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Introduction: Improving Natural Knowledge: The Multiple Uses and Meanings of Plants for European Gardens

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Plants have always represented an important source for acquiring natural knowledge for both practical and theoretical purposes. Together with their habitat of growing whether in cultivated gardens or in wild environments, they provided interesting keys to investigate and interpret nature. If in the Middle Ages plants were primarily subjects of medical and pharmacological interest, in Early Modernity the approach to the vegetal world gained a more comprehensive perspective (MEIER REEDS 1991; LAROCHE 2009; MARDER 2013; BELLORINI 2016). The drive to investigate the medical and practical uses of plants started to be accompanied by a process of inquiry into the visible features, inner structure, and nature of plants as a means to acquire knowledge about nature (ZEMANEK 1998; CONAN & KRESS 2007; SWAN 2008; ANAGNOSTOU, EGMOND, FRIEDRICH 2011; DUARTE RODRIGUES 2016; FISHER, REMMERT, & WOLSCHKE-BULMAHN 2016; BALDASSARRI, & MATEI 2017; BALDASSARRI 2019). The late Renaissance witnessed a predilection in observing and describing plants together with their habitat and conditions of growth as a way to reorganize and create order in the realms of plants and natural knowledge. Scholars turned to direct observation of the vegetal world, field trips, and collecting plants in their endeavor to explore nature with the aim to identify the similarities and discrepancies between the visible features and internal structure of plants (FINDLEN 1994; 2017; OGILVIE 2006; TOUWAIDE 2008; EGMOND 2010; 2017a; 2017b; CARRIÓN 2017).

Parallel with this attempt, another direction of study focused on the instrumental role attributed to plants in investigating the fundamental processes of nature and establishing connections between the vegetal world and other bodies in the universe, such as stars, minerals, and parts of animal and human bodies. Experiments with plants served as way to plunge into the secrets of nature, as ways to disclose how fundamental processes of nature worked and to offer possibilities to manipulate hidden entities of matter whether called spirits, particles, or corpuscles in order to ameliorate or to improve the conditions of plants and, subsequently, of other natural bodies (DEAR 1991; BUSHNELL 2003; SMITH 2008; KLEIN & SPARY 2010; BALDASSARRI & MATEI 2018; ČERMÁKOVÁ 2018).

In this new and enriched context, the study of plants started to become an activity associated not just with those with medical training but also with practitioners of alchemy, natural magic, and experimental natural history and philosophy. People like Paracelsus (1493-1541), Giambattista Della Porta (1535?-1615), Joseph Du Chesne (1546-1609), or Oswald Croll (1560-1608) proposed a different approach that described the world as a microorganism where things were interconnected by sympathetic relations and proposed experimental observations as a way to equally uncover the inner properties, structure of plants, and the links with other bodies in the universe.

During the second half of the seventeenth century experiments with plants were used as the starting point for

a *scientia* of vegetable bodies, a discipline dealing with the chemical transformations taking place in natural bodies endowed with sensitive life (JALOBEANU & MATEI forthcoming). In their desire to explain various phases of vegetation, naturalists associated with the Royal Society often treated plants as instruments able to produce chemical fundamental processes of nature. Authors with different theories, such as Nathaniel Highmore (1613-1685), Robert Sharrock (1630-1684), Robert Boyle (1627-1691), John Evelyn (1620-1706), or Nehemiah Grew (1641-1712), with different metaphysical allegiances and sometimes with entirely different large-scale projects, proved to have quite a lot in common when elaborating strategies to determine what happened in the inner laboratory of a plant. Even more interesting, this operational approach to plants transcended the seventeenth century and appeared reflected well into the eighteenth century in the works of authors like John Woodward (1665-1728) and Peter Shaw (1694-1763).

This kind of work contributed to a better understanding of the natural world; it also played an important part in the development of experimental techniques for improving the condition of plants, soil, growth and, ultimately, intersected garden landscape as well. Additionally, the new approach in the investigation of plants effected changes in the environment or the places where the study was conducted. If the attempt to classify plants first fostered observations in the garden and during field trips, the desire to unfold the knowledge of nature soon encouraged naturalists to take plants out of their natural environment and to put them into plant collections and herbaria or dried gardens (FLEISCHER 2017). For those interested in the latent processes of nature the garden became a place for experimentation, and field trips offered the possibility to collect plants and to transplant them in a different environment, sometimes in a laboratory. Apart from playing a prominent role in the cultivation and investigation of plants, gardens shared multiple connotations in the history of Western thought, from representing idyllic spaces destined for mediation and cultivation of the spirit (TEMPLE 2016), to places where nature can be geometrically recreated at its original perfection (BORCHARDT 1987; REMMERT 2016), or even symbolizing the return to the ideal state associated with the Garden of Eden (PREST 1988; BENNET & MANDELBROTE 1998).

This issue aims at exploring the multifaceted role played by plants and gardens to the advancement of knowledge about nature in early modern and modern European thought. The papers in this collection first point to the epistemic role illustrated by the study of plants in the process of knowledge acquisition about nature. Maria Carrión's article, 'Planting Dwelling Thinking. Natural History and Philosophy in Sixteenth-Century European Dried Gardens', offers new insights concerning the purposes of early herbaria, emphasizing that, apart from contributing to the rise of a botanical knowledge based on observations and classifications, dried gardens represented spaces of scientific, aesthetic, and visual dialogue between natural history and natural philosophy. In the same line of the contribution of plants to the development of knowledge about nature, Lucie Čermáková's article, 'Where Have All the Flowers Grown': The Relationship Between a Plant and its Place in Sixteenth-Century Botanical Treatises', highlights the connections between plants and their habitat. Čermáková looks at sixteenth-century texts on plants, such as Julius Scaliger's (1484-1558), Girolamo Cardano's (1501-1576), Andrea Cesalpino's (1519-1603), and Giambattista Della Porta's as recordings of inquiries based on a remarkable amount of shared knowledge that has to do with the desire to establish causal relations between habitat and plant qualities.

But in the history of European thought plants and gardens played also moral, social, and economic roles (DIXON HUNT 2000; 2015; DI PALMA 2014). Starting with the seventeenth century projectors and developers such as Gabriel Plattes (c. 1600-1644), Ralph Austen (c. 1612-1676), Robert Child (1613-1654), John Beale (1608-1683), or John Evelyn advocated schemes of technological and agricultural improvement expected to initiate gradual social and economic improvement in society. For some of those authors, the improvement in society would lead

to moral salvation, as it recreated the conditions of life associated with the Garden of Eden. The cultivation of plants was sometimes a process equivalent with the cultivation of the spirit and gardens were ideally regarded as places where people could retrieve themselves and live in perfect harmony. Private gardens opened their gates for visitors and public gardens aimed at offering spaces where people could meet, walk, meditate, discuss, and contemplate nature in its beauty. In this register, Alex Mexi's article, 'Planting Patterns and Exotic Plants in Nineteenth-Century Bucharest public gardens', closes the issue by telling the story of the first two Romanian public gardens. The Kiseleff and Ci migiu gardens were two projects initiated and designed to bring together the West and the East, by adopting Western concepts and patterns in garden landscaping and adapting them to the Eastern spirit and way of living. At first glance this article seems to be telling the story of urbanizing Bucharest and building its first two public parks; however, it builds on that story to show the critical role gardens played in the process of modernizing Bucharest and creating the "modern Romanian spirit."

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