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Planting dwelling thinking. Natural history and philosophy in sixteenth-century European dried gardens

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ABSTRACT

European dried gardens from the 16th century have been traditionally associated with the emergence of early modern botany and its relation to the traditional genre of pharmacopeias. This study reviews a sample of the 37 known exemplars of these bound collections and argues that the design and development of these herbaria or dried gardens (*orti sicci*), as they were also known, reveal a broader set of questions on nature and about the relationships of humans with the natural world than the ones with which they have been linked. Based on the evidence of a diverse corpus of dried gardens—some richly bound, others composed over recycled paper, some with copious annotations, others with a seemingly random layout and distribution of plants—, this paper argues for a comparative reading of these books as a corpus that contributed significantly to early modern natural history and philosophy.

Keywords: Dried gardens; Herbaria; Natural History; Natural Philosophy; Dwelling

ARTICLE

Dwelling, however, is *the basic character* of Being in keeping with which mortals exist. Perhaps this attempt to think about dwelling and building will bring out somewhat more clearly that building belongs to dwelling and how it receives its nature from dwelling. Enough will have been gained if dwelling and building have become *worthy of questioning* and thus have remained *worthy of thought*

Martin Heidegger, “Building Dwelling Thinking” (“Bauen Wohnen Denken” 1951)

A collection of dried plants glued to the pages of what looks like a book; some entries bear annotations, others barely register a name, or show no writing at all.¹ This kind of object has been known since the 16th century as

¹ I am grateful to Oana Matei and Ana Duarte Rodrigues for putting together this important volume—a unique opportunity to find new meaningful contexts for plants. To the two anonymous readers: some of the better parts of this study are responses to your excellent questions and suggestions; thank you. Much gratitude to Sarah McKee, Fabrizio Baldassarri, Florike Egmond, Alette Fleischer, Alex Mexi, Dana Jalobeanu, Hiro Hirai, Lucie Čermáková, Gerard Thijssse, Christel Schollard, Cornelia Kurtz, Jürg Stöcklin, Umberto Mossetti, Chiara Nepi, Eugenio Santiago, Laura Bravo, José R. Carrión Baralt, Francesco Vitale, Maura Flannery, Cassandra Quave, Pat Cahill, Daniel Greenberger, Walter Melion, Geoffrey Bennington, and José Quiroga, as well as the graduate students in the CELFIS seminar and the IRH workshop at the University of Bucharest, and at Emory’s ECDS and the

a dried garden (*orto secco* in Italian), a herbal (*herbar* in Dutch and German) or, in the early 17th century, a winter garden (*hortus hyemalis*). Although vastly different in their morphology, the names given to these collections of botanical samples announce a dried garden in a book, a series of dessicated plants or flowers attached to a cardboard sewn to others, gathered in a booklet, or bound in a volume; these names reveal a dried *hortum*, a kind of ‘live’ *herbarium* (*vivum*, as opposed to illustrated), a *kreütterbuch* or book made of herbals, a garden in a book, a bookish garden, a book, in sum, characterized by the presence of dried herbals or plants (OGILVIE 2006: 42; 165). Gerard Thijssse has recently registered all the known titles of these books, which represent substantial linguistic and cultural diversity: “En Tibi Perpetuis Ridendum Floribus Hortum,” “Herbarium [...] Plantarum seu stirpium naturalium,” “Erbario Aldrovandi,” “Band,” “Illustratio in Hortum Siccum,” “Herbarius Vivus,” “Erbario Ducale Estense,” “Kreütterbuech” and “Kreuterbuch,” “Anfangsherbar,” “Handherbar,” “Collectio Plantarum Naturalium,” and “Kreitterbuoch,” among others (pp. 90-93).² A few of these collections came to be one singular volume; most of them consisted of several tomes—2 to 19—composed with great diversity of binding, paper, and finishing details. Thijssse cites 44 known collections; 36 of them are in known locations, one of fate unknown (the Francisco Hernández collection is said to have burned at the Escorial fire in 1671) and 7 more in locations presently unknown: William Turner (1540), John Falconer (last date cited as 1547), Gjeble Pederssøn (last date cited as 1557), Johann Bauhin (first date cited as 1561), Pierre Quthe (1562), Pieter Pauw (1617), and Paul Contant (no date of production).³

Their materiality is as varied as the men who composed them and the places where they originated and travelled, forming the basis for what Alette Fleischer has deemed one of the most formidable networks of early modern Europe: that of plants and knowledge (pp. 289-290). Despite the vast differences that separate them, dried gardens constitute a type of books, a genre. The 36 collections known to exist today have been preserved in institutional settings as diverse as these books themselves: biodiversity centers, natural history museums, university libraries and departments of Botany, botanical gardens, monasteries, national libraries, and rare book rooms (Fig. 1 and Fig. 2). Aiming to name these books as a collective different from modern herbaria plant deposits

Fig. 1. Merini, Erbario (red box) and Cesalpino, Illustratio [...] (three yellow boxes), center image. Museo di Storia Naturale, Università di Firenze. Photo María M. Carrión. Courtesy Museo di Storia Naturale, Università di Firenze

formatted in loose leaves housed in boxes kept in large buildings, the present study calls them dried gardens, the literal translation of *orti sicci* / *borti sicci*, noting that the terms *herbar* / *herbal* / *erbario* were—still are—used to name some of these 16th-century objects.

Because of the presence of actual plants in their pages as well as their variously written content, and because of their coming into being during a time when modern science was beginning to emerge, the reception of these books has focused for the most part on thinking primarily related to the classification of these plants and the master-

doctoral programs in Philosophy at the University of Salerno and in Comparative Literature and Religion at Emory University; thank you for listening to the various incarnations of this study, and for your generous critical insight in Atlanta, Bucharest, Leiden, Kassel, Basel, Bologna, Padova, Firenze, Rome, Salerno, San Juan, and Seattle.

² Besides the titles, Thijssse offers readers a comprehensive view of the whole corpus.

³ I follow Thijssse’s chronological annotation, which notes the first or last date known of composition for the dried gardens registered in his chart.

Fig. 2. Leiden: Naturalis Biodiversity Center (2017). Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

ing of nature to better human health (ARBER 1986: 168-181; OGILVIE 2006: 172; BENKERT 2016: 211-212). These objects are protected in highly regulated environments designated to be thought about and dwelled in by a distinguished and limited group of people. Following the lead of recent scholars who ask questions as different as these books themselves, this study seeks to tease out a different kind of thinking about these centenary plants as well as the dwellings that harbor them.

To begin, the critical gaze here shifts from locating these books solely within the frame of what Brian Ogilvie has termed the ‘science of describing’ or Renaissance

natural history, a time and place in which the plants dried and glued to their pages were thought primarily as catalysts for location, description, or classification. For Ogilvie, dried gardens were one piece of a large puzzle that added up to what he calls “the invention of a tradition,” or the history of natural history (OGILVIE 2006: 93-100). In this building, herbaria were closely related to the work of collectors, in whose *Wunderkammern* of animal body parts and dried plants constituted the material foundation upon which natural history developed during the European Renaissance; Ogilvie, however, notes that naturalists considered dried gardens “a means to knowledge, not an end in itself” (OGILVIE 2006: 42). In his book, herbaria occupied a separate place from the “humanist invention of natural history,” where Renaissance naturalists revised and commented natural philosophical works of Aristotle and the Peripatetic School; although Classical thinkers favored observation and experience, they added consultation of second sources to their dwelling in particulars, a practice that lost favor during the Renaissance (OGILVIE 2006: 93-99). In the science of describing, Ogilvie says that dried gardens served the purpose of reinforcing memory at a time of “transition to pythographic history,” ultimately passing from objects of meditation and, in some cases, “souvenirs of the pilgrimage that the book’s possessor had undertaken,” to repositories of particulars, synonyms, and encyclopedic knowledge—a partial supplement to live (*vivi*) gardens for the study of nature (OGILVIE 2006: 168-174).

The shift from humanist to pythographic aims, as Paula Findlen has argued, took place at a time when a scientific community formed in Italy to ever shape the evolving study of nature. As she traces the case of Mattioli (focused on creating an everlasting school of thought) and Aldrovandi (experimenting with such thinking), Findlen shows how the practice of composing dried gardens conjugated natural history and natural philosophy (FINDLEN:1999: 379-380). In contributing new ways of thinking that took plants, travel, history, philosophy, power, and politics into account, the naturalists who composed these dried gardens developed a foundational premise of modern science: “rather than allowing texts to define nature, they used nature to form new texts” (FINDLEN:1996: 153). Chiara Nepi agrees with this characterization of the *hortus siccus* as a platform of innovation in intimate correspondence with natural history and philosophy: as scholars became dissatisfied with the limited corpus of plants noted in the Classical texts, they combined the study of familiar and new plants in such a way that “Nature became something to be directly studied, touched, measured, and described ‘al vivo’” (NEPI 2016: 92). This collecting, observing, and experimenting with nature was an integral part of new ways of thinking about the study of nature.⁴ In her sustained inquiries about Francis Bacon’s experimental methods, for instance,

4 For an in-depth study on observation as an emerging epistemic genre, see Gianna Pomata.

Dana Jalobeanu demonstrates how his search for spirits shows that he “made natural-historical investigations an integral part of his philosophy,” a key in a larger program “of reconstituting the original unity of knowledge and reality (*instauratio magna*)” (JALOBEANU 2012: 6).⁵ Later on, as he searched for areas of experimentation that would allow him to improve his thinking in theoretical medicine, René Descartes engaged comparison between plants and animals because he deemed them analogous in their organic relationship between parts, and because plants offered a treasure trove of possibilities for comparison. As Fabrizio Baldassarri notes, botany “acquired an epistemological role in representing physiological functioning as an ideal model of explanation” superior to machines in the quest to understand animal physiology (BALDASSARRI 2018: 61-62).

To show better how these dried gardens contributed to both natural history and philosophy, the present reading sets them in dialogue with Martin Heidegger’s ‘building dwelling thinking’ which, as the above epigraph shows, is inextricably bound with being. Here, planting/building in the garden and in the books belongs with dwelling; and planting dwelling, in turn, belongs with thinking. Planting dwelling thinking marks a site of experimental thought, of natural history and philosophy. In other words, here these books become sites of dwelling where thinking conjugates both the (past and present) life of the plants with the life of the observer. This reading does not discard previous interpretations of these books and the plants they house; rather, it builds on them, observing the correspondences between history and philosophy they represent. To assemble this argument, Heidegger’s critique of modern housing designed and built as separate from dwelling and being serves as a building block (pun intended), turning here into a figurative image (the ‘planting’ in the title) with which to read dried gardens as spaces that dialogue with scientific, aesthetic, visual, bodily experimentation (the ‘dwelling’ in the title) and not merely as a static result of acts of amassing samples or cataloguing them. This kind of planting dwelling, in turn, leads readers to seeing these plants as being worthy of thought.

Dried gardens, in sum, are not supplemental reading to other books, derivative cousins of the Classical books of natural history, pharmacy, and medicine—illustrated and not—by Theophrastus, Pliny the Elder, Pedacio Anazarbeo Dioscorides, Hunayn Ibn Ishaq Al-Tbadi, Pietro Andrea Mattioli, and Andrés Laguna; neither are they mere props used to study nature in the emerging departments of Botany, Pharmacy, and Medicine in European Universities.⁶ As Nepi points out, dried gardens represent “the turning point for plant studies,” a space where the observation of nature is not motivated by plants’ medical properties, but by “the plants themselves—the whole plant, regardless of its use or exploitation” (NEPI 2016: 92). Dried gardens, in other words, belong to their own dwelling (the times and places their desiccated lives inhabit) and with thinking that may yield bits and pieces of different kinds of knowledge in areas of inquiry today known as scientific, historical, cultural, or philosophical. With thoughtful habitation of these plants and books, readers can better see how and why dried gardens are worthy of thinking by means of dwelling or, to borrow Heidegger’s term, *worthy of thought* (*Denkwürdiges*).

⁵ Jalobeanu has furthered this early critique and revision of Bacon’s considering natural history in the development of his influential philosophies by examining the role of observation of nature in experimentation; see JALOBEANU 2015; 2016; 2017.

⁶ For a thorough look at the negotiation of text-and-image in the representation of nature since Antiquity, see Sarah Blake McHAM’s (2006) study on the manuscript of Pliny’s *Historia Naturalis* commissioned by Picco della Mirandola. Karen Meier Reeds establishes an indispensable overview of the development of the departments of Botany in Medieval and Renaissance Universities. And for an economic, precise trace of the complex relationship between the *hortus sicus*, illustrated books of plants, and the development of modern botanical knowledge, see NEPI (2016).

Reading, Naturally. Histories and Philosophies of / from the dried gardens

La cognitione de' semplici non può haversi dal legger libri,
quando insieme non vi sia congiunta la sperienza de gli occhi stessi
(The cognition of simples cannot be achieved by reading books,
unless this reading is accompanied by the experience of the eyes themselves [direct observation])
Francesco Calzolari, *Lettera di M. Francesco Calzolari spetiale*, 1566

The known dried gardens hold approximately 33,000 plants that come from different places and show vastly different degrees of decay after five centuries of life between these pages. The specimens were originally worthy of collecting by an extraordinary group of men whose books lodged and dislodged have left a legacy carefully housed in a number of powerful institutions. Some of the plants appear time and again in various collections; however, unless readers have access and time to see them, they will not be able to wonder how these plants are similar, or how they differ from each other. Thinking of dried gardens as modern herbaria would lead readers to not be able to appreciate how passing the pages of these books relates to herborizing, to strolling and learning in the garden, to travel to distant lands to pluck an unfamiliar flower, or to reading a bound body; given that some of the collections have been dislodged, that particular reading of the book as a stroll in the dried garden is lost, yielding a different life for the collection pieces.⁷ As reference materials, these books echo the budding industry of thesauri and early dictionaries of the European vernacular languages, inscribing each plant as a place to hold various meanings associated with an entity of the natural world. As collections of plants, these books held information in a particularly set sequence that ranged from the order of existence in nature according to the seasons, to alphabetical order, to the order in which the author or his correspondent plucked the plant from the floor, to a combination thereof by virtue of a series of Indices. Unless readers knew the authors of these books, they would not be able to appreciate why or how the author, anonymous as s/he may remain, opted for that particular sequence; and if they did not know all these books, they would not be able to appreciate the occurrence of the same plant in two or more collections, named in similar fashion, but with a different appearance.

Historians of dried gardens have come to agree that Luca Ghini and Gherardo Cibo are two of the earliest producers of these books; amongst the extant collections, none is attributed to Ghini, whose work as a botanist and an educator is otherwise well documented.⁸ The name of Cibo, on the other hand, is associated with four volumes housed today at the Bibliotheca Angelica in Rome.⁹ The discovery of a few other dried gardens in Bologna and Leiden, formerly lost in libraries and archives, have led to debates about which one is the first to have been produced. Setting aside the question of who composed the first dried gardens, reading these books comparatively shows a fairly consistent methodological frame that points to a common motive: naturalists selected, harvested, treated, and glued certain plants to a page bound with other pages and kept initially in a library or a study.

What they were thinking when they composed them and how they put them together is part of the understanding of these books as materials that reflect diverse strands of ideas about and dwelling in nature, rather than

⁷ An exhaustive analysis of the binding of the 36 known dried gardens is a complex issue that falls outside the scope of the present study. As I experienced in reading the boxed Bauhin and Cesalpino gardens (1 volume dislodged, re-bound as two volumes, and dislodged again in two wooden boxes with the booklets inside), this is a material format that moves readers to think otherwise. For details on the binding history of the Cesalpino collection, see NEPI (2007). I owe a great debt to Prof. Nepi for helping me understand the dislodging of these collections as a sensible measure in both preservation and scientific terms.

⁸ Carmelo Battiato traces the life and work of Ghini, whom he considers a “pioneer of herbaria.” See also FINDLEN 2017.

⁹ Giorgio Mangani and Lucia Tongiorgi Tomasi examine Cibo’s histories of dried gardens as work “between art and science” (MANGANI & TOMASI 2013).

Fig 3. Rauwolf, “*Lilium Theophrasti nondum cognitum*” (Herb. Lugd. Bat. “*Lilium candidum* L.”). Vol. 4, fol. 159. Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

Fig. 4. Rauwolf, “*Solanum Indica*” (*Strychnodendron* Guiland). Vol. 2, fol. 64. Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

collecting to amass substantial quantities of evidence of standardization or encyclopedic knowledge. Far from those moments of production of the dried gardens, their current state of decay varies wildly from one book to the other—even in the same collection, as it happens with the fourth volume of Rauwolf’s collection, which contains plants from the Eastern Mediterranean and shows a different format and state of preservation than the previous three volumes of that collection (Fig. 3 and Fig. 4).

Reading these books in ways different than mere raw material to classify or master nature leads to understanding their planting as a different kind of evidence for thinking. For instance, the exercise of negotiating particulars (the plants) with universals (theoretical speculation about nature) by various types of readers would align with a historical scenario noted by Findlen in which naturalists of different backgrounds collaborated in herborizing, the Classics were put in dialogue with those usually forgotten by history, and as they each translated their knowledge for the others, an alternate classroom emerged: “men with more intimate knowledge of living nature showed physicians and professors where and when to gather specimens and proved themselves to be an invaluable source of information about the local names and uses of each item” (FINDLEN 1996: 157). Calzolari, for instance, who in the epigraph above extols the virtues of direct observation, through *gli occhi stessi*, did not graduate from university and was not particularly dexterous in Latin; and yet, Ghini, Mattioli, and Aldrovandi herborized with him and recognized and admired his knowledge of Northern Italian plants. In the end, however, history repeated itself and, as Findlen also notes, experience was bound by recognized intellectual authority, for “only humanistically trained naturalists of high social standing were considered qualified to define the field of study” (FINDLEN 1996: 157).

Because some of their authors were invested in contributing to new ways of thinking about nature, one could

argue that they were, in fact, invested in revising old taxonomies.¹⁰ A close examination of all the Indices would lead to more definitive conclusions regarding the actual sequencing and corpus that each collection sought to represent; in looking at a sample of 10 out of the 37 known collections, including the most voluminous ones of them all, one fact became clear to me: there was not one single way of organizing plants favored over others by all naturalists, as the post-Linnean guidelines would stipulate. What the Indices will reveal, once a thorough analysis of all is done, is the specific patterns of plants and their sequences. There are attempts to think about that, but not one single method of organizing the plants in the book prevailed over the others. In fact, most of the samples housed in these collections appear to serve a diversity of functions of reading nature; their selection, processing, naming, and annotations speak to representations of the natural world as beings of that world, as exemplars to look at directly, as emblems of the ephemeral nature of matter, and as possible deposits of spirits.

The desire to bridge natural history and philosophy is explicitly stated in some of the dried gardens, or in correspondence referring to the practice of composing them. Cesalpino, for instance, urges his patron Monsignor Alfonso, Archbishop of Tornabuoni, to read and accept the importance of incorporating Philosophy in the collection and study of plants, and to theorize the classification and cataloguing of nature as natural philosophy.¹¹ In the prologue to his *Erbario*, Cesalpino first extolls the virtues of classification, and then he states the benefits of dwelling further into the observation and understanding of the vegetable world:

It is true that the number of plants that Monsignor' Rmo grows is almost infinite, which is incomprehensible for the human intellect: nevertheless, bundling a lot of them according to a similarity, thus reducing them to a smaller number, can easily lead to such cognition, which of us is expected. Some in Antiquity tried this reduction, especially Theophrastus, who with great diligence examined trees, leaves, and vegetables: alas, he did not acknowledge medicinal herbs. Dioscorides after him, and more copiously than anybody else, looking at curing Medicine, which today is quite impoverished because of the common usage of our physicians, who in order to avoid labor, and settling with very little, with chicory and Buglossa and with the speeches delivered in chambers they medicate every disease. Some have tried what they found written about Simples, but without order, of which no one can carve anything other than a story so truly confusing and so difficult that it is impossible to send it to memory. [...] Neither has depressed me to see in this state many very excellent men of this profession up to date, and that not one of them has touched upon this: Because of this amongst the Simplicists very few have combined this profession with the study of Philosophy, without which it is not possible to yield any fruit: and amongst the Philosophers of any condition, very few have located their studies on the particulars, as Simples are, despite the fact that the whole nervous system [*tutto il nervo*] of Philosophy is made of these. Now, if I can contribute any benefit to either or of these two professions, let that suffice to as a reason to approve my proposal, and I will thank the Lord, and all those who in this have helped me, amongst whom Your Highness is fully counted." (Cesalpino, "To the Very Reverend Mr. Alfonso Bishop of Tornabuoni, Patron & Noble Friend," *Erbario*, Fol. 1; my translation)

A dried garden with a clear intent to contribute to natural history and philosophy, thinking of furthering the knowledge of the natural world to join Simplicists and Philosophers alike.

The geographical location of plants and naturalists throws light on this fruitful negotiation of natural history and philosophy in the dried gardens. In drying and gluing the plants to the pages, naturalists lead readers of their books to wonder how does the point of origin of a plant grant biological information to that plant, so it looks the way it does? Or how is it that a plant from the Middle East looks different from, or similar to a plant by a similar

¹⁰ Ogilvie offers a comprehensive analysis of the ways and means of classification and taxonomy in the history of Renaissance natural history, which he calls "folkbiology," and how such drive to classify and order nature was only one among different motivations for naturalists of the time (OGILVIE 2006: 215-229).

¹¹ Ogilvie analyzes Cesalpino's theories of plant classification as natural philosophy (OGILVIE 2006: 224-226).

Fig. 5. “Mala insana.” *En Tibi*. Plant No. 435. Fol. 275. Leiden: Naturalis Biodiversity Center. Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

Fig. 6. Rauwolf, “Melanzana/Arab: Melongena and Bedengian” (*Herb. Lugd. Bat. Solanum serpentinum*). Vol. 4, Fol. 78. Leiden: Naturalis Biodiversity Center. Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

name from the Netherlands? Thus, for instance, the eggplant called “Mala insana,” “Melanzana,” “Melongena,” and “Bedengian” in the *En Tibi* and the Rauwolf dried gardens (Fig. 5 and Fig. 6).

Two specimens. Same plant. Or is it? The modern taxonomic drive (marked “Herb. Lugd. Bat” in the white sticker attached to the page of the 78th folio of Vol. 4 of Rauwolf’s *Kreütterbuch*) first joins the planting dwelling thinking of these two entities in the realm of the *Solanum* genus; then, it separates them by citing the post-Linnean label *Serpentinum*, unlike the *En tibi*.

The encompassing geographies of plants and naturalists invites readers to think about the close relationship of these books with travel and discovery. For example, why does an author like Leonhard Rauwolf travelled to remote areas such as modern-day Lebanon, Syria, and Iraq to search for plants to combine with plants he collected in Nice and Marseille, to compose a four-volume *Kreütterbuch* where he housed specimens from Europe and the Middle East?¹² As Findlen argued, this drive to travel and gather specimens from lands not registered in the Classics was due to “a growing desire to perceive nature as an object of experiment” (FINDLEN 1996: 154). In this process to expand the registers of nature, some naturalists self-identified as ‘visitors,’ in foreign lands, and as pilgrims in search of truth. Findlen cites Anguillara and Petrollini’s invocation of their pilgrimages and notes how this desire reached levels of performative and autobiographical significance in the works of Aldrovandi. In his *Vita*, the future historian and philosopher tells the story of how he left Bologna “dressed as a pilgrim” in a journey that spanned Genoa, Savona, Southern France, and Spain; there, as he confessed, he engaged the spiritual life of sacred spaces, and relics of holy bodies fused in his memory with “many other natural things that I desired

¹² Abdolbaset Ghorbani et al find answers to some of these questions in their recent study of Rauwolf’s collection.

to know at that time,” an event that marked his travel to nature with an experience of pleasure and the sublime (*Vita*, quoted in FINDLEN 1996:161).¹³ Furthermore, Aldrovandi placed this desire to travel and know remote parts of the world recently discovered by others at the very core of his unfolding methods of natural philosophy:

One way, useful and simple enough, to accomplish all that one desires for posterity would be to deliberately send to the new world of the Indies men skilled in the arts and versed in the European methods; thus, they could be made to depict (*depingere*), and send what there would be in those Indies. It's been ten years since I entered in this fantasy of going to the newly discovered Indies so widely used and enjoyed universally. In this very moment I would undertake such an enterprise willingly, no matter how laborious, and, flouting every exhaustion, in the manner of Christopher Columbus I would be ready to make this voyage. This admiral Colombo always had the desire to examine (*indagare*) different countries (*paesi*), knowing, for philosophical reasons, that without a doubt he would find new territories (*terra*), moving mainly after the news of winds that these places breathed, knowing for sure, as the expert helmsman and philosopher that he was, that these winds were not born in other places on earth. (ms. 91, c 537v)

In fact, as he grew in this journey to nature, Aldrovandi established that he would describe only those materials in nature “that I have seen with my own eyes, touched with my hands, dissected, and likewise conserved one by one in my little world of nature, so that everyone may see and contemplate them daily,” in sum, those that he captured and preserved in image and example (*in pitture et al vivo*) as he travelled the world (ms. 91, c. 508v).

In this merging of natural history and philosophy, Aldrovandi stipulated in detail the importance of composing a dried garden, and the best way to do so:

In addition, to enhance this faculty one must also dry every sort of pilgrim plant, placing it on scrap paper unsuitable to be written upon, and if you must place them in such a way that one does not touch the other, interposing three sheets of paper between each plant, so that the humidity of one does not corrupt the next one. Noting that afterwards this must be changed every three days, because the paper absorbs all the humidity and the drenching of the humor can be cause for putrefaction, and that this change is done five or six times, in such a way that in the span of fifteen days it is dry. And, in doing so, they remain so dry and green with their natural color that then they can be easily glued in books, as I have done in mine. And one could [read] these glued plants as if they were true original exemplars, because of the difficulty many face given that they cannot easily carry them, and it is not easy with the carrying them live into our [gardens]. (ms. 91, c 356r)

This method led him to become the author of one of the most voluminous of all dried gardens, which he started around 1551 as he established the Museum of Natural History in Bologna and finished around 1586; during that time, he also led the design and development of the city's botanical garden, where his dried garden is housed today. Despite the vast amount of plants included in his 15-volume dried garden, with more than 5,000 dessicated plants in its pages, and the fact that he was the pilgrim who travelled the world in search of nature, his collection rarely annotates the place of origin of a specimen, and it does not seem to follow a systematic principle of sequencing for the plants; the first volumes follow an alphabetical order that is abandoned later in the collection.

Aldrovandi's monumental enterprise stands in stark contrast with the more modest volume of other dried gardens. Merini's small collection, with 180 specimens contained in one single volume, seems to elude the drive to organize systematically the plants it harbors; however, an annotation captures Ghini's name as the provider of knowledge for that plant (Fig. 7 and Fig. 8).

¹³ Aldrovandi shared a declared, vehement desire to be a pilgrim with Kirchner (the former, to travel to Jerusalem and the latter, to become a Jesuit missionary in China); furthermore, in an uncanny turn of literary texture in their autobiographies, they even tell the same story of near-drowning on the passage between Marseille and Genoa. See Aldrovandi (cited above) and Kirchner, *Vita admodum P. Athanasii Kircher Societatis Iesu Viri toto orbe celebratissimi* (Augsburg, 1684, pp. 46-47). See FINDLEN 1996: 158-163.

Fig. 7. Merini, “Agerato maius [...]” Erbario. Fol. 31v. Museo di Storia Naturale, Università di Firenze. Photo María M. Carrión. Courtesy Museo di Storia Naturale, Università di Firenze

Fig. 8. Merini, “Agerato maius [...]” (detail). Erbario. Fol. 31v. Museo di Storia Naturale, Università di Firenze. Photo María M. Carrión. Courtesy Museo di Storia Naturale, Università di Firenze

A likewise small, single-volume collection housed at the Naturalis Biodiversity Center in Leiden is associated with the figure of Petrus Cadé, a pharmacist whose life has been tenuously traced in history; his relative Ischa shows up in the collection adding samples and annotations two years after the volume was finished. The alphabetical order of this compact collection, as well as the vellum binding showing the marks of hands that held the book assiduously, reveal the pragmatic life of this dried garden (Fig. 9).

Other single-volume collections represent different intentions and methods in their composition. For example, the *En Tibi*, anonymous, has been deemed “a 16th-century Italian treasure” by Anastasia Stefanaki, Tinde Van Andel, and Gerard Thijssse due to its combination of “an emerging interest in the study of taxonomy and discovery of new plants, unknown to classical authors” and its large, leather binding with golden details and inscription, which suggests “that the book was made to be offered as a present” (STEFANAKI, THIJSSSE, et al. 2018:1-2). Given its luxurious paper, leather, metals, and rhyme, one could think of this dried garden as a possible composition destined to be a gift; what any reader of this singular tome can see is the palpable preoccupation of the author figure with the aesthetics of the plants, as well as botanical and taxonomic data (Fig. 10).

Each one of these collections, in sum, tells a different story. In the *Erbario* attributed to Cibo, the composing hand glued the samples in their entirety, root to flower to fruit, at times dissecting parts to show the interior of the plant; that desire to look inside the plant, to see the whole picture, would be consistent with Cibo’s known work on representing nature visually, which aligns this dried garden with the hybrid collections by Platter and Fuchs. On the other hand, Caspar Ratzenberger, who began his herbarium in 1556 when he was a student at Wittenberg, points rather to a preoccupation with the medical applications of plants and their taxonomy, for which nomenclature is key; Ogilvie, in fact, notes how Ratzenberger’s use of eleven synonyms for one single plant emblemize his key contribution to the study of nature:

Fig. 9. Cadé, Herbarium. Vellum binding with clasp. Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

Fig. 10. "Anemone Satiua." En Tibi. Photo María M. Carrión. Courtesy Naturalis Biodiversity Center

Scandix, Pecten veneris, Herba scanaria, Cerefolium aculeatum, Nadelkrautt, Hechelkam, Nadelfoerffel, Venusstrahl, Nadel Moehren, Schnabel Moehren, Schnabelkoerffel. (p. 173)

Cesalpino's point about incorporating Philosophy in the systematic study of plants, indeed, makes it possible for the beauty of these books to be at once dwellers and home to far-reaching thinking. Thus, for instance, the presence of types in these collections. In post-Linnean botany, the word 'type' designates a plant as an original specimen that marks the foundation of the study of a species. Lorraine Daston draws the critical correspondence between type specimens and scientific memory, arguing that they are "the foundation of a taxonomical pyramid that links the individual plant to the plant kingdom through ascending taxa of ever greater generality; each level of the hierarchy is typified by a designated representative at the next lower level: the species by the type specimen, the genus by the type species, and so on. The unbroken transmission of the names of plant species depends on this type of method" (p. 158). The location, preservation, handling, and custody of type specimens is part of the economic system where the integrity of dried gardens as books may be extremely valuable, and at once jeopardized. Because of their value for modern scientific memory, Daston points out that type specimens are considered safeguards of the permanence of that specie's name, its genetic information, and its potential to generate a "luxuriant growth of terminology" (p. 162). This value separates them from all other plants. Like Psyche before she met Cupid, they are such singular entities that their existence, especially with the pass of time, becomes more and more isolated. Of the eleven dried gardens I have seen so far, I saw only one showing the presence of a type, marked with a hot pink sticker: the plant called "Aris minoris species" in Vol. 4 of Rauwolf's collection (Fig. 11).

This particular specimen singularly shows the labyrinth of time through which these plants travel. Rauwolf's original annotation "Ari minoris species" (written in the upper verso or left page of the open book) refers to the

Arum family or *Araceae*, in which the genus *Amorphophallus* belongs. The latter denomination for this plant, *Helicophyllum Rauwolfii* Schott (written in a white sticker located in the lower recto or right side of the open book), first associates this specimen with Austrian botanist Heinrich Wilhelm Schott's extensive work on aroids between 1853 and 1857.

Returning to Rauwolf's "Ari" name, a written note below the post-Linnean name of this plant adds meaning to the discovery of the type, authorizing the early nomenclature by encasing it as "Type van Blume's Arum;" this addendum confirms the authority of identification of this plant, naming Carl Ludwig Blume's first naming of the *Amorphophallus* genus in 1834. The relationship with the *Arum* genus links this specimen to lily plants such as *Arum maculatum*, a common woodland species widespread from Turkey to the Caucasus and most of Europe.

Scientific memory and philological memory. Will finding further types in these collections lead to further dislodging and disarticulating? Is the material reality of these books as books literally bound to fade in memory, and will all dried gardens become boxed-in loose leaves, as it has happened with the Cesalpino and Bahuin collections, and possibly others? Does the finding of a type explain the vandalizing of these pages, as it happened, perhaps because a type or some other valuable specimen was in the page of Aldrovandi's "Cyannus purpureus"? (Fig. 12).

In the end, these cities of plants survive while their inhabitants hold evidence for possible further understanding of the natural world, of life and death, of biopower, of natural beauty, or natural selection and conservation, for us to read. More dried gardens will surface, as it happened when the Merini volume came to light. Reading these books otherwise opens the doors to understand myriad ways (ethical, aesthetical, social, political) in which natural history meets natural philosophy to raise questions about memory, imagination, reason, ritual, artistic meaning, human passions and awareness of the importance of planting, and dwelling, and thinking. To read these plants is to understand how nature works on the page of a book; not drawn, painted, illustrated, imitated, but in the flesh of the leaves, the roots, the stems, the fruit. Five centuries old flesh. To read their dwellings not as loose-

Fig. 11. Rauwolf, "Ari minoris species" (*Helicophyllum Rauwolfii* Schott). Fig. 12. Aldrovandi, "Cyanus purpureus" [*Asteraceae Centaurea triumfeti*], Vol. 4, Fol. 101. Photo by María M. Carrión. Courtesy Naturalis Biodiver-ti], Vol. 10, Fol. 49r. Photo by María M. Carrión. Courtesy Orto Botanico, Sistema Museale di Ateneo, Università di Bologna

leaves, as objects belonging in the pre-fabricated house of knowledge that post-Linnean scientific argumentation came to dictate, but as books that may help readers understand how nature was and can be thought of, how nature worked in the pages of natural history and philosophy from the European sixteenth century, and how that nature feels today. In this comparative search for meaning readers can explore these books *qua* books, united by common structures and perhaps how they represent their authors' possibly similar or vastly different intentions and methods of production. These new ways envision how plants and books differ from each other, how these collections represent these fossilized natural beings and their possible meanings in their own singular ways. Neither better nor worse than post-Linnean herbaria, these dried gardens stand the test of time in their own particular way, their pages bound (or unbound) in dwellings that plant singular ways of thinking. In planting thinking and dwelling with them, perhaps we can reach better human platforms of knowledge.

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