 49, no. 2 (1995): 193-202.
- Jalobeanu, Dana. "Francis Bacon's Natural History and the Senecan Natural Histories of Early Modern Europe." *Early Science and Medicine* 17 (2012): 197-229.
- Jammes, André. "Louis XIV, sa Bibliothèque et le *Cabinet du Roi*." *The Library* 20, no. 1 (1965): 1-12.
- Jardine, Nick, J. A. Secord, and E. C. Spary, eds. *Cultures of Natural History*. Cambridge: Cambridge University Press, 1996.
- Jarvis, Charlie, Mark Spencer, and Robert Huxley. "Sloane's plant specimens at the Natural History Museum." In *From Books to Bezouars. Sir Hans Sloane and His Collections*, edited by Michael Hunter, Alison Walker, and Arthur MacGregor, 137-57. London: British Library Publishing, 2012.
- Johns, Adrian. "Natural History as Print Culture." In Jardine *et al.*, *Cultures of Natural History*, 106-24.
- . *The Nature of the Book: Print and Knowledge in the Making*. Chicago: The University of Chicago Press, 1998.
- . "How to Acknowledge a Revolution." *American Historical Review* 107, no. 1 (2002): 106-28.
- . "The Ambivalence of Authorship in Early Modern Natural Philosophy." In Biagioli and Galison, *Scientific Authorship*, 67-90.
- . *Piracy: The Intellectual Property Wars from Gutenberg to Gates*. Chicago: The University of Chicago Press, 2009.
- Jolly, Claude. "Unité et diversité des collections religieuses." In *Histoire des bibliothèques françaises*, edited by Claude Jolly, 11-28. Paris: Promodis-Éditions du Cercle de la Librairie, 1988.
- Jones, Matthew L. *The Good Life of the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue*. Chicago: The University of Chicago Press, 2006.
- Joppien, R. "The Dutch Vision of Brazil: Johan Maurits and his Artists." In van den Boogart, *Johan Maurits*, 297-376.
- Jorink, Erik. "Noah's Ark Restored (and Wrecked): Dutch Collectors, Natural History, and the Problem of Biblical Exegesis." In *Silent Messengers: The Circulation of Material Objects of Knowledge in the Early Modern Low Countries*, edited by Sven Dupré and Christoph Lüthy, 153-84. Berlin: Lit, 2011.
- Julien, Pascal. "Anamorphoses et visions miraculeuses du père Maignan (1602-1676)," in Dubourg Glatigny and Romano, "La Trinité-des-Monts," 45-71.

- Juratic, Sabine. "Le guide de Paris de Germain Brice." *Patrimoine* (blog). *Service commun de la documentation. École normale supérieure*, May, 2013. <http://www.bib.ens.fr/mai-2013-Germain-B.675.0.html>
- Kettering, Sharon. *Patrons, Brokers, and Clients in Seventeenth-Century France*. New York: Oxford University Press, 1986.
- . "Brokerage at the Court of Louis XIV." *The Historical Journal* 36, no. 1 (1993): 69-87.
- Koerner, Lisbet. *Linnaeus: Nature and Nation*. Cambridge, MA: Harvard University Press, 1999.
- Kohl, Philip L., Irina Podgorny, and Stephane Gänger, eds. *Nature and Antiquities: The Making of Archeology in the Americas*. Tucson: The University of Arizona Press, 2014.
- Krajewski, Markus. *Paper Machines: About Cards & Catalogs, 1548-1929*. Cambridge, MA: The MIT Press, 2011 [German ed. 2002].
- Krakowitch, Odile. "Le couvent des minimes des la Place-Royale." *Paris et Ile-de-France* 30 (1979): 87-258.
- . "La vie intellectuelle dans les trois couvents minimes de la place Royale, de Nigeon et de Vincennes. Les auteurs, les études et les bibliothèques." *Bulletin de la Société de l'histoire de Paris et de l'Ile-de-France* 109 (1982): 23-175.
- Kury, Lorelai. "Les instructions de voyage dans les expéditions scientifiques françaises (1750-1830)." *Revue d'histoire des sciences* 51, no. 1 (1998): 65-91.
- Kusukawa, Sachiko. "Leonhart Fuchs on the Importance of Pictures." *Journal of the History of Ideas* 58, no. 3 (1997): 403-27.
- . "Uses of Pictures in Printed Books: The Case of Clusius's *Exoticorum Libri Decem*." In Egmond *et al.*, *Renaissance Naturalist*, 221-46.
- . "The Sources of Gessner's Pictures for the *Historia animalium*." *Annals of Science* 67, no. 3 (2010): 303-28.
- . "Picturing Knowledge in the Early Royal Society: The Examples of Richard Waller and Henry Hung." *Notes and Records of the Royal Society* 65 (2011): 273-94.
- . *Picturing the Book of Nature: Image, Text, and Argument in Human Anatomy and Medical Botany*. Chicago: The University of Chicago Press, 2012.
- L.G. *Précis de l'histoire de la botanique pour servir de complément à l'étude du règne vegetal*. Paris: Louis Guérin et Cie., 1871.
- Lack, H. W. "Die frühe botanische Erforschung der Insel Kreta." *Annalen des Naturhistorischen Museums in Wien* 98 B. Suppl. (1996): 183-236.
- Lacour, Pierre-Yves. "Histoire naturelle." In *1740: Un abrégé du monde. Savoirs et collections autour de Dezallier d'Argenville*, 112-20. Lyon: Fage, 2012.
- . *La République naturaliste. Collections d'histoire naturelle et Révolution française (1789-1804)*. Paris: Muséum national d'histoire naturelle, 2014.
- Laissus, Yves. "Les Plantes du Roi. Notes sur un grand ouvrage de botanique préparé au XVII^e siècle par l'Académie royale des Sciences." *Revue d'histoire des sciences et de leurs applications* 22, no. 3 (1969): 193-236
- . "Les voyageurs naturalistes du Jardin du Roi et du Muséum d'histoire naturelle: un essai de portrait-robot." *Revue d'histoire des sciences* 34, no. 3-4 (1981): 259-317

- . “Le Jardin du roi.” In *Enseignement et diffusion des sciences au XVIII^e siècle*, edited by René Taton, 287-341. Paris: Hermann, 1986.
- Lamy, Denis, and Aline Pelletier. “La conservation et la valorisation de l’Herbier de Tournefort au Muséum national d’Histoire naturelle.” *La Lettre de l’OCIM* 130 (2010): 19-26.
- Lane, Kris. *Pillaging the Empire: Global Piracy on the High Seas, 1500-1750*, 2nd ed. New York: Routledge, 2016 [1998].
- Larroquet, Philippe Tamizey de. *Deux jardiniers émérites: Peiresc et Vespasien Robin*. Aix: V.-J. Remondet, 1896.
- Latour, Bruno. “Visualization and Cognition: Thinking with Eyes and Hands.” *Knowledge and Society: Studies in the Sociology of Culture Past and Present* 6 (1986): 1-40.
- . *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press, 1987.
- . “Drawing Things Together.” In *Representation in Scientific Practice*, edited by Michael Lynch and Steve Woolgar, 19-68. Cambridge, MA: The MIT Press, 1990 [1988].
- Laufer, Roger. “L’espace visuel du livre ancien.” In Martin and Chartier, *Le livre conquérant*, 479-97.
- . “Les espaces du livre.” In Martin and Chartier, *Le livre triomphant*, 128-39.
- Law, John, and Michael Lynch. “Lists, Field Guides, and the Descriptive Organization of Seeing: Birdwatching as an Exemplary Observational Activity.” *Human Studies* 11 (1988): 271-303.
- Le Blanc, Marianne. *D’acide et d’encre: Abraham Bosse (1604?-1676) et son siècle en perspective*. Paris: CNRS Editions, 2004.
- Lellinger, David B., and George R. Proctor. “The Adscriptions of Plumier’s Ferns Plates.” *Taxon* 32, no. 4 (1983): 565-71.
- Lemaire, Alice. “Le livre des plantes au dix-septième siècle.” Archivist-paleographer diss., École nationale de chartes, 1995.
- Lestringant, Frank. *L’atelier du cosmographe, ou l’image du monde à la Renaissance*. Paris: Albin Michel, 1991.
- . *Le livre des îles: Atlas et récits insulaires de la Genèse à Jules Verne*. Geneva: Droz, 2002.
- Love, Harold. *The Culture and Commerce of Texts: Scribal Publication in Seventeenth-Century England*. Amherst: University of Massachusetts Press, 1998 [1993].
- Lowengard, Sarah. *The Creation of Color in Eighteenth-Century Europe*. New York: Columbia University Press, 2007.
- Maclean, Ian. “White Crows, Graying Hair, and Eyelashes: Problems for Natural Historians in the Reception of Aristotelian Logic and Biology from Pomponazzi to Bacon.” In Pomata and Siraisi, *Historia*, 147-179.
- MacLeod, Roy, ed. “Nature and Empire: Science and the Colonial Enterprise.” Special issue, *Osiris* 15 (2002).
- Malabirade, Valérie. “Les Minimes et la province d’Aquitaine sous l’Ancien Régime: Un cadre provincial pour un engagement intellectuel?” 2 vols. PhD diss., Université Michel de Montaigne Bordeaux 3, 2013.

- Mandressi, Rafael. *Le regard de l'anatomiste. Dissections et invention du corps en Occident*. Paris: Le Seuil, 2003.
- . “Images, imagination et imagerie médicales.” In Jacob, *Lieux du savoir*, 649-70.
- . “Dividere per conoscere: la ‘parte’ come concetto nel pensiero anatomico in età moderna.” In *Anatome: Sezione, scomposizione, raffigurazione del corpo fra medioevo e età moderna*, edited by Giuseppe Olmi and Claudia Pancivino, 117-35. Bologna: Bononia University Press, 2012.
- . “Livres du corps et livres du monde: chirurgiens, cartographes et imprimeurs, XV^e-XVI^e siècle.” In Christine Bénévent, Isabelle Diu, et Chiara Lastraioli, eds., *Gens du livre et gens de lettres à la Renaissance*, 209-30. Turnhout: Brepols, 2014.
- . “Le regard scientifique: cultures visuelles des sciences.” In Van Damme, *De la Renaissance aux Lumières*, 231-53.
- Marcaida, José Ramón. *Arte y ciencia en el Barroco español: historia natural, coleccionismo y cultura visual*. Madrid: Marcial Pons and Fundación Focus-Abengoa, 2014.
- Marcaida, José Ramón, and Juan Pimentel. “Green Treasures and Paper Floras: The Business of José Celestino Mutis in New Granada (1783-1808).” In Roberts, “Accumulation and Management,” 277-96.
- Margócsy, Dániel. *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age*. Chicago: The University of Chicago Press, 2014.
- Marin, Louis. *Le portrait du roi*. Paris: Éditions de Minuit, 1981.
- . *Opacité de la peinture. Essais sur la représentation du Quattrocento*. Paris: Usher, 1989.
- . *Des pouvoirs de l'image. Glosses*. Paris: Le Seuil, 1993.
- . “Lire un tableau. Une lettre de Poussin en 1639.” In *Pratiques de la lecture*, edited by Roger Chartier, 129-57. Paris: Payot, 1993 [1985]. Translated as “On Reading Pictures: Poussin’s Letter on *Manna*.” In *Comparative Criticism: A Yearbook*, edited by E. S. Shaffer, 3-18. Cambridge: Cambridge University Press, 1982.
- Marotti, Arthur F. *Manuscript, Print, and the English Renaissance Lyric*. Ithaca: Cornell University Press, 1995.
- Martin, Henri-Jean. “La direction des lettres.” In Martin and Chartier, *Le livre triomphant*, 65-83.
- . “Une croissance séculaire.” In Martin and Chartier, *Le livre triomphant*, 95-103.
- . *Livre, pouvoir et société au XVII^e siècle*. 2 vols. Geneva: Droz, 1999.
- Martin, Henri-Jean, and Roger Chartier, eds. *Histoire de l’édition française*, vol. 1: *Le livre conquérant. Du Moyen Âge au milieu du dix-septième siècle*. [Paris:] Promodis, 1982.
- , eds. *Histoire de l’édition française*, vol. 2: *Le livre triomphant, 1660-1830*. [Paris:] Promodis, 1984.
- Mason, Peter. *Deconstructing America: Representations of the Other*. London: Routledge, 1990.
- . “From Presentation to Representation: *Americana* in Europe.” *Journal of the History of Collections* 6, no. 1 (1994): 1-20.
- . *Infelicities: Representations of the Exotic*. Baltimore, MD: Johns Hopkins University, 1998.
- . *The Lives of Images*. New York: Reaktion Books, 2001.

- . “Americana in the *Exoticorum libri decem* of Charles de l’Écluse.” In Egmond *et al.*, *Renaissance Naturalist*, 195-219.
- . *Before Disenchantment: Images of Exotic Animals and Plants in the Early Modern World*. New York: Reaktion Books, 2009.
- Mathis, Rémi. “Pratiques quotidiennes de travail au Cabinet des Estampes dans les décennies 1750 et 1760.” *Revue de la Bibliothèque nationale de France* 47 (2012): 52-57.
- Maurice, Klaus. *Der drehelnde Souverän: Materialien zu einer fürstlichen Maschinekunst*. Zürich: Ineichen, 1985.
- Mazauric, Simone. *Fontenelle et l’invention de l’histoire des sciences à l’aube des Lumières*. Paris: Fayard, 2007.
- McClellan III, James E. *Colonialism and Science: Saint Domingue in the Old Regime*. Chicago: The University of Chicago Press, 2010 [1992].
- McClellan, James E., and François Regourd. “The Colonial Machine: French Science and Colonization in the Ancien Regime.” In MacLeod, “Nature and Empire,” 31-50.
- . *The Colonial Machine: French Science and Overseas Expansion in the Old Regime*. Turnhout: Brepols, 2011.
- McKenzie, D. F. *The Cambridge University Press, 1696-1712: A Bibliographical Study*. Cambridge: Cambridge University Press, 1996.
- . *Making Meaning: “Printers of the Mind” and Other Essays*. Edited by Peter D. McDonald and Michael F. Suarez, S.J. Amherst, MA: University of Massachusetts Press, 2002.
- . *Bibliography and the Sociology of Texts*. Cambridge: Cambridge University Press, 2004 [1999].
- McLeod, Jane. *Licensing Loyalty: Printers, Patrons, and the State in Early Modern France*. University Park, PA: The Pennsylvania University Press, 2001.
- McTighe, Sheila. “Abraham Bosse and the Language of Artisans: Genre and Perspective in the Académie royale de peinture et de sculpture, 1648-1670.” *Oxford Art Journal* 21, no. 1 (1998): 3-26.
- Mellot, Jean-Dominique. “Les Mauristes et l’édition érudite: un gallicanisme éditoriale?” In Hurel, *Érudition et commerce épistolaire*, 73-88.
- Mérot, Alain, ed. *Conférences de l’Académie de peinture et de sculpture au XVIII^e siècle*. Paris: École supérieure des beaux-arts, 1996.
- Meyer, Jean, Jean Tarade, and Annie Rey-Goldzeiguer. *Histoire de la France coloniale*, vol. 1: *La conquête: des origines à 1870*. Paris: Pocket, 1996.
- Michaud, Louis-Gabriel, ed. *Biographie universelle ancienne et moderne, ou Histoire par ordre alphabétique de tous les hommes qui se sont fait remarquer*. 85 vols. Paris: Michaud frères, 1826.
- Michell, A. R. “The European Fisheries in Early Modern History.” In *The Cambridge Economic History of Europe*, vol. 5: *The Economic Organization of Early Modern Europe*, edited by E. E. Rich and C. H. Wilson, 133-84. Cambridge: Cambridge University Press, 1977.
- Miller, Peter N. *Peiresc’s Europe: Learning and Virtue in the Seventeenth Century*. New Haven, CT: Yale University Press, 2000.
- . *Peiresc’s Mediterranean World*. Cambridge, MA: Harvard University Press, 2015.

- Millstone, Noah. *Manuscript Circulation and the Invention of Politics in Early Stuart England*. Cambridge: Cambridge University Press, 2016.
- Momigliano, Arnaldo. "Ancient History and the Antiquarian." *Journal of the Warburg and Courtauld Institutes* 13, nos. 3-4 (1950): 285-315.
- Montègre, Gilles. *La Rome des Français au temps des Lumières. Capitale des l'antique et carrefour de l'Europe, 1769-1791*. Rome: École française de Rome, 2011).
- Morat, Philippe, Gérard-Guy Aymonin, and Jean-Claude Jolinon, eds. *L'herbier du monde. Cinq siècles d'aventures et de passions botaniques au Muséum national d'histoire naturelle*. Paris: Muséum national d'histoire naturelle and Les Arènes/L'iconoclasme, 2004.
- Morgan, William Thomas. "The Expedition of Baron de Pointis against Cartagena." *The American Historical Review* 37, no. 2 (1932): 237-54.
- Moser, Stephanie. "Making Expert Knowledge through Images: Connections between Antiquarianism and Early Scientific Illustration." *Isis* 105 (2014): 58-99.
- Mottram, Roy. "Charles Plumier, the King's Botanist: His Life and Work." *Bradleya* 20 (2002): 79-120.
- Moureau, François, ed. *De bonne main. La communication manuscrite au XVIII^e siècle*. Paris and Oxford: Universitas/Voltaire Foundation, 1993.
- Müller-Wille, Staffan. "Linnaeus's Herbarium Cabinet: A Piece of Furniture and Its Function." *Endeavour* 30, no. 2 (2006): 60-4.
- . "Collection and Collation: Theory and Practice of Linnaean Botany." *Studies in History and Philosophy of the Biological and Biomedical Sciences* 38, no. 3 (2007): 541-62.
- . "Systems and How Linnaeus Looked at Them in Retrospect." *Annals of Science* 70, no. 3 (2013): 305-17.
- Müller-Wille, Staffan, and Isabelle Charmantier. "Natural History and Information Overload: The Case of Linnaeus." *Studies in History and Philosophy of Biological and Biomedical Sciences* 43 (2012): 4-15.
- . "Carl Linnaeus's Botanical Paper Slips (1767-1773)." *Intellectual History Review* 24, no. 2 (2014): 215-38.
- , eds. "Worlds of Paper." Special issue, *Early Science and Medicine* 19, no. 5 (2014): 379-503.
- Müller-Wille, Staffan, and Karen Reeds. "A Translation of Carl Linnaeus's introduction to *Genera plantarum* (1737)." *Studies in History and Philosophy of Biological and Biomedical Sciences* 38 (2007): 563-72.
- Murphy, Kathleen S. "Collecting Slave Traders: James Petiver, Natural History, and the British Slave Trade." *The William and Mary Quarterly* 70, no. 4 (2013): 637-70.
- Myers, Kathleen Ann. *Fernández de Oviedo's Chronicle of America: A New History for a New World*. Austin: University of Texas Press, 2007.
- Napolitano, Elena Cristina. "Prospects of Statecraft: Diplomacy, Territoriality, and the Vision of French Nationhood in Roome, 1660-1700." PhD diss., University of Toronto, 2012.
- . "'Exposed to Everyone's Eyes': The Urban Prospect and the Publicity of Representation in Israël Silvestre's *Profile of the City of Rome*, 1687." In *Making Space Public in Early Modern*

- Europe: Performance, Geography, Privacy*, edited by Angela Vanhaelen and Joseph P. Ward, 151-72. New York: Routledge, 2013.
- Nasim, Omar W. *Observing by Hand: Sketching the Nebulae in the Nineteenth Century*. Chicago: The University of Chicago Press, 2013.
- Neveu, Burno. *Érudition et religion aux XVII^e et XVIII^e siècles*. Paris: Albin Michel, 1994.
- Nickson, M. A. E. "Hans Sloane, Book Collector and Cataloguer, 1682-98." *British Literary Journal* 14, no. 1 (1988): 52-89.
- Norman, Larry F. *The Shock of the Ancient: Literature and History in Early Modern France*. Chicago: The University of Chicago Press, 2011.
- North, J.D. "Georg Markgraf, an Astronomer in the New World." In van den Boogart, *Johan Maurits*, 394-423.
- Ogilvie, Brian W. "Encyclopaedism in Renaissance Botany: From 'Historia' to 'Pinax.'" In *Pre-Modern Encyclopaedic Texts: Proceedings of the Second COMERS Congress, Groningen, 1-4 July 1996*, edited by Peter Binkley, 89-99. Leiden: Brill, 1997.
- . "Natural History, Ethics and Physico-Theology." In Pomata and Siraisi, *Historia*, 75-103.
- . *The Science of Describing: Natural History in Renaissance Europe*. Chicago: The University of Chicago Press, 2006.
- . "Science and Medicine." In *The Oxford Handbook of Neo-Latin*, edited by Sarah Knight and Stefan Tilly, 263-77. New York: Oxford University Press, 2015.
- Olmi, Giuseppe. *L'inventario del mondo. Catalogazione della natura e luoghi del sapere nella prima età moderna*. Bologna: Il Mulino, 1992.
- Olmi, Giuseppe, Lucia Tongiorgi-Tomasi, and Atilio Zanca, eds. *Natura-cultura: l'interpretazione del mondo fisico nei testi e nelle immagini*. Florence: Leo S. Olschki, 2000.
- Pardo Tomás, José. "Le immagini delle piante americane nell'opera di Gonzalo Fernández de Oviedo (1478-1557)." In Olmi *et al.*, *Natura-cultura*, 133-51.
- Park, Katherine, and Lorraine Daston, eds. *The Cambridge History of Science*, vol. 3: *Early Modern Science*. New York: Cambridge University Press, 2006.
- Parrish, Susan Scott. "Diasporic African Sources of Enlightenment Knowledge." In Delbourgo and Dew, *Science and Empire*, 281-310.
- Parsons, Christopher M., and Kathleen S. Murphy. "Ecosystems Under Sail: Specimen Transport in the Eighteenth-Century French and British Atlantics." *Early American Studies* 10, no. 3 (2012): 503-29.
- Pelayo, Francisco. "La historia natural de las Antillas en el siglo XVII: La obra de Charles Plumier (1646-1704)." *Tebeto: Anuario del Archivo Histórico Insular de Fuerteventura* 5, no. 1 (1992): 179-200.
- Peltz, Lucy. "Nicholls, Sutton (fl. 1680-1740)." *Oxford Dictionary of National Biography*. Oxford: Oxford University Press, 2004. <http://www.oxforddnb.com/view/article/20115>.
- Petrucci, Armando. "Dal libro unitario al libro miscellaneo." In *Società romana e imperio tardoantico*, vol. 4, *Tradizione dei classici, trasformazioni della cultura*, edited by Andrea Giardina, 173-87. Rome: Laterza, 1986.

- Pettitt, Clare. "Taxonomy and Travel in Nineteenth-Century Women's Scrapbooks." In *Travel Writing, Visual Culture, and Form, 1760-1900*, edited by Mary Henes and Brian H. Murray, 21-41. Basingstoke: Palgrave Macmillan, 2015.
- Pierre, Benoist, and André Vauchez, eds. *Saint François de Paule & les Minimes en France de la fin du XV^e au XVIII^e siècle*. Tours: Presses universitaires François-Rabelais, 2010.
- Pietsch, Theodore W. "Charles Plumier (1646-1704) and his Drawings of French and American Fishes." *Archives of Natural History* 28, no. 1 (2001): 1-57.
- . "Charles Plumier's Drawings of French and American Fishes: Concordance with Equivalent Illustrations Found in the Vellums of Aubriet and Published Works of Gautier d'Agoty, Bloch, Lacepède, Bloch and Schneider, and Cuvier and Valenciennes." *Archives of Natural History* 28, no. 2 (2001): 261-8.
- . "Plumier's Passion." *Natural History* 119, no. 7 (2011): 30-6.
- Pilgrim, Donald. "The Colbert-Seignelay Naval Reforms at the Beginning of the War of the League of Ausburg," *French Historical Studies* 9, no. 2 (1975): 235-62.
- Pimentel, Juan. "The Iberan Vision: Science and Empire in the Framework of a Universal Monarchy (1500-1800)." In MacLeod, "Nature and Empire," 17-30.
- . *Testigos del mundo: ciencia, literatura y viajes en la Ilustración*. Madrid: Marcial Pons, 2003.
- . *El rinoceronte y el megaterio. Un ensayo de morfología histórica*. Madrid: Abada Editores, 2010. Translated by Peter Mason as *The Rhinoceros and the Megatherium: An Essay in Natural History*. Cambridge, MA: Harvard University Press, 2017.
- Pimentel, Juan, and Isabel Soler. "Painting the Naked Truth: The *Colóquios* of Garcia da Orta (1563)." *Journal of Early Modern History* 18 (2014): 101-20.
- . "Garcia de Orta: notas sobre las fronteras de la ciencia renacentista." In *Traducción y representaciones del conflicto desde España y América. Una perspectiva interdisciplinaria*, edited by Iciar Alonso Araguás, Alba Páez Rodríguez, and Mario Samaniego Sastre, 90-105. Salamanca: Ediciones Universidad de Salamanca, 2015.
- Pinon, Laurent. *Livres de zoologie de la Renaissance: Une anthologie (1450-1700)*. Paris: Klincksieck, 2000.
- Polhill, R. M., and W. T. Stearn. "Linnaeus's Notes on Plumier Drawings [*sic*] with Special Reference to *Mimosa Latisiliqua*." *Taxon* 25, no. 2/3 (1976): 323-5.
- Pomata, Gianna. "Observation Rising: Birth of an Epistemic Genre, 1500-1650." In Daston and Lunbeck, *Histories of Scientific Observation*, 45-80.
- Pomata, Gianna, and Nancy G. Siraisi, *Historia: Empiricism and Erudition in Early Modern Europe*. Cambridge, MA: The MIT Press, 2005.
- Pomian, Krzysztof. *Collectionneurs, amateurs et curieux. Paris, Venise: XVI^e-XVIII^e siècle*. Paris: Gallimard, 1987. Translated by Elizabeth Wiles-Portier as *Collectors and Curiosities: Paris and Venice, 1500-1800*. Cambridge: Polity Press, 1990.
- Préaud, Maxime. "Printmaking under Louis XIV." In Fuhring, *Kingdom of Images*, 9-14
- Pritchard, James. *In Search of Empire: The French in the Americas*. Cambridge: Cambridge University Press, 2004.

- Pugliano, Valentina. "Specimen Lists: Artisanal Writing or Natural Historical Paperwork?" In Delbourgo and Müller-Wille, "Listmania," 716-26.
- Raj, Kapil. *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900*. Houndmills: Palgrave Mcmillan, 2007.
- Rappaport, Rhoda. *When Geologists Were Historians, 1665-1750*. Ithaca: Cornell University Press, 1997.
- Raven. Charles. *John Ray, Naturalist: His Life and Works*. New York: Cambridge University Press, 1942.
- Reeds, Karen Meier. *Botany in Medieval and Renaissance Universities*. New York: Garland, 1991.
- Reeve, Michael D. "Manuscripts Copied from Printed Books." In *Manuscripts and Methods: Essays on Editing and Transmission*, 175-83. Rome: Edizioni di Storia e Letteratura, 2001.
- Regourd, François. "Sciences et colonisation sous l'Ancien Régime. Le cas de la Guyanne et des Antilles françaises, XVII^e-XVIII^e siècle." PhD diss., Université de Bordeaux III-Michel de Montaigne, 2000.
- . "Diffusion et assimilation des techniques académiques de collecte et d'expertise dans l'espace caraïbe français (XVII^e-XVIII^e s.)." In *Techniques et colonies (XVII^e-XXe siècles)*, edited by Philippe Hrodej and Sylvanie Llinares, 33-47. Paris: Publications de la Société Française d'Histoire d'Outre-Mer, 2005.
- . "Localités et centralités scientifiques: les mondes atlantiques (XVI^e-XVII^e siècle)." In Van Damme, *De la Renaissance aux Lumières*, 325-44.
- Riley, Margaret. "The Club at the Temple Coffee House Revisited." *Archives of natural history* 33, no. 1 (2006): 90-100.
- Roberts, Lissa, ed. "Accumulation and Management in Global Historical Perspective." Special issue, *History of science* 53, no. 2 (2014).
- Roberts, Lissa. "'Le centre de toutes choses': Constructing and Managing Centralization on the Isle de France." In Roberts, "Accumulation and Management," 319-42.
- Roger, Jacques. "The Living World." In *The Ferment of Knowledge: Studies in the Historiographie of Eighteenth-Century Science*, edited by G. S. Rousseau and Roy Porter, 255-83. Cambridge: Cambridge University Press, 1980.
- Roland, Denis. "L'intendant au jardin, Michel Bégon," in *Le temps de Bégon*, 27-41.
- Romano, Antonella. "Mathematics and Philosophy at Trinità Dei Monti: Emmanuel Maignan and His Legacy between Rome and France." In *Conflicting Duties: Science, Medicine and Religion in Rome, 1550-1750*, edited by Maria Pia Donato and Jill Kraye, Warburg Institute Colloquia 15, 157-80. London: The Warburg Institute, 2009.
- . *Impressions de la Chine. L'Europe et l'englobement du monde (XVI^e-XVII^e siècle)*. Paris: Fayard, 2016.
- Roos, Anna Marie. *Web of Nature: Martin Lister (1639-1712), the First Arachnologist*. Leiden: Brill, 2011.
- Rose, Mark. *Authors and Owners: The Invention of Copyright*. Cambridge, MA: Harvard University Press, 1993.

- Roux, Benoît. "Le prêtre et le Callinago: les missions françaises auprès des Amérindiens des Petites Antilles au XVII^e siècle." In *Le contrôle de la vie religieuse en Amérique*, edited by Bernard Grunberg, 78-101. Cahiers d'Histoire de l'Amérique Coloniale 3. Paris: L'Harmattan, 2008.
- . "De insulis Karaybicus relationes manuscriptae: Adrien Le Breton, the last Jesuit in the Carib island of St. Vincent." In *Communities in Contact: Essays in Archeology, Ethnohistory and Ethnography of the Amerindian Circum-Caribbean*, edited by Corinne L. Hofman and Anne Van Duijvenbode, 343-59. Leiden: Sidestone Press, 2011.
- . "Le pasteur Charles de Rochefort et l'Histoire naturelle et morale des îles Antilles de l'Amérique." In *Les Petites Antilles: des premiers peuplements amérindiens aux débuts de la colonisation européenne*, edited by Bernard Grunberg, 175-216. Cahiers d'Histoire de l'Amérique Coloniale 5. Paris: L'Harmattan, 2011.
- Rubiès, Joan-Pau. "Instructions for Travellers: Teaching the Eye to See." *History and Anthropology* 9, nos. 2-3 (1996): 139-90.
- Rudwick, Martin J. S. *The Meaning of Fossils: Episodes in the History of Paleontology*. Chicago: The University of Chicago Press, 1985 [1976].
- . *Bursting the Limits of Time: The Reconstruction of Geobiology in the Age of Revolution*. Chicago: The University of Chicago Press, 2005.
- Rudy, Elizabeth M. "On the Market: Selling Etchings in Eighteenth-Century France." In Stein *et al.*, *Artists and Amateurs*, 41-67.
- Rusque, Dorothee. "L'histoire naturelle dans les marges: écrire dans et à partir des livres. Le cas de Jean Hermann." In *Écrire les sciences*, edited by Isabelle Laboulais and Martial Guédron, 81-96. Brussels: Éditions de l'Université de Bruxelles, 2015.
- Safier, Neil. "Fruitless Botany: Joseph Jussieu's South American Odyssey," in Delbourgo and Dew, *Science and Empire*, 203-24.
- . *Measuring the New World: Enlightenment Science and South America*. Chicago: The University of Chicago Press, 2008.
- . "Beyond Brazilian Nature: The Editorial Itineraries of Marcgraf and Piso's *Historia naturalis Brasiliae*." In *The Legacy of Dutch Brazil*, edited by Michiel van Groesen, 168-86. New York: Cambridge University Press, 2014.
- . "Livres et cultures écrites des sciences." In Van Damme, *De la Renaissance aux Lumières*, 205-29.
- Sahlins, Peter. "The Royal Menageries of Louis XIV and the Civilizing Process Revisited." *French Historical Studies* 35, no. 2 (2012): 237-67.
- Saint-Lager, Jean-Baptiste. "Histoire des herbiers." *Annales de la Société Botanique de Lyon. Notes et mémoires* 13 (1885): 1-120.
- Salinero, Gregorio, and Christine Lebeau, eds., "Pour faire une histoire des listes à l'époque moderne." Special issue, *Mélanges de la casa Velázquez* 44, no. 2 (2014): 9-179.
- Salomon-Bayet, Claire. *L'institution de la science et l'expérience du vivant. Méthode et expérience à l'Académie royale des sciences, 1666-1793*. 2nd ed. Paris: Flammarion, 2008 [1978].
- Santiago Páez, Elena María, ed. *La Real Biblioteca Pública, 1711-1760. De Felipe V a Fernando VI, Madrid, 2 de junio-19 de septiembre 2004*. Madrid: Biblioteca Nacional, 2004.

- Sarmant, Thierry, and Mathieu Stoll, *Régner et gouverner: Louis XIV et ses ministres*. Paris: Perrin, 2010.
- Sarton, George. "Rumphius, Plinius Indicus (1628-1702)." *Isis* 27, no. 2 (1937): 242-57.
- Schaffer, Simon. "Natural Philosophy and Public Spectacle in the Eighteenth Century." *History of science* 21 (1983): 1-43.
- . "'On Seeing Me Write': Inscription Devices in the South Seas." *Representations* 97, no. 1 (2007): 90-122.
- . "Newton on the Beach: The Information Order of the *Principia mathematica*." *History of Science* 47, no. 3 (2009): 243-76.
- Schaffer, Simon, Lissa Roberts, Kapil Raj, and James Delbourgo, eds. *The Brokered World: Go-Betweens and Global Intelligence, 1700-1820*. Sagamore Beach, MA: Science History Publications, 2009.
- Schepelern, H. D. "Introduction." In *Olai Borrichii Itinerarium 1660-1665: The Journal of the Danish Polyhistor Ole Borch*, edited by H. D. Schepelern. 4 vols. Copenhagen: The Danish Society of Language and Literature, 1983.
- Schiebinger, Londa, and Claudia Swan, eds. *Colonial Botany: Science, Commerce and Politics in the Early Modern World*. Philadelphia, PA: University of Pennsylvania Press, 2005.
- Schnapper, Antoine. "The King of France as Collector in the Seventeenth Century." In *Art and History: Images and Their Meaning*, edited by Robert I. Rotberg and Theodore K. Rabb, 185-202. Cambridge: Cambridge University Press, 1986.
- . *Le géant, la licorne, la tulipe. Collections françaises au XVII^e siècle*, vol. 1: *Histoire et histoire naturelle*. Paris: Flammarion, 1988.
- Schotte, Margaret. "Expert Records: Nautical Logbooks from Columbus to Cook." *Information & Culture: A Journal of History* 48, no. 3 (2013): 281-322.
- Scott, Katie. "Authorship, the Académie, and the Market in Early Modern France." *Word & Image* 21, no. 1 (1998): 27-41.
- Sebastiani, Silvia. "L'orang-outang, l'esclave et l'humain: une querelle des corps en régime colonial," *L'Atelier du Centre de recherches historiques* 11 (2013): <http://arch.revues.org/5265>
- Secord, James A. "Scrapbook Science: Composite Caricatures in Late Georgian England." In *Figuring It Out: Science, Gender, and Visual Culture*, edited by Ann B. Shteir and Bernard Lightman, 164-91. Hanover, NH: Dartmouth College Press, 2006.
- Selosse, Philippe. "The underlying pattern of the Renaissance botanical genre *pinax*." In *Opening Windows on Texts and Discourses of the Past*, edited by Janne Skaffari *et al.*, 161-78. Amsterdam: John Benjamins Publishing Company, 2005.
- Senior, Matthew. "The Ménagerie and the Labyrinth: Animals at Versailles, 1662-1792." In *Renaissance Beasts: Of Animals, Humans, and Other Wonderful Creatures*, ed. Erica Fudge, 208-32. Urbana, IL: University of Illinois Press, 2004.
- . "Pierre Dionis and Joseph-Guichard Duverney: Teaching Anatomy at the Jardin du roi, 1673-1730." *Seventeenth-Century French Studies* 26 (2004): 153-69.
- Shank, J. B. "The Sciences in Old Regime France: A Review of Recent Scholarship," *French Historical Studies* 28, no. 4 (2005): 661-95.

- . *The Newton Wars & the Beginning of the French Enlightenment*. Chicago: The University of Chicago Press, 2008.
- Shapin, Steven. "The Invisible Technician," *American Scientist* 77 (1989): 554-63.
- Shapiro, Barbara J. *A Culture of Fact. England, 1550-1720*. Ithaca, NY: Cornell University Press, 2000.
- Sherman, William H. *Used Books: Marking Readers in Renaissance England*. Philadelphia, PA: University of Pennsylvania Press, 2008.
- Siraisi, Nancy G. "Vesalius and Human Diversity in *De humana corporis fabrica*." *Journal of the Warburg and Courtauld Institute* 57 (1994): 60-88.
- . *History, Medicine, and the Traditions of Renaissance Learning*. Ann Arbor: The University of Michigan Press, 2007.
- Sloan, Phillip R. "John Locke, John Ray, and the Problem of the Natural System." *Journal for the History of Biology* 5, no. 1 (1972): 1-53.
- Smentek, Kristel. *Mariette and the Science of Connoisseur in Eighteenth-Century Europe*. Farnham: Ashgate, 2014.
- Smith, James Edward. "Introductory Discourse on the Rise and Progress of Natural History." *Transactions of the Linnean Society* 1 (1791): 1-55.
- Smith, Pamela H. *The Body of the Artisan: Art and Experience in the Scientific Revolution*. Chicago: The University of Chicago Press, 2006.
- . "Why Write a Book? From Lived Experience to the Written Word in Early Modern Europe." *Bulletin of the German Historical Institute* 47 (2010): 25-50.
- Snow, Vernon F. "Francis Bacon's Advice to Fulke Greville on Research Techniques." *Huntington Library Quarterly* 23, no. 4 (1960): 369-78.
- Soll, Jacob. *The Information Master: Jean-Baptiste Colbert's Secret State Information System*. Ann Arbor: The University of Michigan Press, 2009.
- . "From Note-Taking to Data Banks: Personal and Institutional Information Management in Early Modern Europe." *Intellectual History Review* 20, no. 3 (2010): 120-39.
- Sorrenson, Richard. "The Ship as a Scientific Instrument in the Eighteenth Century." *Osiris* 11 (1996): 221-36.
- Spary, E. C. *Utopia's Garden: French Natural History from Old Regime to Revolution*. Chicago: The University of Chicago Press, 2000.
- . "Peaches Which the Patriarchs Lacked?: Natural History, Natural Resources, and the Natural Economy in France." *History of Political Economy*, Annual Supplement 38 (2003): 14-41.
- . "Scientific Symmetries." *History of Science* 42, no. 1 (2004): 1-46.
- . "Pierre Pomet's Parisian Cabinet: Revisiting the Visible and the Invisible in Early Modern Collections." In *From Private to Public: Natural Collections and Museums*, edited by Marco Beretta, 59-80. Sagamore Beach, MA: Science History Publications, 2005.
- Stafleu, Frans A., and Richard S. Cowan, *Taxonomic literature. A selective guide to botanical publications and collections with dates, commentaries and types*. Utrecht and Antwerp/The Hague and Boston: Bohn, Scheltema & Holkema/dr. W. Junk b.v., Publishers, 1986.

- Starza Smith, Daniel. *John Donne and the Conway Papers: Patronage and Manuscript Circulation in the Early Seventeenth Century*. Oxford: Oxford University Press, 2014.
- Stauffer, George B. "The Beikopf Family and Its Role in the Eighteenth-Century Music Publishing." In *J. S. Bach, the Beikopfs, and Eighteenth-Century Music Trade*, edited by George B. Stauffer, 1-18. Lincoln NE: University of Nebraska Press, 1996.
- Stearns, Raymond P. "James Petiver, Promoter of Natural Science, c. 1663-1718." *Proceedings of the American Antiquarian Society* 62 (1952): 243-365.
- Stein, Perrin. *Artists and Amateurs: Etching in Eighteenth-Century France*. With essays by Charlotte Guichard, Rena M. Hoisington, and Elizabeth M. Rudy. New York: The Metropolitan Museum of Art, 2013.
- Stevens, Peter F. *The Development of Biological Systematics: Antoine-Laurent de Jussieu, Nature, and the Natural System*. New York: Columbia University Press, 1994.
- Steward, Larry. "Other Centers of Calculation, or, Where the Royal Society Didn't Count: Commerce, Coffee-Houses and Natural Philosophy in Early Modern London." *The British Journal for the History of Science*, 32, no. 2 (1999): 133-53.
- Stoler, Ann Laura. *Along the Archival Grain: Epistemic Anxieties and Colonial Common Sense*. Princeton: Princeton University Press, 2009.
- Stroup, Alice. *Royal Funding of the Parisian Académie Royale des Sciences during the 1690s*. Philadelphia, PA: The American Philosophical Society, 1987.
- . *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-Century Parisian Royal Academy of Sciences*. Berkeley: University of California Press, 1990.
- Summers, David. *The Judgement of the Sense: Renaissance Naturalism and the Rise of Aesthetics*. Cambridge: Cambridge University Press, 1987.
- Surun, Isabelle. "Le carnet de route, archive du voyage. Notes manuscrites et récit du voyage de René Caillié à Tombouctou." *Revue de la Bibliothèque nationale de France* 22 (2006): 28-35.
- Swann, Marjorie. *Curiosities and Texts: The Culture of Collecting in Early Modern England*. Philadelphia, PA: University of Pennsylvania Press, 2001.
- Sweet, Rosemary. *Antiquaries: The Discovery of the Past in Eighteenth-Century Britain*. London: Hambledon and London, 2004.
- Tadié, Alexis. *Francis Bacon. Le continent du savoir*. Paris: Classiques Garnier, 2014.
- Take Note: An Exploration of Note-Taking in Harvard University Collections*, online exhibition, curated by Greg Afinogenov, Ann Blair, and Leah Price. <http://takenote.harvard.edu>
- te Heesen, Anke. "The Notebook: A Paper Technology." In *Making Things Public: Atmospheres of Democracy*, edited by Bruno Latour and Peter Weibel, 582-9. Cambridge, MA: The MIT Press, 2005.
- Temps de Bégon, Le*. Rochefort: Centre d'études rochefortaises maritimes: 2010.
- Terrall, Mary. *The Man Who Flattened the Earth: Maupertuis and the Sciences in the Enlightenment*. Chicago: The University of Chicago Press, 2002.
- . *Catching Nature in the Act: Réaumur and the Practice of Natural History in the Eighteenth Century*. Chicago: The University of Chicago Press, 2013.

- Thireau, Michel, François J. Meunier, Marie-Louise Bauchot, Aline Hamonou-Mahieu, and Theodore W. Pietsch. "L'oeuvre ichtyologique de Charles Plumier aux Antilles (1689-1695)." In *Explorations et voyages scientifiques de l'Antiquité à nos jours*, edited by Christiane Demeulenaere-Douyere, 47-56. Paris: Éditions du Comité des travaux historiques et scientifiques, 2008.
- Thompson, James Westfall. "The Age of Mabillon and Montfaucon." *The American Historical Review* 47, no. 2 (1942): 225-44.
- Tongiorgi Tomasi, Lucia. "Gardens of Knowledge and the *République des Gens de Lettres*," in *Baroque Garden Cultures: Emulation, Sublimation, Subversion*, edited by Michael Conan. Washington, DC: Dumbarton Oaks, 2005.
- Torrione, Margarita. "Felipe V, bibliófilo. El peso de Francia en la Real Librería Pública." In Santiago Páez, *La Real Biblioteca*, 48-64.
- Turner, G. L'E. "The Auction Sales of the Earl of Bute's Instruments, 1793." *Annals of Science* 23, no. 3 (1967): 213-42.
- Urban, Ignaz. *Plumiers Leben und Schriften nebst einen Schlüssel zu seinen Blütenpflanzen*. Berlin: Verlag des Repertoriums, 1920.
- Valverde, Nuria. "Small Parts: Crisóstomo Martínez (1638-1694), Bone Histology, and the Visual Making of Body Wholeness." *Isis* 100, no. 3 (2009): 505-36.
- Van Damme, Stéphane. "Les livres du P. Claude-François Ménéstrier (1631-1705) et leur cheminement." *Revue d'histoire moderne et contemporaine* 42, no. 1 (1995): 5-45.
- . "Écriture, institution et société. Le travail littéraire dans la Compagnie de Jésus en France (1620-1720)." *Revue de synthèse* 4, nos. 2/3 (1999): 261-283.
- . "Culture rhétorique et culture scientifique: crise ou mutation de la poétique des savoirs dans la Compagnie de Jésus en France (1630-1730)?" *Archives internationales d'histoire des sciences* 55, no. 154 (2005): 55-69.
- . *Paris, capitale philosophique. De la Fronde à la Révolution*. Paris: Odile Jacob, 2005.
- . "'The World is Too Large': Philosophical Mobility and Urban Space in Seventeenth- and Eighteenth-Century Paris." *French Historical Studies* 29, no. 3 (2006): 279-305.
- . "Mathemtaical Meditations: Revisiting Moral Practice in the Sciences of the Classical Age." *Annales. Histoire, Sciences Sociales* 67 (2012): 133-49.
- . "Lorraine Daston et la nouvelle histoire intellectuelle des sciences." In Daston, *Économie morale*, 7-18.
- . "Nous n'avons jamais été désintéressés: les sciences entre moralisations, éthique et affects." In Daston, *Économie morale*, 65-108.
- , ed. *Histoire des sciences et des savoirs*, vol. 1: *De la Renaissance aux Lumières*. Paris: Le Seuil, 2015.
- . "Un ancien régime des sciences et des savoirs." In Van Damme, *De la Renaissance aux Lumières*, 19-40.
- Vertesi, Janet. "Sicily or the Sea of Tranquility? Mapping and Naming the Moon." *Endeavour* 28, no. 2 (2004): 64-8.

- Vignaud, Laurent-Henri. "Le père Charles Plumier, un Minime botaniste à la Trinité-des-Monts." In *La Trinité-des-Monts redécouverte. Arts, foi et culture*, edited by Yves Bruley, 142-7. Rome: De Luca, 2002.
- . "Des mathématiques à la botanique. La conversion scientifique du père Charles Plumier durant son séjour à Rome (1676-1681)." In Dubourg Glatigny and Romano, "La Trinité-des-Monts," 131-57.
- Wadell, M. B. "The *Envangelicae historiae imagines*: The Designs and Their Artists." *Quaerendo* 10 (1980): 279-91.
- Weigert, Roger-Armand, [and Maxime Préaud]. *Inventaire du fonds français: Graveurs du XVII^e siècle*, 17 vols. Paris: Bibliothèque nationale, 1939-.
- Weinrich, Spencer J. "Thinking with Crocodiles: An Iconic Animal at the Intersection of Early-Modern Religion and Natural Philosophy." *Early Science and Medicine* 20 (2015): 209-40.
- Whitaker, Ewen. *Mapping and Naming the Moon: A History of Lunar Cartography and Nomenclature*. Cambridge: Cambridge University Press, 2003.
- Whitehead, P. J. P. "The Original Drawings for the *Historia naturalis Brasiliae* of Piso and Marcgrave (1648)." *Journal of the Society for the Bibliography of Natural History* 7, no. 4 (1976): 409-22.
- . "Georg Markgraf and Brazilian Zoology." In van den Boogart, *Johan Maurits*, 424-71.
- Whitmore, P. J. S. "Charles Plumier: Craftsman and Botanist." *The Modern Language Review* 54, no. 3 (1959): 400-1.
- . *The Order of Minims in Seventeenth-Century France*. The Hague: Martinus Nijhoff, 1967.
- Willemetz, Geneviève. *Jean Anisson, 1642-1721. Un homme d'affaires et de culture au Grand Siècle*. Paris: Éditions des Cendres, 2004.
- Williams, Roger L. *Botanofilia in Eighteenth-Century France: The Spirit of the Enlightenment*. Dordrecht: Kluwer Academic Publishers, 2001.
- Winkler, Mary G., and Albert Van Helden. "Johannes Hevelius and the Visual Language of Astronomy." In *Renaissance and Revolution: Humanists, Scholars, Craftsmen and Natural Philosophers in Early Modern Europe*, edited by J. V. Field and Frank A. J. L. James, 97-116. Cambridge: Cambridge University Press, 1993.
- Woudhuysen, H. R. *Sir Philip Sidney and the Circulation of Manuscripts, 1558-1640*. Oxford: Oxford University Press, 1996.
- Yale, Elizabeth. "Manuscript Technologies: Correspondence, Collaboration, and the Construction of Natural Knowledge in Early Modern Britain." PhD diss., Harvard University, 2008.
- . "Marginalia, Commonplaces, and Correspondence: Scribal Exchange in Early Modern Science." *Studies in History and Philosophy of Biological and Biomedical Sciences* 42 (2011): 193-202.
- . *Sociable Knowledge: Natural History and the Nation in Early Modern Britain*. Philadelphia, PA: University of Pennsylvania Press, 2016.
- , ed. "The History of the Archives and the History of Science." Special issue, *Isis* 107, no. 1 (2016): 74-120.
- Yamada, Toshihiro. "Hooke-Steno Relations Reconsidered: Reassessing the Roles of Ole Borch and Robert Boyle." In *The Revolution in Geology from the Renaissance to the Enlightenment*, edited

- by Gary D. Rosenberg, 107-26. Memoir 203. Boulder, CO: The Geological Society of America, 2009.
- Yeo, Richard. *Encyclopedic Visions: Scientific Dictionaries and Enlightenment Culture*. Cambridge: Cambridge University Press, 2001.
- . “Between Memory and Paperbooks: Baconianism and Natural History in Seventeenth-Century England.” *History of Science* 45 (2007): 1-46.
- . *Notebooks, English Virtuosi, and Early Modern Science*. Chicago: The University of Chicago Press, 2014.