

INTRODUCTION

‘The true monarch of flowers’ is how in 1602 Emanuel, Prince of Portugal, addressed the old and famous Carolus Clusius (1526–1609) – naturalist and at that moment prefect of the botanical garden at the university of Leiden in Holland. The prince asked Clusius for a grape hyacinth on behalf of his wife Emilia of Orange-Nassau, who had picked up ‘the gardening curiosity in which she takes a singular pleasure’ from Marie de Brimeu, Princess of Chimay and a lifelong friend of Clusius.¹ And it was Marie de Brimeu – known in her time for the gardens which she designed and planted with rare flowers in the Netherlands – who hailed Clusius as ‘the father of all the beautiful gardens in this country’.²

These courtly praises which acknowledge Clusius’s merits and fame in flowery terminology direct us to a number of topics about which we will hear much more in the course of this book, such as long friendships celebrated and indeed formed by the gift exchange of plants; women and their involvement in gardens; the fashion of rare bulbs; the passion for plants and gardening, curiosity and collecting; and the fascination with rarity in Europe during the period 1550–1610. Those topics in their turn steer us towards themes that are at the heart of this study. We will be looking at the importance of passion, fashion and display in the formation of botany as a scientific discipline; at the role of men and women whose knowledge was mainly based on practice in the creation of a specialized field of expertise; and at the practices in which they engaged – in other words, at natural history in the making in the practical sense of the term.

Clusius himself was the first explicitly to recognize that his great expertise – universally acknowledged as scientific then and now – was rooted in pleasure. From Leiden, at the age of eighty and looking back on his long life and the origins of his interest in plants, he wrote to his young friend Matteo Caccini in Florence that he had never obtained any university degree,

but I have merely followed studies for my own delectation, and since from boyhood I have always delighted in plants, I have now wanted to publish the history of all the rare plants which I have observed in my journeyings that have not been described by others.³

The many hundreds of letters to Clusius which constitute the most important source for the present study and at the time formed the web of exchange in which and on the basis of which botanical knowledge was being created, likewise abound in expressions of pleasure, love and fascination, but also of intense rivalry and jealousy centred on the discovery and possession of rare plants. It is these letters that allow us to reconstruct Clusius's world – what we might now be tempted to call a virtual network of relations criss-crossing the whole of sixteenth-century Europe, interlinking and coinciding, clashing and forming part of other individuals' networks or worlds. The need for that reconstruction follows from my two very simple points of departure: that the study of 'science before science' cannot proceed by focusing only on the recognized categories belonging to science (publications, universities, learned men, scientists, ideas) but needs to cast its net far wider to include categories, sources, practices and persons that are usually regarded as outside or beyond its domain given the fact that this domain was still being demarcated at the time; and, secondly, that knowledge of the relevant context (in the wide sense of place, social and cultural and sometimes political setting) is essential to our understanding of early modern natural history.

In the present exploration of early modern natural history I hope to join authors such as Lucia Tongiorgi Tomasi, Harold Cook, Giuseppe Olmi, Karen Reeds, Deborah Harkness, Stephen Pumfrey, Emma Spary, Paula Findlen, Pamela Smith, Brian Ogilvie and Mario Biagioli. By their inspiring work – which is constantly present in this study, even if it is not continually mentioned in the notes – all of them have thrown a great amount of new light on early modern research practices, practitioners and their relevance to the formation of early modern science. If by investigating the world of Carolus Clusius we find that the boundaries of the new history of science itself are being stretched and that it is turning into a cultural history of knowledge and its formation, so much the better.⁴

People and Practices in the Botanical Renaissance

Knowledge of nature had always formed part of everyday life. But in the sixteenth century – precisely during the lifetime of Clusius – a number of new phenomena emerged which together are known as the Botanical Renaissance and produced the greatest changes in European knowledge of living nature before the age of Linnaeus, or perhaps even before Darwin.⁵ The face of the gardens of Europe changed with the introduction of a vast number of exotic plants from the Middle East, Africa, the Far East and the Americas. The indigenous flora of Europe itself was for the first time investigated by means of field trips and documented in text and image. The passion for gardening and the cultivation of rare plants spread like wildfire throughout Europe; the first university botani-

cal gardens and academic chairs in medicinal botany were created; and the first richly illustrated surveys of the world of plants and the world of animals were published. Clusius was a key figure in each and every one of these developments, and has been responsible more than anyone else for making exotic nature known to Europeans.

The major changes of the Botanical Renaissance were strongly stimulated by the discovery of exotic nature via the European voyages of exploration, and influenced by new and critical approaches (originating in Renaissance humanism) to classical descriptions of living nature. Many of the above-named innovations were unthinkable, moreover, without a complex phenomenon which we will try to explore in this book. In the sixteenth century the world of nature came for the first time to lie at the centre of interest of the European social and intellectual elites. It became a fashionable subject, a respectable pastime and even a passionate interest, manifesting itself in the cultures of collecting and gardening, and the fascination with the exotic and rarity. Attention has been paid to all of these phenomena, but they have usually been treated separately. We will see in the course of this study that they were indelibly linked together, and formed one of the driving forces of the Botanical Renaissance.

The focus on practices and practitioners follows directly from the attempt to study 'science before science'. It is the process of emerging expert knowledge in a phase before it had actually solidified into 'science' that interests us here, and more specifically the question of which practices generated which kinds of expertise in the field of natural history and which persons were involved. It seems unlikely that great expertise concerning living nature could have come to attain that quality exclusively on the basis of the learning of a relatively small group of men who published (mostly in Latin), had studied and had generally been trained as humanists. In this respect – but it is an important one – my point of departure is thus almost diametrically opposed to Ogilvie's, although many of our findings are not, and our paths often run parallel. Ogilvie looks at practices as well as texts, but in a social sense explicitly focuses his study on 'the Latin-writing, humanistically educated elite of the sixteenth century' and defines Renaissance natural history as the discipline developed in the community of this elite from which many people and their knowledge were excluded.⁶ Precisely given the fact that the sixteenth century saw the origins of natural history as a discipline, it is unwarranted to assume that the roots of any field of scientific expertise (and that concerning living nature perhaps least of all) can be found exclusively in the knowledge circulating among the intellectual elite of the period. This exclusion seems to me a historiographical rather than a historical fact. In this respect I find myself much closer to the approach followed by Findlen in her investigation of Italian naturalists and collectors:

The intellectual problem of understanding what Renaissance naturalists meant when they 'did science' also has social consequences. The indistinguishability of natural history from other aspects of learned and courtly culture certainly calls into question the notion of a scientific community, as historians have commonly understood it.⁷

My emphasis will therefore be on those persons who had a great amount of expertise concerning living nature to offer to Clusius, but most of whom would, according to Ogilvie's criterion, be outside the margins of the community of naturalists or at best on its edge. Few learned humanists will therefore be discussed here – even though Clusius maintained friendly relations with some of the major humanists of his age and was trained in this tradition himself. Universities will be looked at as only one (albeit an important) factor in the shaping of knowledge about nature and investigative methodology.⁸ And printed works on animals and plants, even those by Clusius, will only rarely be discussed. If they occur, it is usually as instruments – often subsidiary ones, compared to practice – in the formation of expertise rather than as major stepping stones in the history of knowledge. Our social focus is wide and covers a heterogeneous mixture of apothecaries, aristocratic women, merchants, voyagers, physicians and local herborists as well as courtiers, high officials in the administration of the Habsburg empire, physicians and even a few princes, military men and revolutionaries. And we will try to show that a domain of knowledge in which even today laymen and women may develop very high-quality expertise, was shaped in a major way by practice-based knowledge and by the experience, methods, observations and types of insight developed by people who had no university background or humanist training.⁹

Again it is Clusius himself who pointed the way, in a remark made just a few months before his death in which he reminisced about his days as a young naturalist. Referring to the nobleman Jean Boisot in Brussels, he put their respective interest (*curiosite*) in and expertise concerning plants on a par, while explicitly rooting the knowledge of both Boisot and himself in practices – investigation by travel and growing plants in the garden:

That gentleman was my very great friend, a learned man, and I think that he and I have been the first *curiosi* to understand the variety of plants, but he did not undertake any journeys but cultivated them in his garden.¹⁰

Clusius has been called the first scientific botanist for his extensive knowledge of living nature, his precision, his detailed descriptions – in which a critical comparison of information and personal observation of plants played a key role – his interest in ecology and his fascination with exotic, non-European nature. As we will discover, those characteristics by no means applied only to Clusius: many of his friends and correspondents had exactly the same interests. Their expertise was relevant to Clusius precisely because it was based on and tested in practice,

while first-hand observation, detailed description and a critical evaluation of observed evidence played a crucial part in its formation. We thus cannot prise the characteristics of Clusius's work loose from the much wider set of interests and practices to which they belonged at the time. Nor can we – when looking at practices relevant to the study of nature – impose an *a priori* distinction between those that have later come to be regarded as 'scientific' and others. We will look therefore at horticultural techniques, as well as fashions in the collecting of rare plants and in garden display, plant-hunting expeditions, the fascination with colour, botanical experiment, acclimatization, methods of evaluating evidence, modes of exchanging knowledge, styles of reporting and the idiom of friendly collaboration in the pursuit of knowledge.

Seeing that parts of natural history (botany first and foremost) were being turned into natural sciences in the course of Clusius's lifetime, we should ask ourselves to what extent we are dealing here with the professionalization of a certain domain of knowledge. Clusius, who studied medicine but never obtained his degree or practised as a physician, was regarded in his age as one of the very few and first professional naturalists: he earned his living as an expert in these matters; he helped to set the standards of professionalism with respect to the knowledge of plants; he was renowned for his expertise in this field; and he divulged his knowledge. Throughout our investigation we will explore, in so far as possible, which terms his correspondents used to describe their field or expertise concerning living nature, and look at their professions to see for how many members of Clusius's world that type of expertise formed a source of income, whether in the form of patronage or other earnings. And we will explore to what extent Clusius's friends too were involved in setting the standards of botanical expertise, by special expertise, research methods or divulging their knowledge. At the time, however, experts by no means only gained a reputation through publications, but also – and often more quickly and efficiently – by word of mouth, personal exchanges and correspondence.

Clusius and Friends: Correspondence and the Myth of the 'Isolated Genius'

Although Clusius is the central figure in this study, not he but his world is its subject. One of the purposes of studying that world is to (further) undermine a myth that has characterized the history of science in various more or less sophisticated forms since at least the nineteenth century: that of the isolated genius who almost single-handedly changed the direction of scientific progress. Without detracting from the fame or relevance of renowned and innovative men such as Darwin, Linnaeus, Galileo or Da Vinci, the attention is shifting to 'famous men in their context' in order to reach a different understanding of how (sci-

entific) innovation is connected with a socio-cultural background.¹¹ The myth of the isolated genius has been under attack for many years now from various directions, but by no means all of the implications have yet been explored. To investigate the men and women who belonged to the context of famous scientists is by no means always possible given the nature of historical sources, and it is generally even more difficult to trace their expertise and involvement in research.¹² In this case it is Clusius himself who allows us to do so. He kept their letters; he put himself on a par with the men and women with whom he investigated nature; and he included hundreds if not thousands of references to their information and knowledge in his printed works.

In particular Clusius's generosity as a man and a scholar opens up the possibility of tracing in some detail what his less famous friends contributed to natural history. He lived and worked in many different European countries, and in the course of his long life built up a correspondence network which covered most of Europe while spanning a considerable part of the social spectrum. Unusually, he preserved a very large number of letters sent to him by correspondents during almost half a century (*c.* 1560 until his death in 1609) – even though the extant letters can be but a fraction of those sent to him: there are some 1,200 extant letters written to Clusius by some 330 correspondents in six languages (Latin, French, Italian, German, Spanish and Dutch in order of importance).¹³ Clusius's correspondents lived all over Europe, from England to Hungary and Austria, from Greece and Italy to Poland, and from Spain and Portugal to the Northern Netherlands, France, Germany and Norway. Some were his social equals, but there were also many persons of a higher or lower social position, ranging from ruling princes and the very top of the European aristocracy to diplomats and famous humanists, and from fellow physicians or naturalists to printer-publishers, artists and apothecaries. The better known Clusius became as a leading botanical expert, the more his epistolary contacts proliferated. Since many of Clusius's correspondents had their own epistolary networks of exchange and had access, moreover, to the partly overlapping networks of yet other friends with whom they maintained relations of exchange, it is no exaggeration to claim that he could be in touch, directly or indirectly, with all the then relevant experts on living nature in Europe. That is why the present study is called Clusius's world rather than Clusius's network, and why it does not aim at a network reconstruction in the strict sense of the term.¹⁴

The many, meticulous and usually generous references in Clusius's printed works to his friends and their gifts of plants, animals, information and knowledge are almost as important to the tracing of their expertise and contributions. If the correspondence did not already show us as much, these references by themselves tell us how the expertise of Clusius as an erudite, Latin-writing and publishing naturalist was inextricably linked with that of experts from extremely diverse

backgrounds. As will become clear, the ‘practical experts’ among his friends by no means merely acted as a kind of intellectual servant – carrying information to a scientist who then elevated that information by means of natural philosophy, classification, Latin, jargon, *et cetera* to the higher plane of ‘science’.¹⁵ Although correspondence networks were perhaps equally important to both Clusius and Darwin, Clusius was no Darwin-style scientist who fitted information carried to him by hundreds if not thousands of correspondents together into a grand theory. Cooperation and exchange in Clusius’s world affected the very character of knowledge about living nature.¹⁶ By exploring the expertise of Clusius’s correspondents we will be able to trace which practice-based insights were suggested to Clusius by his partners in exchange and helped to shape his own way of dealing with nature, thereby contributing to the formation of the new scientific discipline of botany.

Pride of Place

The emphasis on the social and cultural construction of knowledge in the new cultural history of science entails paying explicit attention to contextualization and circulation as well as reception or permeation of knowledge. Not only people but also locations – or ‘place’ in the sense of geography, location and setting – have become immediately relevant, therefore. And knowledge is no longer disembodied, as shown in particular by Pamela Smith, but intrinsically linked with the body and the senses.¹⁷ The attention to place, the importance of the body, circulation and reception, and the increasing attention to visual aspects (the latter an important topic which will, however, not be discussed in this book)¹⁸ in the new cultural history of science reflect similar, often earlier, interests in the wider domain of cultural history, which was influenced in the course of the 1980s and 1990s by literary studies and reception theory, visual studies, the history of the body and historical anthropology. With a background in cultural history and historical anthropology rather than in the history of science, for me the focus on place as a crucial element of context is not only linked, therefore, to the new demands of the history of science but also to my earlier research in cultural and microhistory in which one of the recurring questions has been to find out which contexts can be regarded as relevant.¹⁹ But well before that, Richard Cobb’s *A Sense of Place* (1975) and several of his other books were the first historical studies to show me that it is indeed possible to get a historical sense of place and come to know even the not so famous in their setting.²⁰

Place, interpreted as shifting geographies of expertise, to adapt slightly Lissa Roberts’s phrase ‘shifting geographies of skill,’ structures this book.²¹ Moving from one European area and social setting to another, but in each part of Europe always keeping the focus on Clusius’s many friends, we will explore the partic-

ular practices and forms of expertise concerning living nature and the ways in which they were embedded in those settings. The Southern Netherlands – as part of the Habsburg empire closely connected with both Spain and Austria at the time – and Italy receive special emphasis as the core areas of gardening and botanical culture in Europe. From there we will make brief excursions to Austria, Spain and Crete. Subsequently, we move northward along the Atlantic coast to France, England and the Dutch Republic. In each geographical section we will be dealing with a slightly different socio-cultural constellation: court and landed aristocracy in the Southern Netherlands and related Habsburg court circles in Austria and Spain; aristocratic women in the Habsburg countries; princes, aristocrats, members of religious orders and urban professionals in Italy; clergymen, aristocrats, physicians and apothecaries in France; physicians, merchants and apothecaries in the Dutch ports; intellectuals, merchants and other members of the urban elite in the Dutch university town Leiden; aristocrats, merchants, apothecaries and physicians in England.

Two important territories with which Clusius was closely connected play a very minor role in this study: the German-speaking world (i.e. Austria and the German states) and Spain. Vienna and its court-connected nobility figure mainly in the chapters on the Southern Netherlands and on Habsburg women. Spain too, which Clusius visited on an extended journey cum field trip in 1564–5 and with whose expert physicians in Valencia and Seville he established contacts in the course of the 1590s, mainly figures in the chapter on the Southern Netherlands, while the letters of these physicians are incidentally used in other chapters. The reasons are simple. While the letters by Clusius's Iberian correspondents are most interesting in terms of their contents concerning natural history, as shown for instance by Barona and Ramón-Laca, they do not provide enough material to form an image of how a cluster of people was 'making natural history' in Spain during the second half of the sixteenth century.²² Politics and warfare interrupted and impeded exchanges by post between those places where Clusius lived and the Spanish naturalists. As a consequence the correspondence offers us only two, barely connected glimpses which are some forty years apart (the 1560s and around 1600) of a small number of naturalists in Spain who were in contact with Clusius. This problem of interrupted or obstructed contact did not only apply to Clusius, of course. Indeed, the political decisions taken at the time in Spain are to a large extent responsible for the fact that it is still under-represented on the scientific map of Europe for that period.²³ With respect to the German-speaking world the situation is almost the opposite. More literature is available on it than on any other part of Europe in connection with Clusius, while several new publications focus specifically on the connections between Clusius, Austria-Hungary and the German states.²⁴ In the light of that relative abundance, it seemed more important to concentrate here on other parts of Europe.

In the final chapters before the conclusion we step 'out of place', not by leaving a specific setting – here London and Amsterdam – but by looking at those locations as connecting nodes for relations at a local, regional, national, international and even intercontinental level. Rather than providing marked boundaries or enclosing spaces, place and setting should be seen to open up possibilities. Similarly, widening the history of science to a cultural history of knowledge formation, and stepping outside its usual boundaries into the domains of passion, curiosity, collecting and fashion, can lead to unexpected findings, which call for a rethinking of the concept of early modern science itself. But the most relevant act may be the transgression itself of those boundaries, and the rediscovery of the relevance of pleasure and passion to discovery – whether botanical or historical.

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